



# Exploring Awareness of Impacts of Toxic Substances in the Great Lakes Basin: Voices from the Underserved and Underrepresented Communities

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## SUMMARY

There are communities and individuals in the Great Lakes basin who disproportionately bear the negative impacts associated with toxic pollution. The voices of these communities and individuals are usually left out of environmental policy and processes designed to address the impacts of toxic pollution in the Great Lakes. The lack of involvement makes these communities vulnerable to environmental injustices, because of the lack of their representation.

It is these voices that in our report, we call ‘**underserved and underrepresented.**’ The absence of special consideration of the impacts facing people who are underserved and underrepresented weakens the efforts to curb the negative impacts from toxic pollution in the Great Lakes basin.

Environment and Climate Change Canada (ECCC) contracted the Canadian Environmental Law Association (CELA) to assemble an information inventory and undertake a community awareness project with marginalized community members in Canada’s portion of the Great Lakes basin, specifically, to explore awareness of toxic substances and their impacts in some of the basin’s underserved and underrepresented communities. Discussions among the project team resulted in the project being focused on underserved and underrepresented communities, as reflected throughout this report.

The project contract with ECCC listed the following objectives:

‘To engage the services of a contractor with the knowledge and expertise to:

1. conduct an inventory of some existing mechanisms and approaches used to share science, specifically, chemical-related information with marginalized communities.
2. organize and facilitate small focus group discussions with various marginalized community members to engage and collect specific information related to awareness and information needs related to chemical exposure, risk, fish consumption advisories and other chemical-related information.
3. prepare a summary report that describes the approach used to solicit input and a summary of the feedback received from the discussion groups.
4. prepare a presentation to summarize the results of the report and share with stakeholders.’

In order to achieve the objectives of the project, the project team framed our investigation in the following way:

1. How to more effectively share information with underserved and underrepresented communities on chemicals and/or toxics in the Great Lakes and the impacts on people in these communities.
2. How to educate people in such communities on actions they can take to protect themselves from toxic substances.
3. How to improve awareness in such communities on how to participate in the development and implementation of government policies and programs to eliminate or reduce the threat from toxic substances to their communities.

To gather information, the project conducted three focus groups across the basin – Greater Toronto Area, Northern Ontario and Southwestern Ontario. Discussions of the focus groups were guided by three key questions focused on:

- Relationship with the Great Lakes
- Main Concerns with Toxics
- Methods and Approaches to Obtain Information

The prime lesson learned from our experience in this project is the substantial value of going to people in their communities, and listening to and learning from them. This has shaped the recommendations presented in this report. As further consideration is given to the recommendations, it is critical to place emphasis on the need to pursue actions in full partnership right from the beginning stages with people in these communities.

Many of the recommendations here apply to all of us, i.e., academic institutions, government, non-government environmental organizations, industry etc.

## **SUMMARY OF RECOMMENDATIONS**

### ***Next Step:***

**Recommendation 1:** Host additional, recurring focus group sessions to gather information on specific implementation of environmental policies and programs. The participants should be from underserved and underrepresented communities to find jointly with them the best ways to increase awareness of and discuss solutions to improve communication. One topic would be to discuss what resources would be needed for community members to participate in efforts to reduce and eliminate toxic substances in their communities.

### ***Communication and Outreach Tools:***

**Recommendation 2:** Develop outreach tools for future communications that consider the following list of characteristics raised during the focus group discussions. Some of these materials may already be produced and available (including communication materials produced by government departments) but are not easily accessible and available to the public, including people in underserved and underrepresented communities.

The communication materials should:

- Be developed in partnership with the communities they are to be used
- Provide information that is of greatest relevance to the particular community
- Be publicly accessible and easy to locate
- Contain timely up-to-date information
- Present data in a jargon free manner, without acronyms, without use of technical unexplained terms, etc.
- Provide information in a variety of depths to suit the needs of the individual
- Provide information in a range of formats, e.g., hard copies, a range of electronic and non-electronic methods to suit the capacity of the community, graphics, etc.
- Provide materials in a range of languages to suit the needs of the community

- Use interactive types of tools, e.g., maps where people can touch on a specific location to get detailed information on pollution, posted signs on pollution warnings, etc. with QR codes that you can use to access more detailed information, and other digital interfaces
- Include components specially designed for children and youth

**Recommendation 3:** Education on toxics through schools, workplaces, community meetings, etc. was a repeated point of the focus group participants' discussion. As a form of information sharing, education was deemed to be more of a face-to-face activity, and a necessary precursor for community action on toxics. A curriculum specifically for impacted communities on Great Lakes toxics should be developed. Workplace materials should be developed that provide background information on toxics in the community and workplace. Curriculum should have a component for youth and children. Curricula and other materials such as pamphlets should be developed and delivered in collaboration with the impacted communities.

**Recommendation 4:** To carry out recommendations 2 and 3, people should be hired from the underserved and underrepresented communities to help put together information in a way that will be of most relevance and be most effective at reaching people from their communities.

***Action on Toxics in the Great Lakes:***

**Recommendation 5:** We concluded that people from underserved and underrepresented communities should be directly included in decision-making around toxics issues. This must be based on the recognition that people in these communities have a lot of knowledge and experience to share. Therefore, their role should go beyond consultation to direct involvement in decision-making.

The choice of mechanism should always begin with government or industry or non-government environmental organizations or academic institutions conferring with the communities into the mechanisms to be used for involvement, into the nature of the problem or potential problem, and into the goals for what should be achieved through the project or program.

Here are a few suggestions to consider. People from underserved and underrepresented communities should be conferred with to explore additional ideas.

- An advisory board could be set up to address toxic substances in the Great Lakes with focus on impacts on underserved and underrepresented communities. People from underserved and underrepresented communities should be at the core of this board. One of the tools that this board might explore could be significance of and ways to achieve the goals and principles in the GLWQA related to toxic substances, e.g., zero discharge, virtual elimination, prevention, public engagement.
- A pilot project could be carried out by government, or community groups, or an academic organization jointly with underserved and underrepresented communities. A prime purpose of this project would be, for example, to determine best practices, direct participation of community members (such as community advisory groups) in the establishment of

communication guides and implementation advice. The government or any other group sponsoring such events should be responsible for evaluating and follow-up on the recommendations emerging from the pilot project. This evaluation and plan should include members from the underserved and underrepresented communities.

***Challenges for Participation: Financial and Other Matters***

**Recommendation 6:** Financial resources should be provided to ease the burdens and make it possible for potential members to participate fully. Members of these communities should be financially compensated for the time they spend at meetings as well as preparing for meetings. All travel costs should be paid, including making up for lost wages due to missing work, and baby-sitting costs. For example, when we ask them to review or comment or help prepare educational and outreach materials, we should pay them for the time spent on this.

Funding and other support should be provided for members of underserved and underrepresented communities to participate in all phases from development to implementation and delivery of all programs. In some situations resources should be provided to members from underserved and underrepresented communities so they can hire experts to advise them in their work on committees, advisory boards, and projects.

**Recommendation 7:** To engage people from underserved and underrepresented communities we must put a strong emphasis on overcoming such barriers. Some of this can be achieved by putting special considerations into the timing of meetings, etc. and the mechanisms that we use to do work. In all cases the priority must be put on using tools (e.g., electronic systems) that everyone has easy access to and feels comfortable with.

**Recommendation 8:** Academic institutions, government departments, and non-governmental organizations should review financial and administration policies and practices to identify barriers that would impact efforts to reach out, identify and engage members of underserved and underrepresented communities. Our internal operations to process and deliver payments or make financial agreements are often a major challenge for people from underserved and underrepresented communities. These are the kinds of problems we faced when organizing the focus groups for this project. For example, securing confirmation (with electronic signatures or email confirmation) from potential focus group participants who agreed to participate in a focus group caused delays in processing and subsequent delivery of gifts and honorarium to participants. Other examples include the use of legal-size paper, which does not fit many scanners or printers used by participants. In addition, the use of scanners by participants is a serious problem for those who do not have easy access to such equipment.

**Recommendation 9:** Governments should develop or redesign criteria for programs supporting citizen engagement (for example, Great Lakes Protection Initiative) to prioritize having funds go to groups in underserved and underrepresented communities for them to carry out projects. Such funding programs should be developed in cooperation with people from underserved and underrepresented communities to ensure that the program fits their needs.

**Overall Government Commitment**

**Recommendation 10:** The GLWQA and other Great Lakes agreements should be amended by adding to their principles a commitment to pay particular attention to the needs of underserved and underrepresented communities and to eliminate and avoid environmental injustices. Such an item should not just be in the beginning of an agreement, but should be specifically addressed throughout the agreement so decision-makers are guided by this commitment in all programs and actions taken.

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## **PART 1: INTRODUCTION**

Disparities of awareness and access to environmental policies and programs exist among communities in the Great Lakes basin. These communities are the most vulnerable to the impacts of toxic substances. (Jennifer J. Josephs, et al. *Environmental Justice and Great Lakes Areas of Concern: Addressing the Need for More Research*, 2021). Additionally, without the participation of these communities in the development and implementation of pollution prevention efforts the most suitable solutions to administrative projects may not be used.

There are communities and individuals in the Great Lakes basin who disproportionately bear the negative impacts associated with toxic pollution. The voices of these communities and individuals are usually left out of environmental policy and processes designed to address the impacts of toxic pollution in the Great Lakes. It is these voices that in our report we call ‘**underserved and underrepresented**.’<sup>1</sup> The absence of consideration to the impacts facing people who are underserved and underrepresented weakens the efforts to curb the impacts resulting from toxic pollution in the Great Lakes basin.

This situation is often referred to as environmental justice or injustice. The founder of the Environmental Justice Program at the University of Michigan, Paul Mohai, has defined environmental justice as “the right of everyone to a clean, healthy and safe environment in which to live, work, pray and play.” (MLive.com news, *Environmental Injustice and Racism in Michigan: A New Mlive Documentary*, July 28, 2021). In 2018, Ingrid R. G. Waldron explored environmental racism in Canada in her book, titled “There’s Something in the Water” demonstrating the health impacts of pollution on affected communities, including Indigenous and Black communities. In Canada, the focus on environmental racism has resulted in Bill 226 “National Strategy Respecting Environmental Racism and Environmental Justice Act,” which has been undergoing Parliamentary review. (C-226: An Act respecting the development of a national strategy to assess, prevent and address environmental racism and to advance environmental justice).

Within the Great Lakes basin not all communities are exposed to the same amount of toxic substances and not all communities have the same opportunity to participate in the development and implementation of environmental programs. This lack of involvement makes these communities vulnerable to environmental injustices, because of the lack of their representation. Discrimination based upon race, poverty, language, age,

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<sup>1</sup> Use of the term Marginalized Community

Early in the design and planning process, the project team was concerned with the potential bias and stigma associated with the term *marginalized community*. The project team spent a considerable amount of time discussing the issue that individuals would not consider themselves marginalized and therefore such a term would only be considered relevant for the project team. In order to identify potential participants to the project and support engagement throughout the project, the team concluded that the term marginalized was inappropriate and could possibly offend the people we wanted to speak with, creating unwarranted barriers. Through discussion and a literature review, *underrepresented and underserved communities* became our chosen replacement for *marginalized communities*.



disability and gender further expands the basis upon which communities may be underserved and underrepresented throughout the basin.<sup>2</sup>

On the Canadian side, examples include Sarnia, Sudbury, Toronto, and Windsor, which all have communities more at risk and disproportionately exposed to the toxic burden of industrial activities.<sup>3</sup> In the U.S., the City of Flint, Michigan is impacted by widespread lead contamination of drinking water. Another example is the predominantly minority community of southwest Detroit, which is the site of concentrated heavy industry such as chemical facilities, steel production and an oil refinery. Unfortunately, there are many such examples in the Great Lakes basin.

