

Exploring Pathways to Blue Justice:
The Theory and Practice of Blue Justice in the St. Marys River Area of Concern

Julia Hambleton



A thesis presented to Lakehead University
in fulfillment of the thesis requirement for the degree of
Master of Environmental Studies

Toronto, Ontario, Canada, 2026
© Julia Hambleton, 2026

Author's Declaration

I hereby declare that I am the sole author of this thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners. I understand that my thesis may be made electronically available to the public.

Abstract

Unchecked growth of marine-based economies risks increasing displacement of coastal peoples, environmental degradation, loss of livelihood and access to marine resources, and exclusion from decision-making and governance. In response, blue justice is an organizing framework rooted in social and environmental justice that recognizes the meaningful involvement and fair treatment of small-scale fisheries and allied coastal groups in how marine resources are used, managed and enjoyed. The scholarship and practice of blue justice, while established in ocean fisheries, is underdeveloped in freshwater fisheries. This study applies the theory and practice of blue justice to the Lake Superior watershed through a case study of the St. Marys River, a 125 km connecting river situated between Lake Superior and Lake Huron by way of several different channels currently listed as a Great Lakes Area of Concern. Included in this study is a literature review and data collected through semi-structured interviews with key stakeholders and rights holders in the St. Marys River using a blue justice framework that highlights three analytical areas - recognitional, procedural and distributive justices. Findings reveal challenges that constrain social and environmental health in this Area of Concern and inform actions towards more equitable and sustainable decision-making. This research contributes to blue justice scholarship and offers a potential model for further exploration of blue justice in the Great Lakes basin.

Acknowledgements

Thank you to my supervisors Dr. Charles Levkoe and Dr. Kristen Lowitt for their guidance, encouragement and thoughtful feedback throughout this process. I am also grateful to my committee member Dr. Vivian Nguyen, for her insightful comments and interest in this work.

Thank you to Kerrie, Kanisha and Jenna at Legal Advocates for Nature's Defence as well as Mike Koostachin and Rick Cheechoo, for all your dedication to protecting our lands and waters and for the work you do alongside communities.

I am deeply grateful to the research participants who generously shared their time, knowledge, experiences, and perspectives. This thesis would not have been possible without their contributions.

Finally, thank you to my family and friends for their love, patience and support which helped me stay grounded on the path to completion.

Table of Contents

Author's Declaration.....	ii
Abstract.....	iii
Acknowledgements.....	iv
List of Tables	vii
List of Abbreviations	viii
Chapter 1. Introduction	1
1.1 Background.....	1
1.2 Research Questions, Goals, and Objectives.....	5
1.3 Thesis Overview	6
Chapter 2. Literature Review	7
2.1. Blue Justice	7
2.1.1 A Three-Dimensional Blue Justice Framework.....	8
2.1.2 Expanding the concept of Blue Justice	12
2.1.3 Resistance strategies	14
2.3 Areas of Concern	16
Chapter 3. Methodology and Methods.....	23
3.1 Approach to the Research	23
3.2 Positionality	24
3.3 Study Context Area.....	26
3.3.1 Stakeholders, Rights holders, Actors and Decision-makers	30
3.4. Participant Recruitment	33
3.5 Data Collection	34
3.6 Data Analysis	37
3.7 Ethical considerations	38
3.8 Limitations	38
Chapter 4. Findings.....	40
4.1 Recognitionl Justice themes	40
4.1.1. Indigenous Culture and Rights.....	40
4.1.2. Traditional Ecological Knowledge	42
4.1.3. Fish Consumption Advisories.....	44
4.2 Distributional Justice	46
4.2.1 Impacts to fishers, Indigenous livelihoods and traditional food sources	47