## **PART 2: THE PROJECT**

Environment and Climate Change Canada (ECCC) contracted the Canadian Environmental Law Association (CELA) to assemble an information inventory and undertake a community awareness project with marginalized community members<sup>4</sup> in Canada's portion of the Great Lakes basin, specifically, to explore awareness of toxic substances and their impacts in some of the basin's underserved and underrepresented communities. Discussions among the project team resulted in the project being focused on underserved and underrepresented communities, as reflected throughout this report.

Indigenous communities are not the communities of focus for the contract, but indigenous perspectives and considerations will be included as they arise or are noted in the responses from the focus groups. Government of Canada and ECCC have specific initiatives focused on communications with Indigenous Communities and Environmental Justice efforts are underway at the federal government level.

ECCC was particularly interested in this information about the communities in the Great Lakes to help them in their work under the Great Lakes Water Quality Agreement (GLWQA). Annex 3 of this Agreement identifies the

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<sup>2</sup> See: CELA submission: Proposed Amendments Submitted to the House of Commons Standing Committee on Environment and Sustainable Development on Bill S-5, An Act to Amend the Canadian Environmental Protection Act, 1999, etc., September 2022.

Definition: Vulnerable population means a group of individuals within the Canadian population who, due to greater susceptibility or greater exposure, may be at an increased risk of experiencing adverse health effects from exposure to substances, including, without limiting the generality of the foregoing,

(a) infants, children, or adolescents; (b) women, including pregnant women; (c) seniors; (d) Indigenous peoples; (e) individuals with a pre-existing medical condition; (f) workers who work with a substance, or toxic substance; or (g) those who by reason of their;

i. income; ii. race; iii. colour; iv. gender; v. age; vi. national origin; or vii. geographic location, are subject to a disproportionate potential for exposure to, or potential for disproportionate adverse effects from exposure to, a substance, or toxic substance.

<sup>3</sup> These communities have high poverty rates and experienced large amounts of toxic air pollutant releases. See: PollutionWatch, *An Examination of Pollution and Poverty in the Great Lakes Basin*, 2008.

<sup>4</sup> The project was undertaken jointly by the Canadian Environmental Law Association and Toxics-Free Great Lakes Binational Network, as members of the Extended Subcommittee of Annex 3 (Chemicals of Mutual Concern) under the Great Lakes Water Quality Agreement.

The Project Team is using the terms "underserved and underrepresented" instead of "marginalized" as explained in footnote 1 of this report.

reduction or virtual elimination of chemicals of mutual concern as a major guiding principle of the Canadian and U.S. governments.

Unfortunately, the GLWQA between Canada and the United States does not recognize the need to address threats to underserved and underrepresented communities in the Great Lakes basin. The 2012 GLWQA has an outstanding list of sixteen "principles and approaches" to guide actions under the GLWQA (e.g., precaution, [pollution] prevention, public engagement, virtual elimination, and zero discharge).<sup>5</sup> Throughout the Agreement, the word "public" is referenced with no special attention to vulnerable, underserved or underrepresented communities. However, the concept of environmental injustice is never raised.

The Canada-Ontario Agreement on Great Lakes Water Quality and Ecosystem Health (2021) (COA) follows the GLWQA but goes beyond general "public" in one instance to say that special attention should be paid to "communities that rely on Great Lakes fish as an important nutritional source for their diet" [Annex 2, Result 3, (c)]. COA also has separate annexes for Métis (Annex 12) and for First Nations (Annex 13). For the "public" COA includes Annex 11 "From Awareness to Action." The latter annex focuses on "promoting local community action" and on Great Lakes education. It does not recognize, however, the special situations and needs of some communities as it relates to toxic substances.

## **Purpose and Objectives of the Project**

The project contract with ECCC listed the following objectives:

‘To engage the services of a contractor with the knowledge and expertise to:

1. conduct an inventory of some existing mechanisms and approaches used to share science, specifically, chemical-related information with marginalized communities.
2. organize and facilitate small focus group discussions with various marginalized community members to engage and collect specific information related to awareness and information needs related to chemical exposure, risk, fish consumption advisories and other chemical-related information.
3. prepare a summary report that describes the approach used to solicit input and a summary of the feedback received from the discussion groups.
4. prepare a presentation to summarize the results of the report and share with stakeholders.’

In order to achieve the objectives of the project, the project team framed our investigation in the following way:

1. How to more effectively share information with underserved and underrepresented communities on chemicals and/or toxics in the Great Lakes and the impacts on people in these communities.
2. How to educate people in such communities on actions they can take to protect themselves from toxic substances.

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<sup>5</sup> These principles are stated in Article 2 and referenced in the Annexes of the GLWQA 2012.

3. How to improve awareness in such communities on how to participate in the development and implementation of government policies and programs to eliminate or reduce the threat from toxic substances to their communities.

## **Relevance of the Project – Literature Review**

The project team discussed several challenges and reviewed literature for guidance in decision-making.

An inventory of examples of programs and outreach materials, methods and approaches used to communicate with people that are underserved and underrepresented was compiled as part of this project. The attached inventory is not comprehensive and exhaustive. It has been provided to inform the initial phases of the project specifically informing the project team in its planning, scoping and design of data collection. We focused on selected studies and approaches that identify the unique traits of members of communities that experience elevated risk associated with exposure to toxic substances and identify issues that need to be considered in efforts to reach members of these communities. For example, the article by Stefan Jungcurt, “Who Is Being Left Behind in Canada?” highlighted the challenges associated with the language used to describe communities facing various inequities and its importance “to frame the problem and its solutions.” (Stefan Jungcurt, “Who Is Being Left Behind in Canada?” (Insight. May 13, 2022). Similarly, selected approaches listed in the Appendix A, Table 2 provided examples on different media that have been used by organizations, governments and other agencies to communicate and share information related to toxic substances and their impacts to health and the environment. Due to the limitations of time and resources, we did not attempt to explore if the approaches or outreach products selected were designed to reach members of communities that are underserved and underrepresented.

Information provided in the inventory was critical in the design of the focus groups, used to collect data, and the development of questions used to guide discussions of the focus groups. Beyond the initial planning phase of the project, the inventory of approaches and types of programs, the project team used two examples of outreach signs included in the inventory to stimulate reactions and contributions from focus group participants.<sup>6</sup> No substantial analysis was conducted on the scope and elements of programs and materials presented in the inventory. (See Appendix A - Tables on Studies and Approaches)

### ***Communication and Participation Challenges***

The voices of those who could be most harmed need to be strengthened to stimulate government and industry to take strong protective and preventive actions. Consistent efforts of communication and participation must be maintained amongst all communities and particularly underserved and underrepresented communities to reduce vulnerabilities to toxic pollutants. This project is a preliminary effort to explore and learn how to

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<sup>6</sup> See footnote 8 for explanation of choosing these two signs in the focus groups.

establish more effective communication approaches and methods with these communities in an inclusive manner with the overall outcome to eliminate toxic pollution in the Great Lakes basin.

Community engagement can have positive impacts for individuals and communities. The literature inventory (See: Appendix A) contains research that has shown that this engagement can have positive impacts on health outcomes (F. Ward, *et al.* Engaging Communities in Addressing Air Quality: A Scoping Review. 2020). Communities may also have improved mental health outcomes and greater neighbourhood solidarity because of community engagement. Various types of engagement exist including citizen science, assessments and surveys, education and training, policy and program development and implementation review.

The literature inventory contains references about multiple engagement challenges. These approaches include:

- Insufficient and inadequate communication
- Using technical jargon and communicating scientific information that is a challenge to engaging communities (E. Symanski, *et al.* Metal Air Pollution Partnerships: Building an Academic-Government-Community-Industry Collaboration to Improve Air Quality and Health in Environmental Justice Communities in Houston, April 2020)
- Insufficient time and capacity for members of communities to be involved in engagement activities.
- Lack of access to the internet and digital equipment for some members of the community.
- Lack of confidence in ability to participate or contribute may also exist for potential participants.
- Lack of sufficient time for study coordinators or researchers is another challenge.
- Lack of trust and scepticism of engagement processes or materials made available in the public domain may limit or hinder further engagement.

“Community engagement” involving a public agency is defined, generally, in the literature “as the process of working collaboratively with and through groups of people affiliated with geographic proximity, special interest or similar situations to address issues affecting the well-being of the entire group.” (California Department of Public Health, *Engaging Communities for Health Equity and Environmental Justice A Guide for Public Agencies*, 2021).

The literature inventory contains references about community engagement best practices but specific models for establishing collaborations with underrepresented and underserved communities focussed on toxics reduction and prevention in the Great Lakes basin are not found. In general terms, best practices of community engagement or collaboration are referenced, such as how meaningful community engagement requires building a communications plan, engaging community leaders, spending time listening to community members and creating pathways for sustained engagement such as community advisory bodies. (See, F. Ward, *et al.* and E. Symanski, *et al.*, respectively).

“Engagement organizing” is a term used to describe non-governmental community-based campaign organizing that combines grassroots, face-to face communication with digital tools and data. (*M. Price, Engagement Organizing The Old Art and New Science of Winning Campaigns*). In general terms, such as “networking”, “awareness campaign”, face-to face discussions, using “apps” and their communities taking action to reduce toxics, engagement organizing was favoured amongst some participants and was included in the literature inventory.

## **Focus Groups and Why Use Them?**

The definition of a focus group used by the project was, “A focus group is a research method that brings together a small group of people to answer questions in a moderated setting. The group is chosen due to predefined demographic traits, and the questions are designed to shed light on a topic of interest.” (Scribbr, *What is a Focus Group/Step-by-Step Guide and Examples*, <https://www.scribbr.com/methodology/focus-group/>).

The use of focus groups offers some advantages over other approaches to gathering information. For example, with limited resources focus groups can be an efficient method of gathering information in a short period of time. Surveys, polling, or interviews can be more expensive without gathering as much information. Information from focus groups is not just the comments of the individual participants but can also be the information from the group’s interaction and information about the interaction itself (W.A. Kellogg, *et al. The Use of Focus Groups for Design and Implementation of Collaborative Environmental Administrative Programs: A Comparison of Two State-Level Processes in Ohio*. 2007).

The focus group approach highlights that the project team and facilitators are there to listen and learn from the focus group participants – to be question askers but not to be presenters or responders. Our project team, including the facilitators, were there to listen and learn from the invited attendees. This proved to be a very satisfying approach. It was excellent for us to hear all attendees speak in very personal and specific ways from their experience and life histories. For the project team, the process of simply listening and learning from the attendees was immensely stimulating and satisfying.

### ***About Our Focus Groups***

Three regional focus groups across Ontario were formed, including in the Greater Toronto Area (GTA), Northern Ontario and Southwestern Ontario. The total number of participants was eighteen. Five participants attended the GTA focus group, seven participants attended the Northern Ontario focus group, and six participants attended the Southwestern Ontario focus group. Each session was ninety minutes long. The GTA session was May 16<sup>th</sup>, 1:00pm-2:30pm; Northern Ontario was May 17<sup>th</sup>, 6:30pm-8:00pm and Southwestern Ontario was May 18<sup>th</sup>, 5:00pm-6:30pm.

### ***Criteria for Participation***

1. All participants were from communities underrepresented in and underserved by environmental programs. We strived for diversity within each focus group.
2. Participants did not need to have special previous knowledge on toxic substances or the Great Lakes.

3. Focus group leaders ensured that the participants were provided a respectful space to participate effectively in the discussions, ensure all participants got a chance to speak, and monitor the time and response to questions to be allowed for perspectives on questions to be gathered.

### ***Focus Group Participants***

Participants in the focus groups included people from a range of cultures and background, including people from:

- different race and cultural background,
- lower economic circumstances including those involved low paying or precarious work,
- urban and rural areas, and
- different age groups, including youth who are considered between the age of 15 to 24 years of age.<sup>7</sup>

We did not coordinate a focus group directly on the youth participation but each group had a mixture of participant categories above.

### ***Questions Asked in Focus Groups***

1. **Relationship with the Great Lakes** – What is your relationship with the waters in the Great Lakes basin? Do you feel connected? In what ways? If not, why not?
2. **Main Concerns with Toxics** – What are your main concerns associated with toxic substances and the Great Lakes? What comes to mind when you hear toxic?
3. **Methods and Approaches to Obtain Information** - What methods and approaches are used by participants to gather information? What approach or method works or does not work? Where do they obtain information? Who do participants trust for information? Who do they not trust for information? What information do they rely on? (When some examples, *Figures 1 and 2*,<sup>8</sup> of outreach materials were shown to participants, the following questions were asked): Would your community stop and read this? Would it grab their attention? What message do they get from each example? Do any of these messages offend or turn off your community? What would stimulate action from your community – at the decision level? If not, what would your community need to stimulate action?
4. **Other Comments** - Anything else you would like to say about the topic before we sign-off?

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<sup>7</sup> United Nations defines 'youth' as those persons between the ages of 15 and 24 years. See: <https://www.un.org/en/global-issues/youth#:~:text=There%20is%20no%20universally%20agreed,of%2015%20and%2024%20years.>

<sup>8</sup> We chose examples of two signage reflecting the main topics, i.e., to warn people not to go into the water here or to eat fish from a particular place. The signs are shown as Figures 1 and 2 of this report.

### ***Some Challenges in Doing Focus Groups***

Number of participants in the focus groups, virtual or face-to-face focus groups, original use of “marginalized community” term and difficulties in garnering participation in focus groups were some of the challenges faced by the project team. Based upon discussions of the project team and a literature review, five to seven participants per focus group was deemed to be ideal. Virtual sessions were chosen given the time and financial constraints and the size of the regions involved. Access to technology for the participants was an ongoing concern although face-to-face meetings also would have been potentially onerous for participants, specifically the cost of transportation and time constraints. The organizing group assessed possible language translation needs of potential participants which could have significant impacts to the project budget. How to maintain confidentiality of participants’ personal information and identity throughout the project was also a major concern. Small honorariums were given to participants not simply as an inducement, but as an acknowledgement that we valued participants’ efforts and commitment to this project.

The organizing group and project team were responsive to the challenges that emerged during the project, and, where needed, modified internal operations to address the needs of the focus group participants. Some potential participants faced several challenges surrounding their participation in the focus groups, particularly with respect to the level of formal details required to participate, such as providing personal information and signing of a letter of participation with the organizing body. The project team expected the level of formal documentation to be a hindrance for some potential participants. As a result, focus group leaders were required to recruit more potential participants than originally expected, while the organizing group made substantial changes in its operational process to address the challenges to secure engagement from individuals in these communities. For example, providing opportunities to confirm engagement through the body of the email (rather than securing formal signatures for letters of participation), delivery of gift cards for their personal use in advance of focus group discussions and assessing translation services for potential participants to use. Focus group leaders and project co-leaders had built strong community connections over many years, and this was key to the strength of outreach for potential focus group participants. Some participants seemed to be initially shy but became more engaged in the discussion as it continued through ninety minutes. Unexpectedly, issues arose for internal administration to test and create flexibility to address these challenges - posing a challenge between maintaining financial accountability and ensuring adequate funds are provided to secure the participation of our focus group participants. The project has revealed important lessons for organizations interested in expanding efforts to reach and engage individuals and communities that are underserved and underrepresented. Substantial discussions should be undertaken within organizations to assess and design projects that are not administratively burdensome to participants and ensure internal reporting and financial accountability mechanisms are maintained, but do not interfere with the ability of participants to engage.

## **PART 3: KEY FINDINGS**

Summaries of each focus group discussions is available in Appendix B of this report.

There was overwhelming agreement from the focus groups discussions acknowledging the threat of toxic substances to the Great Lakes basin environment and, specifically, their communities. Additionally, themes or patterns of agreement emerged within and between the focus groups providing some revelations about the objectives of this project, including:

- participants believed toxics were pervasive in waters of the Great Lakes basin.
- participants had a variety of passive and active connections to the Great Lakes.
- toxics and the fear of toxics curtailed the use of the Great Lakes for some participants.
- impacts of toxics on human health and wildlife were a concern of most participants.
- a variety of sources of information are trusted by the participants.
- scepticism of some engagement processes was expressed by some participants.
- criticism of government efforts to control and eliminate toxics in communities was expressed by many participants.
- an expectation that toxics in the environment can be reduced by government, communities and individuals was expressed by participants.
- community participation in information sharing and organized community action to reduce toxics was supported by participants.

### **Relationship with the Great Lakes**

Focus group participants' relationship with the waters of the Great Lakes varied by region and time. Participants in the GTA group experienced the waters of the Great Lakes visually and brought their children to see fish and bird species. However, some participants reported seeing water pollution while visiting the lakes creating a feeling that the waters of the basin are unsafe, "I haven't gotten into the water because [of] scepticism. They say it can be toxic at times."

Participants in the Northern Ontario and Southwestern Ontario groups had fond memories of their experiences with swimming and fishing in the waters of the Great Lakes. The connection to the waters went beyond the senses and included a spiritual connection for some participants - "also spiritually, we gather around the water a lot ... the Great Lakes are [a] really important part of my family, my culture and my community." For some participants the lakes are a healing space and a source of storytelling within their community, "water is medicine ... the water is something we go to when we need healing, when we need support ... water is women's medicine."



## **Main Concerns with Toxics**

Within all the groups there were participants who expressed fear of the waters of the basin due to the existence of chemical contaminants, “What comes to mind when I hear toxic? Getting sick and not sure if it’s going to have a big impact or a small impact or if it’s going to be lethal – it’s actually kind of scary.” Another participant stated, “when it comes to the Great Lakes it’s the food chain, it’s the fish, it’s the water quality ... it’s continual, there’s no end to it ... you can start one spot, but it [toxics] spreads everywhere else.” Fear of the potential impact of toxic contamination was an inducement to limit or alter the use of the basin’s waters amongst many of the participants. For example, one participant had a fishing license for years but never went fishing based on the uncertainty of the safety of consuming the catch.

In addition to chemical contaminants, participants raised concerns about sewage overflows and invasive species. Participants also raised concerns about the ability of future generations to use the lakes, “When I think of toxic, I think of e. coli and I think of also invasive species like phragmites ... and the fish, you see a difference in the fish ... my main concern is for my kids and future generations. When I think about toxic, I think about us, we are the toxic. We are the ones messing everything up.” Sources of toxic pollution were also a specific concern, including industrial, nuclear, and agricultural sources: “toxics get into there [St. Clair River] because of the [industrial] plants.” Another participant stated, “We live near Algoma Steel [St. Mary’s River] which has had a few major spills, so that is a big concern,” and “safety around corporations and regulations and how they handle things because those are big volumes of toxins going into the lakes.” Speaking of concerns about radionuclides and thermal pollution another participant stated, “around that area [Pickering nuclear plant] the water is very hot ... fishes around the area don’t live ... we personally experienced it.” Another participant speaking about toxics discharging into the lakes stated that “it’s super concerning ... it makes me angry because we are supposed to be protecting that resource for the next seven generations.”

The impacts of toxics on the local economy, primary industries such as fishing, human health, especially children’s health were concerns of many participants throughout all the focus groups. Toxic pollution impacts on nonhuman species were also a concern for many participants. “We do know that the contamination level of mercury in Lake Superior is super high ... you see it in the invasive species, in the depletion of fish species ...” Another participant stated, “people have cancer a lot and have problems with health ... hopefully the government can do something with the water and the chemicals.”

## **Methods and Approaches to Obtain Information**

A wide variety of techniques to acquire and share information were provided by the participants. In addition to a wide variety of techniques, there were diverse examples expressed within the focus groups about the best methods to share information.

Inadequate and insufficient communication were both cited by participants in the focus groups. One participant noted with frustration that information on toxics was not easy to locate, “websites have to be

easier to find.” Some participants reacted to this communication deficiency with potential community-based responses, as one participant explained, “I believe we should put the word out, inform the uninformed about what is happening ... start making people aware by doing rallies, going to their place to help wherever it is needed.” Another participant stated, “I want [information] to know how and what I can do to help make the water better for everyone.”

Some participants thought that non-governmental organizations were a trusted source of information. A participant stated, “we would want people that are passionate about taking care of the environment,” while another expressed trust with information disseminated from a “support group like this [CELA, TFGLBN]”. Individual authority figures such as elected officials and police and fire services were viewed as a source of information. Family, friends, and business clients were also cited as a method for participants to gain information about toxics. One participant stated, “a couple lakes in our area we just know through inherent knowledge that’s been passed down that you don’t swim in that lake ... you don’t eat the fish from that lake”. Government information, specifically public health notices, were also cited as a source of information by several participants. For example, “a combination of what’s out there in the media, through MNR, public health releases, municipalities themselves, sharing reports of swimmers’ itch in the water ... “ The spill alert and emergency alert system were cited by Southwestern Ontario participants. Mainstream and social media were also mentioned as sources of information. Finally, academic-cited sources were mentioned as a source of information.

Technology and digital sources of information were cited by many participants as a means of both acquiring and sharing information. Two signage examples used to inform the public were provided by focus group leaders. These were viewed by the focus group attendees as helpful, but insufficient. [See Figures 1 and 2]. One participant stated, “I feel the signs can be effective, but at the same time there are a lot of isolated beaches and bodies of water ... people don’t place the signs there.” The limits of signage were the lack of coverage of large areas and remote lakes, including areas of abandoned mines and mine waste in the North and the inability of children to fully understand the implication of the signage. Some participants proposed the use of apps to enhance the message of signage while others mentioned that digital sources should be enhanced by more traditional methods of information sharing such as pamphlets and face-to-face education efforts: “I think an app would probably be more practical.”