4.2.2 Impacts from pollution.....	50
4.2.3 Privatization and Access to the Water	53
4.3. Procedural Justice	54
4.3.1 Economic development.....	54
4.3.2 Fisheries management.....	58
4.3.3 Remediation	61
4.3.4 Public Participation and Engagement	65
4.3.5 Data Collection and Research	71
4.4 Strategies of Resistance	74
4.4.1 Indigenous Sovereignty	78
4.4.2 Citizen Action Against Developments.....	80
4.4.3 Building relationships with the river.....	81
Chapter 5. Discussion and Conclusion	83
5.1 Decision-making	83
5.1.1 Colonial Resource-Extraction Economies	84
5.1.2 Lack of inclusive public participation.....	86
5.1.3 Uneven influence of small-scale fisheries within fisheries management	88
5.1.4 Knowledges and Worldviews in Water Governance	90
5.2 Social and Environmental Constraints.....	92
5.2.1 The Limits of Reconciliation	92
5.2.2. An Ecosystem Approach in the RAP	93
5.2.3 Gaps in Data and Research	95
5.2.4. Perceptions of Loss	97
5.3 Opportunities for Equitable and Sustainable Transitions	98
5.4 Concluding remarks	100
References.....	104
Appendix A - Information Letter	120
Appendix B - Consent Form	122
Appendix C - Interview Guide.....	123

List of Figures

Figure 1: United States Environmental Protection Agency. (2024). St. Marys River Area of Concern, Michigan.....	3
Figure 2: Blue Justice Framework	8

List of Tables

Table 1: Participant sectors	35
Table 2: Participant demographics and sectors	38
Table 3: Stakeholder, rights-holder and government agency groups who participate in BPAC ...	67

List of Abbreviations

Abbreviation	Full Terms
AOC	Area of Concern
BPAC	Bi-National Public Advisory Council
BUI	Beneficial Use Impairment
ECCC	Environment and Climate Change Canada
EGLE	Michigan Department of Environment, Great Lakes, and Energy
ENGO	Environmental Non-Governmental Organization
EPA	United States Environmental Protection Agency
GLWQA	<i>Great Lakes Water Quality Agreement</i>
IJC	The International Joint Commission
MECP	Ontario Ministry of the Environment Conservation and Parks
RAP	Remedial Action Plan

Chapter 1. Introduction

1.1 Background

Globally, coastal and marine spaces are experiencing a rapid acceleration of economic development (Joffray et al., 2020; Bennett et al., 2021). The Laurentian Great Lakes which support the third largest economy in the world are also entering a new era of transboundary development. This growth is expected to focus on waterfront revitalization, sustainable industries, marine-based commerce and tourism and clean energy (The Great Lakes and St. Lawrence Cities Initiative, 2025). The Great Lakes system, including their connecting rivers, provides numerous social and economic benefits. Their vital ecosystems moderate our climate and support thousands of species, supply drinking water for 20 million residents, enable food and energy production, and manufacturing. Despite being home to 100 million people many inhabitants are unaware of how deeply the health of the Great Lakes impacts their daily activities and quality of life (Ontario, 2021).

In 2021, an action plan was created by fifty Great Lakes agencies and organizations to address the Great Lakes blue economy with recommendations on how to accelerate and sustain long-term economic growth (Great Lakes Commission, 2021). Attributed to the 2012 UN Conference on Sustainable Development (Rio+20), the concept of *blue economy* was identified as a policy-making goal for coastal and ocean governance that calls for the sustainable economic growth and productivity of marine resources (Bueger & Mallin, 2023). The action plan for the Great Lakes is described as “a challenge to regional leaders to take *strategic action* [italics added] to leverage the economic potential of the Great Lakes and our abundant freshwater resources” (Great Lakes Commission, 2021, p. 1). In September 2025,

The Great Lakes and St. Lawrence Cities Initiative, a cross-border coalition of municipal and Indigenous government executives representing regional Great Lakes communities, released a blue economy policy document called the Economic Transformation Action Plan (The Great Lakes and St. Lawrence Cities Initiative, 2025) promoting a blueprint for economic growth along with environmental and social health.