Each focus group was scheduled for an hour and a half. In each of the focus group, a considerable amount of time was spent on discussing their concerns with information access, and content and style of the messages. We did not have time, however, to have a discussion focused on having the participants talk through and come up with recommendations for solutions to the messaging problems they are experiencing. Our recommendations suggest some ways that the detail for solutions could be developed in conversation with underserved and underrepresented communities.



Figure 1: [https://ca.images.search.yahoo.com/yhs/search?p=warning+fish+contaminated+do+not+eat+sign&fr=yhs-tro-freshy&type=Y219\\_F163\\_204671\\_102220&hspart=tro&hsimp=yhs-freshy&imgurl=http%3A%2F%2Fwww.estuarypartnership.org%2Fsites%2Fdefault%2Ffiles%2Fdo-not-eat-fish-sign.jpg#id=1&iurl=http%3A%2F%2Fwww.estuarypartnership.org%2Fsites%2Fdefault%2Ffiles%2Fdo-not-eat-fish-sign.jpg&action=click](https://ca.images.search.yahoo.com/yhs/search?p=warning+fish+contaminated+do+not+eat+sign&fr=yhs-tro-freshy&type=Y219_F163_204671_102220&hspart=tro&hsimp=yhs-freshy&imgurl=http%3A%2F%2Fwww.estuarypartnership.org%2Fsites%2Fdefault%2Ffiles%2Fdo-not-eat-fish-sign.jpg#id=1&iurl=http%3A%2F%2Fwww.estuarypartnership.org%2Fsites%2Fdefault%2Ffiles%2Fdo-not-eat-fish-sign.jpg&action=click)



Figure 2: <https://www.geograph.org.uk/photo/3084819>

## **Other Comments**

Focus group discussions related to the toxic chemical topic resulted in widespread discontent with government efforts to keep industry/corporations under control to reduce and eliminate toxics in the basin. One participant stated, “in every way it [chemicals management] needs to be fixed ... everything is connected ... it’s just one big mess.” Similarly, another participant stated that “in 2023 toxic substance existence in the waters is not acceptable...” However, it was also the expectation of participants that government and corporations must do better. “The employer should not dump their waste into the waters ... the duty to protect people, it’s their [employers] particular obligation to hold paramount safety, health and welfare of the people,” said another participant. The means by which this expectation could take place to reduce toxic pollution varied according to the participants. Various types of enforcement actions, education efforts, and community level organizing were popular activities discussed by participants. “Create a system that has law, and has teeth to hold these people [employers] accountable because this is how you going to prevent the system from breaking down,” said a participant.

Stricter permits and penalties for toxic releases by industry and more inspections of workplaces handling or producing toxic substances were some of the ideas offered by participants. One participant noted that she would do more, “maybe if I were forced to” and “more in your face policy ... would be helpful.” Several participants mentioned the need for greater educational efforts focussed on schools and workplaces. More publicly accessible information, both digital and traditional (pamphlets), to increase public knowledge and discussion of this issue was mentioned by some participants.

A range of substances were described as toxic by the participants in the focus groups. Mercury, farm chemicals (in general), e coli and invasive species such as phragmites and zebra mussels were mentioned during the discussion of toxics: “we do know the contamination level of mercury in Lake Superior is super high”, “When I think of toxic, I think of e coli and I think of also invasive species like phragmites ...”

More and better government regulation was viewed by some participants as the end goal of community organizing on this issue. Others believed that government alone could not be trusted or expected to improve the system, thus requiring more individual and organized community efforts to reduce toxic pollution. One participant pointed to the need for federal authorities to be in sync with local communities to gain broader support for action plans: “As long as you have people understanding what the plan is at the local level and what the plan is at the federal level, you can have more buy-in.”

One participant expressed the point that “It would be nice to have a preventative plan instead of a responsive plan. We know that we have to protect the waters prior to something happening where we can no longer use those waters.” Expectations expressed about communication and information sharing amongst community members indicated that it was clearly an important prerequisite to stimulate action to reduce toxic pollutants in the community.

## **PART 4: RECOMMENDATIONS**

The objective of this project was to learn from people in underserved and underrepresented communities their experience as a means to improve communications of chemical-related information to raise awareness. The challenges they encounter were also described as well as concerns about lack of strong enough action to remove and avoid the problems from toxics that they experience.

The project's objective was to learn directly from those experiencing impacts from the toxics in the Great Lakes who are from communities who are underserved and underrepresented because of characteristics that include but not limited to race, poverty, language, age, disability and gender. This means people living in these circumstances have less access and available resources to protect themselves than others in our society. We chose to call these people the "underserved" meaning less protected from toxic activities, etc., and "underrepresented" meaning having little to no access to influence the decision-making processes on matters relating to how toxic substances will be addressed and avoided. These are people who experience or are subjected to environmental injustices.

The prime lesson learned from our experience in this project is the substantial value of going to people in their communities, and listening to and learning from them. This approach, of course, requires substantial resources but the issue is so significant that it is important that allocation of these funds be given high priority. Of course, then the emerging challenge to address will be to go beyond listening and learning to acting in response to what we learn and to including people from these communities in the decision-making on matters affecting them.

Developing the needed relationships of mutual respect, trust and partnership takes time and consistency. These recommendations are initial ideas to explore further. These actions must be developed in full partnership with people in the community from the beginning stages.

The one-and-a-half hour sessions that we held gave us an opportunity to explore the problems, but not enough time to explore with them the solutions. For example, the report lists issues around information, but we did not have time to explore with the focus groups the solutions needed to communicate with the communities, how to share information with them as well as to learn from the information they have gathered through their experiences. We return to this issue in the recommendations below.

The lessons learned and thus many of the recommendations here apply to all of us, i.e., government, non-government environmental organizations, industry, academic institutions, etc. As a result, we sometimes use the word "we" in the recommendations.

### ***Next Step:***

This project focused on learning about the problems and the issues around communication as experienced by the underserved and underrepresented. We now should spend time in these communities exploring with them the solutions to the problems they are experiencing, and coming to agreement with them both in terms of solutions and processes.

**Recommendation 1:** Host additional, recurring focus group sessions to gather information on specific implementation of environmental policies and programs. The participants should be from underserved and underrepresented communities to find jointly with them the best ways to increase awareness of and discuss solutions to improve communication. One topic would be to discuss what resources would be needed for community members to participate in efforts to reduce and eliminate toxic substances in their communities.

***Communication and Outreach Tools:***

During the focus groups, many examples of types of communication tools and associated problems were shared. This led to suggestions for the characteristics that the current and future communication tools should have.

**Recommendation 2:** Develop outreach tools for future communications that consider the following list of characteristics raised during the focus group discussions. Some of these materials may already be produced and available (including communication materials produced by government departments) but are not easily accessible and available to the public, including people in underserved and underrepresented communities.

The communication materials should:

- Be developed in partnership with the communities they are to be used
- Provide information that is of greatest relevance to the particular community
- Be publicly accessible and easy to locate
- Contain timely up-to-date information
- Present data in a jargon free manner, without acronyms, without use of technical unexplained terms, etc.
- Provide information in a variety of depths to suit the needs of the individual
- Provide information in a range of formats, e.g., hard copies, a range of electronic and non-electronic methods to suit the capacity of the community, graphics, etc.
- Provide materials in a range of languages to suit the needs of the community
- Use interactive types of tools, e.g., maps where people can touch on a specific location to get detailed information on pollution, posted signs on pollution warnings, etc. with QR codes that you can use to access more detailed information, and other digital interfaces
- Include components specially designed for children and youth

**Recommendation 3:** Education on toxics through schools, workplaces, community meetings, etc. was a repeated point of the focus group participants' discussion. As a form of information sharing, education was deemed to be more of a face-to-face activity, and a necessary precursor for community action on toxics. A curriculum specifically for impacted communities on Great Lakes toxics should be developed. Workplace materials should be developed that provide background information on toxics in the community and workplace. Curriculum should have a component for youth and children. Curricula and other materials such as pamphlets should be developed and delivered in collaboration with the impacted communities.

**Recommendation 4:** To carry out recommendations 2 and 3, people should be hired from the underserved and underrepresented communities to help put together information in a way that will be of most relevance and be most effective at reaching people from their communities.

***Action on Toxics in the Great Lakes:***

During the focus groups, the participants spoke of substantial need for strong action to protect their communities from toxics. Very strong feelings were expressed of having been let down by government and by industries. We did not have time in these 90-minute sessions to explore the mechanisms for doing this.

**Recommendation 5:** We concluded that people from underserved and underrepresented communities should be directly included in decision-making around toxics issues. This must be based on the recognition that people in these communities have a lot of knowledge and experience to share. Therefore, their role should go beyond consultation to direct involvement in decision-making.

The choice of mechanism should always begin with government or industry or non-government environmental organizations or academic institutions conferring with the communities into the mechanisms to be used for involvement, into the nature of the problem or potential problem, and into the goals for what should be achieved through the project or program.

Here are a few suggestions to consider. People from underserved and underrepresented communities should be conferred with to explore additional ideas.

- An advisory board could be set up to address toxic substances in the Great Lakes with focus on impacts on underserved and underrepresented communities. People from underserved and underrepresented communities should be at the core of this board. One of the tools that this board might explore could be significance of and ways to achieve the goals and principles in the GLWQA related to toxic substances, e.g., zero discharge, virtual elimination, prevention, public engagement.
- A pilot project could be carried out by government, or community groups, or an academic organization jointly with underserved and underrepresented communities. A prime purpose of this project would be, for example, to determine best practices, direct participation of community members (such as community advisory groups) in the establishment of communication guides and implementation advice. The government or any other group sponsoring such events should be responsible for evaluating and follow-up on the recommendations emerging from the pilot project. This evaluation and plan should include members from the underserved and underrepresented communities.

***Challenges for Participation: Financial and Other Matters***

Participating in these processes can be a substantial challenge and burden for people from underserved and underrepresented communities. A few examples of this are: lack of access to high-powered internet or electronic equipment, special challenges related to getting to meetings, work situation, e.g., part-time or multiple jobs leading to limited time availability and to erratic schedules, etc.

**Recommendation 6:** Financial resources should be provided to ease the burdens and make it possible for potential members to participate fully. Members of these communities should be financially compensated for the time they spend at meetings as well as preparing for meetings. All travel costs should be paid, including making up for lost wages due to missing work, and baby-sitting costs. For example, when we ask them to

review or comment or help prepare educational and outreach materials, we should pay them for the time spent on this.

Funding and other support should be provided for members of underserved and underrepresented communities to participate in all phases from development to implementation and delivery of all programs. In some situations resources should be provided to members from underserved and underrepresented communities so they can hire experts to advise them in their work on committees, advisory boards, and projects.

**Recommendation 7:** To engage people from underserved and underrepresented communities we must put a strong emphasis on overcoming such barriers. Some of this can be achieved by putting special considerations into the timing of meetings, etc. and the mechanisms that we use to do work. In all cases the priority must be put on using tools (e.g., electronic systems) that everyone has easy access to and feels comfortable with.

**Recommendation 8:** Academic institutions, government departments, and non-governmental organizations should review financial and administration policies and practices to identify barriers that would impact efforts to reach out, identify and engage members of underserved and underrepresented communities. Our internal operations to process and deliver payments or make financial agreements are often a major challenge for people from underserved and underrepresented communities. These are the kinds of problems we faced when organizing the focus groups for this project. For example, securing confirmation (with electronic signatures or email confirmation) from potential focus group participants who agreed to participate in a focus group caused delays in processing and subsequent delivery of gifts and honorarium to participants. Other examples include the use of legal-size paper, which does not fit many scanners or printers used by participants. In addition, the use of scanners by participants is a serious problem for those who do not have easy access to such equipment.

**Recommendation 9:** Governments should develop or redesign criteria for programs supporting citizen engagement (for example, Great Lakes Protection Initiative) to prioritize having funds go to groups in underserved and underrepresented communities for them to carry out projects. Such funding programs should be developed in cooperation with people from underserved and underrepresented communities to ensure that the program fits their needs.

***Overall Government Commitment:***

**Recommendation 10:** The GLWQA and other Great Lakes agreements should be amended by adding to their principles a commitment to pay particular attention to the needs of underserved and underrepresented communities and to eliminate and avoid environmental injustices. Such an item should not just be in the beginning of an agreement, but should be specifically addressed throughout the agreement so decision-makers are guided by this commitment in all programs and actions taken.



## **ACKNOWLEDGEMENTS**

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Cover page photo of Brighton Beach Power Plant, Windsor ON courtesy of Citizens Environment Alliance, 2011.

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## **APPENDIX A – Tables on Studies and Approaches**

The project team compiled an inventory of examples of programs and outreach materials and approaches focused on people that are underserved and underrepresented. The two attached inventories are not comprehensive and exhaustive. They have been compiled to inform the initial phases of the project, specifically informing the project team in its planning, scoping and design of data collection. The consideration of information provided in the inventory was critical in the design of the focus groups, used to collect data, and the development of questions used to guide discussions of the focus groups. Only a limited analysis was conducted on the scope and elements of programs and materials presented in the inventory.

Table 1: Studies

Some studies to increase awareness on toxics and the Great Lakes (revised as of August 10, 2023)				
Type/Category (e.g. Articles, Reports, maps, Fact sheet, Social Media, Print (e.g graphics), etc.)	Description/Title:	Production or promotion by: NGO, private, Government	Link or graphics	Additional Notes:
Academic Journal	Environmental Justice and Great Lakes Areas of Concern: Addressing the Need for More Research	Jennifer J. Josephs, Thomas P. Hollenhorst, Molly J. Wick, and Ted R. Angradi (2021) Environmental Justice 14,5, 315-321.	<a href="https://www.researchgate.net/publication/354832140_Environmental_Justice_and_Great_Lakes_Areas_of_Concern_Addressing_the_Need_for_More_Research">https://www.researchgate.net/publication/354832140_Environmental_Justice_and_Great_Lakes_Areas_of_Concern_Addressing_the_Need_for_More_Research</a>	
Academic Journal	COMMENTARY: The Use of Focus Groups for Design and Implementation of Collaborative Environmental Administrative Programs: A Comparison of Two State-Level Processes in Ohio.	Kellogg, W. A., O'Brien, K., Robey, C., & Toth, K. (January 01, 2007). Environmental Practice, 9, 3, 166-178.	<a href="https://engagedscholarship.csuohio.edu/cgi/viewcontent.cgi?article=1063&amp;context=urban_facpub">https://engagedscholarship.csuohio.edu/cgi/viewcontent.cgi?article=1063&amp;context=urban_facpub</a>	
Guide	Engaging Communities for Health Equity and Environmental Justice A Guide for Public Agencies	California Department of Public Health, 2021		
Guide	What is a Focus Group   Step-by-Step Guide & Examples. For Scribbr. by George, T. (2023, June 22).	Scribbr	<a href="https://www.scribbr.com/methodology/focus-group/">https://www.scribbr.com/methodology/focus-group/</a>	
Report	An Examination of Pollution and Poverty in the Great Lakes Basin	PollutionWatch, 2008	<a href="https://cela.ca/wp-content/uploads/2019/07/633_PW_SE_Study.pdf">https://cela.ca/wp-content/uploads/2019/07/633_PW_SE_Study.pdf</a>	

<b>Some studies to increase awareness on toxics and the Great Lakes (revised as of August 10, 2023)</b>				
<b>Type/Category (e.g. Articles, Reports, maps, Fact sheet, Social Media, Print (e.g graphics), etc.)</b>	<b>Description/Title:</b>	<b>Production or promotion by: NGO, private, Government</b>	<b>Link or graphics</b>	<b>Additional Notes:</b>
Media	Robert Bullard: 'Environmental justice isn't just slang, it's real',	Oliver Milman, in <i>The Guardian</i> , December 20, 2018	<a href="https://www.theguardian.com/commentisfree/2018/dec/20/robert-bullard-interview-environmental-justice-civil-rights-movement">https://www.theguardian.com/commentisfree/2018/dec/20/robert-bullard-interview-environmental-justice-civil-rights-movement</a>	
Legislation	C-226: An Act respecting the development of a national strategy to assess, prevent and address environmental racism and to advance environmental justice.	Government of Canada	<a href="https://www.parl.ca/legisinfo/en/bill/44-1/c-226">https://www.parl.ca/legisinfo/en/bill/44-1/c-226</a>	
Report	Great Lakes Revival Strategy	Burkhard Mausberg	Not published - Burkhard Mausberg, Great Lakes Revival Strategy - Final - July 2019	Study of Great Lakes messaging including analysis of how Great Lakes covered by media and social media, assessment of messages that did and didn't work, emphasis on need to reach ethnic media as well as youth. Failure of public to identify with the Great Lakes.
Article	Engaging Marginalized Communities: Challenges & Best Practices	IICMA	<a href="https://icma.org/articles/pm-magazine/engaging-marginalized-communities-challenges-and-best-practices">https://icma.org/articles/pm-magazine/engaging-marginalized-communities-challenges-and-best-practices</a>	What municipalities need to do to engage marginalized communities. Must understand, promote inclusion, listening and diverse approaches to engagement - MUST overcome hurdles from prior engagement with marginalized communities.
Article	Climate Action Isn't Reaching the Most Vulnerable - But it Could	World Resources Institute - David Waskow - Nov 2021	<a href="https://www.wri.org/insights/how-climate-action-">https://www.wri.org/insights/how-climate-action-</a>	Shows seven steps that must be used including planning steps. Stop making policies that ignore the most vulnerable

<b>Some studies to increase awareness on toxics and the Great Lakes (revised as of August 10, 2023)</b>				
<b>Type/Category (e.g. Articles, Reports, maps, Fact sheet, Social Media, Print (e.g graphics), etc.)</b>	<b>Description/Title:</b>	<b>Production or promotion by: NGO, private, Government</b>	<b>Link or graphics</b>	<b>Additional Notes:</b>
			<a href="#">can-help-vulnerable-populations</a>	
Article	Engaging communities in addressing air quality: a scoping review" in Environmental Health, #82, 2022	Fiona Ward <i>et al.</i>	<a href="https://ehjournal.biomedcentral.com/articles/10.1186/s12940-022-00896-2">https://ehjournal.biomedcentral.com/articles/10.1186/s12940-022-00896-2</a>	Excellent compilation of 39 studies looking at approaches to engaging communities, including citizen science, engagement of communities as collaborators in environmental & health studies, education & training, policy & development
Book	Engagement Organizing the Old Art and New Science of Winning Campaigns	Matt Price	On Point Press	This book explores the traditions and practices of organizing and how to marry these with digital communication tools to scale up campaigns and win. Over a dozen case studies included.
Academic - journal	Racial disparities in pollution exposure and employment at US industrial facilities by Michael Asha and James K. Boyce. Proc Natl Acad Sci U S A. 2018 Oct 16; 115(42): 10636–10641.	Published in Proceedings of the National Academy of Sciences of the United States of America	<a href="https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6196500/">https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6196500/</a>	Using public pollution inventory and adding consideration of distribution of racialized and marginalized populations demonstrates the inequities facing such groups from pollution releases and transfer and also at the economic level.
International governmental agency	Vulnerable groups and toxic exposures Special Rapporteur on toxics and human rights	United Nations Human Rights, Office of the High Commission	<a href="https://www.ohchr.org/en/special-procedures/sr-toxics-and-human-rights/vulnerable-groups-and-toxic-exposures">https://www.ohchr.org/en/special-procedures/sr-toxics-and-human-rights/vulnerable-groups-and-toxic-exposures</a>	highlighting toxic pollution and waste specific to Indigenous communities and the inequality in response by government(s) to these challenges. The findings from this report has been used to highlight the need to highlight the inequities facing specific groups, particularly Indigenous communities.

<b>Some studies to increase awareness on toxics and the Great Lakes (revised as of August 10, 2023)</b>				
<b>Type/Category (e.g. Articles, Reports, maps, Fact sheet, Social Media, Print (e.g graphics), etc.)</b>	<b>Description/Title:</b>	<b>Production or promotion by: NGO, private, Government</b>	<b>Link or graphics</b>	<b>Additional Notes:</b>
Social media - youtube	Environmental Justice: Peggy Shepard at TEDxHarlem		<a href="https://www.youtube.com/watch?v=zJX_MXaXbJA">https://www.youtube.com/watch?v=zJX_MXaXbJA</a>	Specific focus on "sacrifice zones" . Impact of Tedex talks depends on who attends and watches TEDEX. Focus on action - importance of environmental justice and what it means to mobilize community and promote awareness on the issues. This talk use science and research and technology to build strong evidence to demonstrate need for action and influence policy makers . Resulted in legal suit to fix the local plant
Social media - youtube	A Brief History of Environmental Justice	Propublica	<a href="https://www.youtube.com/watch?v=30xLg2HHg8Q">https://www.youtube.com/watch?v=30xLg2HHg8Q</a>	Relevance of environmental justice and need for action to address challenges faced by environmental pollution.
Non-governmental postings	See: Lipstick Day July 28, 2021, Toxic Exposure as example	Canadian Network on Health and the Environment in Foundation of Resilient Health	<a href="https://resilient-health.ca/cnhhe/">https://resilient-health.ca/cnhhe/</a>	See: Links to pages "Learn" and "Act"
Academic Journal	Metal air pollution partnership solutions: building an academic-government-community-industry collaboration to improve air quality and health in environmental justice communities in Houston	Symanski, Elaine & Han, Heyreoun & Hopkins, Loren & Smith, Mary & McCurdy, Sheryl & Han, Inkyu & Jimenez, Maria & Markham, Christine & Richner, Donald & James, Daisy & Flores, Juan. (April 2020). <i>Environmental Health</i> . 19(1):39. 10.1186/s12940-020-00590-1.	<a href="https://ehjournal.biomedcentral.com/articles/10.1186/s12940-020-00590-1#citeas">https://ehjournal.biomedcentral.com/articles/10.1186/s12940-020-00590-1#citeas</a>	
Article	Who Is Being Left Behind in Canada? (Insight),	Stefan Jungcurt, in <i>International Institute for</i>	<a href="https://www.iisd.org/articles/insight/who-being-">https://www.iisd.org/articles/insight/who-being-</a>	Explores criticism on the use of key terms including Marginalized.

Some studies to increase awareness on toxics and the Great Lakes (revised as of August 10, 2023)				
Type/Category (e.g. Articles, Reports, maps, Fact sheet, Social Media, Print (e.g graphics), etc.)	Description/Title:	Production or promotion by: NGO, private, Government	Link or graphics	Additional Notes:
		<i>Sustainable Development</i> . May 13, 2022.	<a href="#">left-behind-canada#:~:text=than%20other%20Canadians.-.Members%20of%20First%20Nations%2C%20M%2C%20and%20Inuit%20groups%20are%20not.COVID%20D19%20confirm%20the%20inequities.</a>	
Article	"Environmental Justice and Great Lakes Areas of Concern: Addressing the Need for More Research".	Jennifer J. Josephs et. al. Oct. 4, 2021 in <i>Environmental Justice</i> . Vol 14, No. 5.	<a href="https://doi.org/10.1089/env.2021.0050">https://doi.org/10.1089/env.2021.0050</a>	



Table 2: Approaches

<b>Some types of approaches to increase awareness on toxics and the Great Lakes (revised as of August 10, 2023)</b>				
<b>Type/Category (e.g. Maps, Fact sheet, Social Media, Print (e.g graphics), etc.)</b>	<b>Description/Title:</b>	<b>Production or promotion by: NGO, private, Government</b>	<b>Link or graphics</b>	<b>Additional Notes:</b>
Booklet	Great Lakes Wild Fish: A measured approach to safe consumption	Metis Nation of Ontario	Small booklet	Small, sturdy and able to withstand water so can be carried to go fishing & kept with fishing tackle. Laid out in interesting way and with maps
Events & print	Toronto Urban Fishing Ambassador	Toronto Urban Fishing Ambassador	<a href="https://www.torontourbanfishingambassador.com/">https://www.torontourbanfishingambassador.com/</a>	Promote recreational fishing in Toronto with layers showing where to fish, rules, etc. Also do events that focus on bringing people from disadvantaged communities to come down to the shore and learn to fish.
Maps	Michigan PFAS Sites	Michigan Department of Environment Great Lakes & Energy	<a href="https://gis-egle.hub.arcgis.com/datasets/egle::michigan-pfas-sites/explore?location=45.057014%2C-85.412554%2C6.85">https://gis-egle.hub.arcgis.com/datasets/egle::michigan-pfas-sites/explore?location=45.057014%2C-85.412554%2C6.85</a>	State map shows 239 sites with PFAS. When hit dot shows name of site, contact etc. Updated Aug 2022.
Maps	Suspected industries discharging PFAS - U.S.	Environmental Working Group	<a href="https://www.ewg.org/interactive-maps/2021_suspected_industrial_discharges_of_pfas/map/">https://www.ewg.org/interactive-maps/2021_suspected_industrial_discharges_of_pfas/map/</a>	Interactive map showing 41,828 industrial and municipal sites known or suspected to produce or use or be contaminated by PFAS

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Media	Study: Freshwater fish, including from Great Lakes, contain 'staggering' levels of PFAS	Fox 59	<a href="https://fox59.com/news/national-world/study-freshwater-fish-including-from-great-lakes-contain-staggering-levels-of-pfas/">https://fox59.com/news/national-world/study-freshwater-fish-including-from-great-lakes-contain-staggering-levels-of-pfas/</a>	contains chart showing levels of PFAS found in fish in each of the Great Lakes on the U.S. side.
Toolkit	It's Raining 'Forever Chemicals' Across the Great Lakes – PFAS Right-To-Know Toolkit	NGO - Canadian Environmental Law Association	<a href="https://cela.ca/its-raining-forever-chemicals-across-the-great-lakes-pfas-right-to-know-toolkit/">https://cela.ca/its-raining-forever-chemicals-across-the-great-lakes-pfas-right-to-know-toolkit/</a>	Both documents have examples of types of diagrams for conveying information on the PFAS problem that are examples to be used to see whether people from all communities that are our target will grasp them.
Pamphlet		NGO - IPEN A Toxics-free Future	<a href="https://ipen.org/sites/default/files/documents/IPEN_brochure_update_2018_10_15a.pdf">https://ipen.org/sites/default/files/documents/IPEN_brochure_update_2018_10_15a.pdf</a>	Copy of 20-page brochure. Works to "elevate local consumers, humne; information for non-technical readers; leverage local examples and knowledge to achieve sustainability.
Factsheets	Environmental Contaminants : example, Lead	Health Canada	<a href="https://www.canada.ca/en/health-canada/services/food-nutrition/food-safety/chemical-contaminants/environmental-contaminants/lead.html">https://www.canada.ca/en/health-canada/services/food-nutrition/food-safety/chemical-contaminants/environmental-contaminants/lead.html</a>	Provides information relevant for vulnerable groups including pregnant women, children, infants

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Factsheets	Environmental Contaminants : example, PFCs	Health Canada	<a href="https://www.canada.ca/en/health-canada/services/food-nutrition/food-safety/chemical-contaminants/environmental-contaminants/perfluorinated-chemicals-food.html">https://www.canada.ca/en/health-canada/services/food-nutrition/food-safety/chemical-contaminants/environmental-contaminants/perfluorinated-chemicals-food.html</a>	Provides information to the public but does not provide a specific focus on higher risk group.
Social media - youtube	Canada's Toxic Chemical Valley (Full Length)	Vice	<a href="https://www.youtube.com/watch?v=UnHWZE0M_k">https://www.youtube.com/watch?v=UnHWZE0M_k</a>	Highlights the challenges faced by the First Nations community "fenceline" surrounded by industrial operations in Sarnia that are responsible for poor air quality and contributing to the significant health impacts facing peoples in this community, and the lack of regulatory measures to address the toxic pollution facing this community.
Media	The Forever Chemicals -- The Full Show   Great Lakes Now	Great Lakes Now - foundations funded	<a href="https://www.youtube.com/watch?v=oaxsaY9IIEW">https://www.youtube.com/watch?v=oaxsaY9IIEW</a>	

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Factsheets and Tips	Tips	Toxics Free Future	<a href="https://toxicfreefuture.org/justice/">https://toxicfreefuture.org/justice/</a>	Materials produced by Toxics Free Future targets impacts of toxic pollution to disadvantaged groups. Black, Brown, and Indigenous people are disproportionately exposed to toxic substances in the air, drinking water, the workplace, and from everyday products. Series of Tips to reduce exposure to harmful chemicals in your home and profiles on specific toxic substances is provided.
Videos and resource kits	Resources for Nail Salon Workers	Nail Salon Network	<a href="https://pqwchc.org/programs-services/community-services-and-programs/nail-salon-workers-project/resources-for-nail-salon-workers/">https://pqwchc.org/programs-services/community-services-and-programs/nail-salon-workers-project/resources-for-nail-salon-workers/</a>	Videos - focus on workplace health issues and the employment conditions facing nail salon technicians. RESOURCES FOR NAIL TECHNICIANS are available in a range of languages including Chinese, Korean, Mandarin, and Vietnamese. Well developed to demonstrate the health impacts associated with the workplace for nail salon technicians. Materials were developed with input from nail technicians.
Media	Study: PFAS in one serving of fresh fish 280 times greater than commercially caught fish Charles E. Ramirez The Detroit News, January 17, 2023	Detroit News	<a href="https://www.detroitnews.com/story/news/local/michigan/2023/01/17/environmental-group-u-s-freshwater-fish-have-high-levels-of-pfas/69814496007/">https://www.detroitnews.com/story/news/local/michigan/2023/01/17/environmental-group-u-s-freshwater-fish-have-high-levels-of-pfas/69814496007/</a>	Excerpt: A single serving of freshwater fish per year may be the same as drinking water laced with toxic, so-called "forever chemicals" for a month, according to a study conducted by a Washington D.C.-based environmental watchdog group.  The study also found the levels of the chemicals in fish are higher in the Great Lakes and in urban areas.

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Print - Journal	The Biomonitoring of Great Lakes Populations Program. Authors: Wendy A. Wattigney, Zheng Li, and Angela Ragin-Wilson. In: J Environ Health	Academic		US Environmental Protection Agency (U.S. EPA) through its Great Lakes Restoration Initiative (GLRI) aimed for the remediation of Great Lakes environmental problems and prevent associated human health issues, began the Biomonitoring of Great Lakes Populations (BGLP) program in 2010 under the ASTDR.
Media	Toxic pollution in the Great Lakes remains a colossal problem Daniel Macfarlane, Your Turn, August 14 2022	GoErie	<a href="https://www.goerie.com/story/opinion/columns/2022/08/15/toxic-pollution-in-the-great-lakesremains-a-colossal-problem/65362894007/">https://www.goerie.com/story/opinion/columns/2022/08/15/toxic-pollution-in-the-great-lakesremains-a-colossal-problem/65362894007/</a>	
Media	Environmental Injustice and Racism in Michigan: A New Mlive Documentary July 28, 2021	MLive.com news	<a href="https://www.mlive.com/">https://www.mlive.com/</a>	
Media	Robert Bullard: 'Environmental justice isn't just slang, it's real', December 20, 2018.	The Guardian	<a href="https://www.theguardian.com/commentisfree/2018/dec/20/robert-bullard-interview-environmental-justice-civil-rights-movement">https://www.theguardian.com/commentisfree/2018/dec/20/robert-bullard-interview-environmental-justice-civil-rights-movement</a>	

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<b>Type/Category (e.g. Maps, Fact sheet, Social Media, Print (e.g graphics), etc.)</b>	<b>Description/Title:</b>	<b>Production or promotion by: NGO, private, Government</b>	<b>Link or graphics</b>	<b>Additional Notes:</b>
Media - News outlet	PERIL IS SEEN FOR BABIES WHOSE MOTHERS ATE FISH WITH PCB'S  By Daniel Goleman July 22, 1984	New York Times	<a href="https://www.nytimes.com/1984/07/22/us/peril-is-seen-for-babies-whose-mothers-ate-fish-with-pcb-s.html">https://www.nytimes.com/1984/07/22/us/peril-is-seen-for-babies-whose-mothers-ate-fish-with-pcb-s.html</a>	Media coverage highlights health implications to vulnerable groups such as children, pregnant women and developing fetus to fish consumption with levels of PCBs, a known toxic substances in the Great Lakes.
Media - News outlet	Great Lakes fish eaters less contaminated than a decade ago April 24, 2009	Great Lakes Echo	<a href="https://greatlakesecho.org/2009/04/24/great-lakes-fishermen-less-contaminated-than-a-decade-ago-3/">https://greatlakesecho.org/2009/04/24/great-lakes-fishermen-less-contaminated-than-a-decade-ago-3/</a>	Media provide information on the current levels of concern with toxic substances and consumption of fish from the Great Lakes
Academic - journal	Body Burden Levels of Dioxin, Furans, and PCBs among Frequent Consumers of Great Lakes Sport Fish.	Claire Falk, Larry Hanrahan a, Henry A. Anderson, Marty S. Kanarek, Laurie Draheim a, Larry Needham, Donald Patterson Jr., the Great Lakes Consortium. Environmental Research, Volume 80, Issue 2, February 1999, Pages S19-S25	DOI: 10.1006/enrs.1998.3906	

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Academic - journal	Fish Consumption and Advisory Awareness in the Great Lakes Basin	Pamela Imm, Lynda Knobeloch, Henry A. Anderson, and the Great Lakes Sport Fish Consortium. In Environ Health Perspect. 2005 Oct; 113(10): 1325–1329.	Published online 2005 Jun 13. doi: 10.1289/ehp.7980	Abstract: More than 61 million adults live in the eight U.S. states bordering the Great Lakes. Between June 2001 and June 2002, a population-based, random-digit-dial telephone survey of adults residing in Great Lakes (GL) states was conducted to assess consumption of commercial and sport-caught fish and awareness of state-issued consumption advisories for GL fish. On the basis of the weighted survey data, approximately 84% of the adults living in these states included fish in their diets. Seven percent (an estimated 4.2 million adults) consumed fish caught from the Great Lakes. The percentage of residents who had consumed sport-caught fish (from any water source) varied regionally and was highest among those who lived in Minnesota (44%) and Wisconsin (39%). Consumption of GL sport fish was highest among residents of Michigan (16%) and Ohio (12%). Among residents who had eaten GL fish, awareness of consumption advisories varied by gender and race and was lowest among women (30%) and black residents (15%). However, 70% of those who consumed GL sport-caught fish twice a month or more (an estimated 509,000 adults across all eight states) were aware of the advisories. Findings

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				from this survey indicate that exposure to persistent contaminants found in GL fish is likely limited to a relatively small subpopulation of avid sport-fish consumers. Results also underscore the public health importance of advisories for commercial fish because an estimated 2.9 million adults living in these states consume more than 104 fish meals per year and may be at risk of exceeding the reference doses for methylmercury, polychlorinated biphenyls, and other bioaccumulative contaminants.



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NGO - Factsheets and video resources	<p>Healthy Environments for Learning Day (HELD)</p> <p>Healthy Environments for Learning Day (HELD) in Canada aims to raise awareness of and encourage action to prevent environmental health risks to children in early learning environments and schools.</p> <p>RentSafe RentSafe is a CPCHE-led, multi-sectoral initiative to address housing-related health risks for low-income tenants and their families.</p> <p>Top 5 Tips CPCHE's suite of "Top 5 Tips" outreach materials provide families and expectant parents with practical, low-cost tips for reducing children's exposures to toxic chemicals in the home.</p> <p>Reduce Radon CPCHE and its partners are promoting awareness, testing</p>	Canadian Partnership on Children's Health and the Environment	<p><a href="https://healthyenvironmentforkids.ca/cpche-projects/#">https://healthyenvironmentforkids.ca/cpche-projects/#</a></p> <p>Also see: <a href="https://healthyenvironmentforkids.ca/creating-healthy-home-environments-for-kids-top-5-tips/">https://healthyenvironmentforkids.ca/creating-healthy-home-environments-for-kids-top-5-tips/</a></p>	<p>Measure the number of times resources are downloaded. Resources are available including: Tips, videos, and brochures aimed at families, expectant parents focused on children's exposure to toxic substances in the home. Covers toxic substances including: BPA. Phthalates. Flame retardants. Lead. some materials produced by CPCHE are available in different languages. Its Top 5 Tips, which was developed and pilot-tested in collaboration with public health departments and community centres throughout Ontario, is available in English, French, and Anishinaabemowin. Tip cards for each of the Top 5 Tips are available in English, French, Arabic, simple Chinese, Punjabi, Spanish and Tagalog. This outreach initiative was supported by the Government of Ontario.</p>

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	and policy action to reduce children’s exposure to cancer-causing radon gas in homes, child care programs and schools.			
Media -Magazine	<p>OPINION</p> <p>These chemicals in North American waters could spark a health crisis in Canada Opinion: PFAS chemicals are toxic, likely already in our bodies, and will outlive us— and while research continues, towns in Michigan and beyond are finding them in their water</p> <p>Daniel Macfarlane November 1, 2018</p>	McLeans Magazine	<a href="https://macleans.ca/opinion/these-chemicals-in-north-american-waters-could-spark-a-health-crisis-in-canada/">https://macleans.ca/opinion/these-chemicals-in-north-american-waters-could-spark-a-health-crisis-in-canada/</a>	

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Government - Local governments	<p>Toxic Waste Collection, Education and Mapping Project</p> <p>In the fall of 2010, the Northwest Regional Planning Commission (NWRPC) was formally awarded a federal grant through the Great Lakes Restoration Initiative to address hazardous waste issues within the Wisconsin and Michigan portions of the Lake Superior Basin. The project focused on efforts to expand the hazardous waste collection, enhancing public education and the creation of a geospatial decision support tool to address mitigation, planning and incident response.</p>	Northwest Regional Planning Commission (NWRPC)	<p><a href="https://www.nwrpc.com/957/Great-Lakes-Restoration-Initiative">https://www.nwrpc.com/957/Great-Lakes-Restoration-Initiative</a></p>	<p>Public Education</p> <p>Promotional and educational materials were developed and provided to tribes and counties within the project area for use in educating residents about the impact to the environment and Lake Superior that toxins, hazardous waste, E-waste, and other pollutants can have. Educational outputs were designed as "Train-the-Trainer" exercises, to aid to provide each respective hazardous waste collection site with the capacity to educate its local residents, and supply adequate printed material and brochures for distribution and speak at local schools and civic clubs and/or organizations. Three public service announcements were produced for broadcast on Duluth – Superior and Upper Peninsula television networks and a 15-minute video/DVD was created on the effects of hazardous and electronic waste to the Lake Superior watershed basin.</p>

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Government - Federal	C-226: An Act respecting the development of a national strategy to assess, prevent and address environmental racism and to advance environmental justice.		<a href="https://www.parl.ca/legisinfo/en/bill/44-1/c-226">https://www.parl.ca/legisinfo/en/bill/44-1/c-226</a>	
NGO	The ENRICH Project Story Map		<a href="https://dalspatial.maps.arcgis.com/apps/MapSeries/index.html?appid=fc3e7408a98445d9b5b9f269e16830cb">https://dalspatial.maps.arcgis.com/apps/MapSeries/index.html?appid=fc3e7408a98445d9b5b9f269e16830cb</a>	The ENRICH Project - Maps  The ENRICH Project is a collaborative community-based project investigating the cause and effects of toxic industries situated near Mi'kmaq and African Nova Scotian communities.

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App	<p>App that tracks pollution incidents developed by Indigenous-led U of T technoscience lab: Toronto Star. An app developed by the University of Toronto's Technoscience Research Unit (TRU) will track and report pollution from oil and chemical industries near Aamjiwnaang First Nation in southwestern Ontario.</p> <p>The Toronto Star explores the origins of the Pollution Reporter app, a project led by TRU researcher Vanessa Gray and her sibling. Users of the app can fill out pollution reports in real time and send the information by email to the provincial environment ministry.</p>	University of Toronto	<a href="https://sustainability.utoronto.ca/app-that-tracks-pollution-incidents-developed-by-indigenous-led-u-of-t-technoscience-lab-toronto-star/">https://sustainability.utoronto.ca/app-that-tracks-pollution-incidents-developed-by-indigenous-led-u-of-t-technoscience-lab-toronto-star/</a>	Has this tool contributed to increase in awareness and changes in decisions on pollutants that may be affecting targeted community. How can these tools support changes to regulations and practices to protect affected communities.

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Government - Disclosure of	ChemTRAC	City of Toronto, Toronto Public Health	<a href="https://www.toronto.ca/community-people/health-wellness-care/health-programs-advice/chemtrac/">https://www.toronto.ca/community-people/health-wellness-care/health-programs-advice/chemtrac/</a> and <a href="https://www.toronto.ca/community-people/health-wellness-care/health-programs-advice/chemtrac/about-chemtrac/">https://www.toronto.ca/community-people/health-wellness-care/health-programs-advice/chemtrac/about-chemtrac/</a>	<p>ChemTRAC provides reports from businesses in your neighbourhood with information on chemical data and the environment. With this information, you can:</p> <ul style="list-style-type: none"> <li>get to know the types of businesses in your neighbourhood</li> <li>understand the chemicals that businesses use and release, and how they are greening their operations</li> <li>work with businesses and neighbours to green your neighbourhood and support local businesses in their greening efforts</li> <li>share success stories and learn from others in your community</li> <li>take action to reduce toxic exposure at home and in your daily activities</li> </ul> <p>Learn more about chemical use in Toronto businesses, health effects, below..</p> <p>Available : Maps, Pollution data and information on health effects on 25 chemicals accessible on the website.</p>

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NGO - Toolkit	Toronto Toxic Reduction Tool Kit	Project of the Toronto Cancer Prevention Coalition	chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.toronto.ca/wp-content/uploads/2017/10/80aa-TPH-ChemTRAC-Toxic-Reduction-Tool-Kit.pdf	
NGO - Toolkit	Making the Links for Over 20 Years - toolkits for	Canadian Environmental Law Association	Making the Links Toolkits - Canadian Environmental Law Association (cela.ca)	Regional toolkits and targetted resource kits for town of Brantford, Hamilton, Sarnia, Windsor, Kenora . French speaking train the training sessions coordinated.
Media	Something in the Water: Asbestos fibres turning up in Canada's drinking water   W5 INVESTIGATION	W5 - CTV	<a href="https://www.youtube.com/watch?v=dMWPF6cUg3Q">https://www.youtube.com/watch?v=dMWPF6cUg3Q</a>	What is the role of these media tools to reach targetted marginalized groups? What information and how should the information be shared with those communities.
Map - NGO	Map - Beach Finder Map (interactive)	Swim Drink Fish	<a href="https://www.theswimguide.org/find">https://www.theswimguide.org/find</a>	includes links in English, French, Spanish (translation is available in header of the map but only legend is available in French but not Spanish)
TV / Youtube	PFAS materials - (John Oliver (HBO) youtube)2022	PFAS: Last Week Tonight with John Oliver HBO	<a href="https://www.youtube.com/watch?v=9W74aeuqsiU">https://www.youtube.com/watch?v=9W74aeuqsiU</a>	

<b>Some types of approaches to increase awareness on toxics and the Great Lakes (revised as of August 10, 2023)</b>				
<b>Type/Category (e.g. Maps, Fact sheet, Social Media, Print (e.g graphics), etc.)</b>	<b>Description/Title:</b>	<b>Production or promotion by: NGO, private, Government</b>	<b>Link or graphics</b>	<b>Additional Notes:</b>
TV /Youtube	Why PFAS are so impervious, and who is most at risk from the forever chemicals	PBS newshour	<a href="https://www.pbs.org/newshour/show/why-pfas-are-so-impervious-and-who-is-most-at-risk-from-the-forever-chemicals">https://www.pbs.org/newshour/show/why-pfas-are-so-impervious-and-who-is-most-at-risk-from-the-forever-chemicals</a>	
Map	Environmental Justice Atlas	various hosts	<a href="https://ejatlas.org/">https://ejatlas.org/</a>	interactive atlas based on limited sites, different languages (legend, etc)
Infographics	Infographics - The impact of harmful pesticides on people's health and the environment	Health and Environment Alliance (HEAL)	<a href="https://www.env-health.org/infographic-the-impact-of-harmful-pesticides-on-peoples-health-and-the-environment/">https://www.env-health.org/infographic-the-impact-of-harmful-pesticides-on-peoples-health-and-the-environment/</a>	
Academic	Chemical exposures, health and environmental justice in communities living on the fenceline of industry	Jill Johnston, PhD1,* and Lara Cushing, PhD, MPH2 in: Curr Environ Health Rep. 2020 Mar; 7(1): 48–57. doi: 10.1007/s40572-020-00263-8	<a href="https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7035204/">https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7035204/</a>	
Animation	The Story of Plastics	NGO – The Story of Stuff Project	<a href="https://www.storyofstuff.org/movies/story-of-plastic-animation/">https://www.storyofstuff.org/movies/story-of-plastic-animation/</a>	The Story of Stuff Project presents short animation covering a range of environmental and social issues including consumerism and waste, plastics, privatization and bottle water that is accessible free to the global community.



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Government - Federal	Biomonitoring fact sheets	Health Canada	<a href="https://www.canada.ca/en/health-canada/services/environmental-workplace-health/reports-publications/environmental-contaminants/human-biomonitoring-resources.html">https://www.canada.ca/en/health-canada/services/environmental-workplace-health/reports-publications/environmental-contaminants/human-biomonitoring-resources.html</a>	Biomonitoring fact sheets Fact sheets provide visualizations of the latest environmental chemical exposure data in Canadians. They highlight changes in chemical exposures over time, distributions across age groups, differences between males and females, and comparisons between different populations. Biomonitoring programs do not include a specific focus for disadvantaged communities and underserved individuals.

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Factsheets and other materials	Chemicals Management Plan Engagement with a variety of stakeholders and partners, and outreach to the public are fundamental to delivering the core functions of the CMP. Under CEPA 1999, the Government of Canada is responsible for encouraging the participation of Canadians in all stages of the decision-making process, and for providing information to Canadians on human health and the state of the environment. ... Outreach activities completed under the CMP aim to communicate health and environmental risk information to the public and to targeted audiences such as vulnerable populations. Outreach to Canadians is carried out through posting plain language information about specific substances and program activities on Canada.ca, and communicating this information directly to Canadians through a range of in-person and virtual activities.	Government of Canada - ECCC/HC	<a href="https://www.canada.ca/en/health-canada/services/chemical-substances/factsheets/overview-chemicals-management-plan.html">https://www.canada.ca/en/health-canada/services/chemical-substances/factsheets/overview-chemicals-management-plan.html</a>	<p>Description provided on CMP website. No specific commitment focused on vulnerable communities. However, Compliance promotion focuses on raising awareness and educating regulated parties about their obligations to comply with the law and its regulatory and non-regulatory instruments through the following activities:</p> <ul style="list-style-type: none"> <li>• material for distribution such as factsheets, brochures, posters, guides, FAQs</li> <li>• presentations and attendance at industry and associations tradeshows, conferences and workshops</li> <li>• stakeholder meetings and site visits</li> <li>• publications, articles, social media messaging, videos, and advertising</li> <li>• communication and response to inquiries</li> </ul> <p>Compliance promotion also includes providing information to Canadians with respect to health risks that may be posed by chemical substances in the environment. The CMP provides opportunities to engage by subscribing to latest news on the CMP. This program does not have a specific focus on vulnerable groups or to individuals that are underrepresented or underserved.</p>

## APPENDIX B – Focus Groups Discussion Summary

### Focus Group 1 - May 16, 2023

Participants indicated their enjoyment of the natural beauty of the lakes. They visited the waters on their own, and with family and their children to enjoy the views and wildlife (i.e., bird watching, salmon run). Several participants emphasized that visits to lakes provided benefits, including peace of mind. A few participants noted the importance of having clean water for drinking. However, several participants expressed concern about the safety of the water, the appearance of the water (i.e., describing it as green and bubbling, warm water from the nuclear power plant), and a fear of contact with the water due to health risks from pollution. Most participants who conveyed their concerns about water safety questioned if the water was safe to drink, and if the fish were safe to eat. One participant stated that 'there is nothing to prevent waste from going into the water.' Another commented that the water looked unsafe. A third indicated that factories are playing a big part in what is going into the lakes, and so are agricultural lands.

Toxics, including farm chemicals, sewage discharges, industrial and nuclear plant discharges were viewed as pervasive contaminants in the watershed by participants. That this type of pollution was ongoing in 2023 was considered unacceptable. Participants expressed the belief that insufficient effort was being made by authorities to address toxic pollution. This focus group expressed the need for government action. A few participants noted the need for government to have laws that make companies more responsible for the problems, with one emphasizing the need to ban chemicals used on farms. Another participant commented on the need to ban farms close to lakes and rivers. Participants also noted that efforts are needed to reach people who are uninformed. Participants indicated that more pressure for action is needed now which should include efforts to bring decision makers (e.g., elected officials) to their area to see the problems firsthand. One participant emphasized their interest to participate in activities that will hold corporations accountable.

To address the problem of toxic pollution, participants expressed several actions that should be taken, including:

- Public/community action;
- Outreach activities such as social media campaign, rallies, workshops;
- Generate public pressure for government to enforce rules; and
- Education with the public including education to children.

Participants were presented with two pollution signs – one focused on a fish consumption advisory and the other focused on algal bloom. The participants had a range of reactions to the signs from indicating they were useful, particularly with the use of colour to help bring attention to a problem, to others indicating they have not seen these types of signs. Another suggested that no signs is good news. Overall, these signs were viewed as insufficient. Such signs did not provide enough information about whether the rest of the lake was contaminated or if swimming was acceptable. While these signs may be useful to people over the age of 18, they may not be useful to young children. Furthermore, participants expressed concerns that children would never eat fish again if they saw these signs.

Participants suggested a range of different groups that should undertake outreach activities and education, including groups that are passionate about the issues. One participant identified groups such as CELA and

TFGLBN as trusted sources of information. Participants noted that even with regulations in place, there were concerns that private companies may be trying to get around regulations. They suggested the need for better follow-up and compliance by businesses (similar to what is done with small businesses such as daycares). Overall, participants believed information was not being shared with the public to the extent necessary to improve the system of regulation of toxics.

Participants stated that early education of school aged children and information sharing were also important for awareness. The need to focus on the goals of better health outcomes and environmental justice were stated during concluding remarks.

### **Focus Group 2 – May 17, 2023**

Participants expressed appreciation of, and fondness for, the lakes. This was especially true when they were young and engaged in activities such as swimming, paddling, and fishing. They also indicated that many such activities were done with family. The waters of the lakes are viewed as healing medicine, especially for women. One participant expressed the role of storytelling by elders which engendered respect for the waters of the lakes. Another participant noted that they accessed remote lakes where they would fish and enjoy the lakes. Participants in this focus group expressed a few important features of the lakes including the dangers of the lakes (cold and large waves), the size of Lake Superior, the connection between Lakes Superior and Huron through St Mary's River.

Participants expressed their concern for the quality of the lakes. Invasive species (e.g., zebra mussels), industrial, shipping, and transboundary pollution were mentioned by participants. Concerns associated with algal pollution, quality of drinking water from the lakes, as well as releases to water and air, and the impacts to the lakes from development were identified by participants. Mercury was identified specifically as a toxic substance of concern in Lake Superior. Some participants expressed concern about the smell, colour of the lakes, the presence of garbage and e-coli levels in the waters of some communities (e.g., Sault Ste. Marie, Sudbury). One participant noted explicitly the metallic taste of the water in their area. Another participant expressed concern about the declining fish populations in North Bay from overfishing and the impacts from shad flies.

Participants in this region indicated that they gather information through personal experience, news media, family, and elders. One participant noted the use of public health notices (e.g., indicating e-coli levels) and signs were sources of information. A sign was used to indicate conditions for swimming (e.g., city workers would flip a sign to indicate if the water was safe to swim). Information shared by peers and business clients was also mentioned as a means of obtaining information, and that participants seem to believe the information received by word of mouth.

Signage was viewed as positive by some participants. However, most viewed signage as ineffective due to too few signs, coverage in few locations, and too many water bodies (where signs are placed in popular locations). In comparison, signs are not placed in remote lakes and there are no signs to indicate that a body of water is a tailings pond. More participants in this focus group indicated that they have seen signs for blue green algal or warning of e-coli levels, but other participants indicated they have not seen fish consumption advisory signs in

their area. Additionally, the signs were viewed as insufficient if not combined with digital information such as QR codes or other apps.

Participants stated the need for industry and government to be held accountable to reduce toxics. Some participants also noted that industry has a role to play in raising awareness. The polluter pay principle was raised by a participant. One participant mentioned that enforcement is a problem but also noted that programs can be used to offset or support compliance (e.g., visitor fees to National Parks can offset cost of enforcement). Participants expressed the need for better communication to make people more aware of pollution problems. A cell phone alert was an idea supported and critiqued, given insufficient cell coverage in some rural areas.

Criticism of federal and provincial downloading of enforcement responsibilities was expressed in the focus group, particularly due to a lack of resources available to municipalities. This focus group discussion concluded by indicating the importance of having a preventative rather than just a remediation plan.

### **Focus Group 3 – May 18, 2023**

Participants stated that the lakes were important for their leisure activities, such as swimming, camping and fishing, particularly in their youth. Connection to the lakes through family, fishing business, spirituality, and religious worship was expressed amongst participants. One participant expressed the importance of the use of water for future generations.

Participants raised many concerns about toxics in the waters of the Great Lakes basin, including:

- Effects on human health through swimming and fish consumption (e.g., decline in fish population);
- Effects on drinking water and water quality (e.g., E-coli, phragmites, blue green algae, contaminants);
- Effects on health of wildlife (fish, birds, etc.);
- Impacts to food chain, including generational impacts on health (e.g., cancer);
- Direct air and water discharges by industry and runoff from farming operations;
- Invasive species; and oil spills.

Participants noted multiple means of gathering and sharing information. Information is gathered from family, friends, conventional and social media, news apps, and community alert system. This focus group noted the availability of information on the web and having access to information through tools such as Artificial Intelligence tools (e.g., Alexa). However, participants expressed caution about the veracity of some sources of information. For some participants, reliance on information from family members who may be employed by local facilities provides an important source of information but may also be questioned due to this relationship.

Effective information was mentioned as tangible and tactile, such as signage and pamphlets. The need was expressed for these materials to be available on computers and in print to ensure wide distribution to communities. The need for more education in schools, workplaces, and community to improve environmental

quality was mentioned by several participants. The focus group emphasized the importance and need to educate students to increase awareness and connection to the environment and the importance of travelling to communities to discuss problems. It is important to leave the community with something to do. Strict enforcement of laws and policies was mentioned by other participants as a necessary means to reduce toxics. While inadequate government implementation of measures to reduce toxics was cited in the focus group, the expectation that good policies and implementation measures are beneficial was also expressed in the focus group.

In concluding remarks, a participant noted that community discussions such as this focus group were a good start to connecting people and developing community action to reduce toxics. This focus group placed emphasis on the role individuals can play to address the problems faced from toxic substances, engaging people in the community but also noted that mandatory requirements (in regulations) will also be important for to ensure change.