Despite its promise of sustainability, studies show that blue economy initiatives can reproduce numerous social and environmental challenges, such as displacement of coastal peoples, environmental degradation, loss of livelihood and access to marine resources, and exclusion from decision-making and governance (Engen et al., 2021; Jentoft & Chuenpagdee, 2022). As Allison et al. (2020) have cautioned, “Without adequate and integrated consideration of social and cultural objectives, the blue economy may become a tool for ‘ocean grabbing’ and the marginalization and dispossession of traditional cultural, recreational and small-scale commercial uses and users” (p. 11).

In response, the concept of blue justice has emerged as an organizing framework rooted in social and environmental justice that “refers to the recognition, meaningful involvement and fair treatment of all coastal people with respect to how ocean and coastal resources are accessed, used, managed and enjoyed” (Blythe et al., 2023, p.3). Blue justice scholars call for recognition, procedural and distributional justice concerns to be positioned at the forefront of the blue economy agenda to ensure justice in coastal policy and practice across all levels (Blythe et al., 2023; Engen et al., 2021). Blue justice explores injustices and past harms to inform and improve future development of marine resources and to maximize the potential benefits for coastal communities of shared prosperity, food security, local employment, capacity building, gender equality, and economic benefits (Bennett et al., 2021). It also seeks to recognize the role

of small-scale fisheries groups in sustainable fisheries management and to enhance their participation in just transitions that recognize their local knowledge and traditions (Allison and Ellis, 2001).

This study applies the theory and practice of blue justice to the Lake Superior watershed through a focus on the St. Marys River (see Figure 1), a 125 km passageway connecting Lake Superior to Lake Huron by way of several different channels and currently listed as an Area of Concern under the Canada-United States *Great Lakes Water Quality Agreement* (GLWQA) (Environment and Climate Change Canada, 2022).

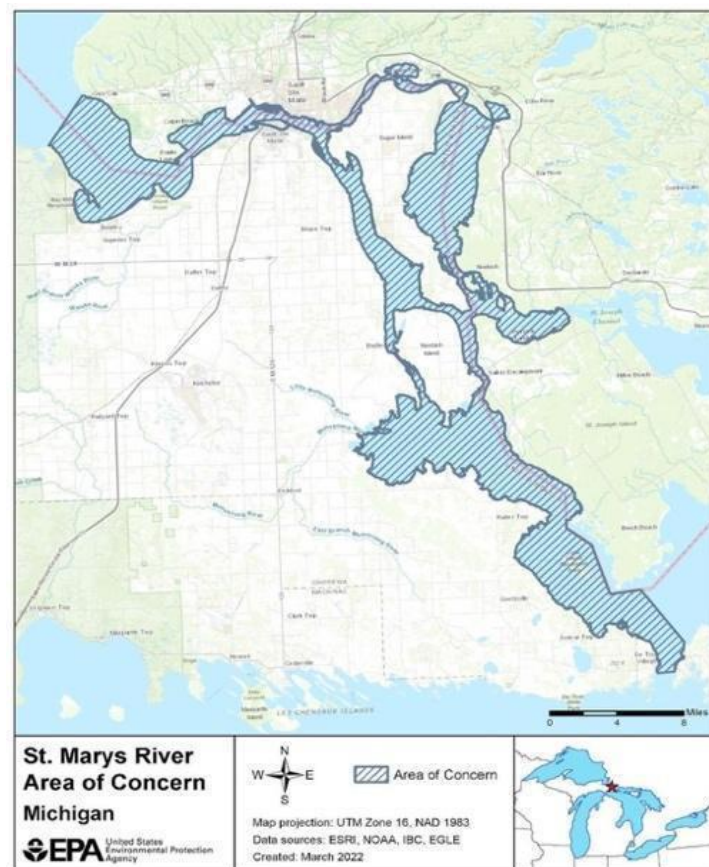


Figure 1: United States Environmental Protection Agency. (2024). St. Marys River Area of Concern, Michigan.

The St. Marys River separates the twin cities of Sault Ste. Marie in Ontario, Canada and Sault Ste. Marie in Michigan, United States at its rapids. Situated on its shores are the traditional lands of Batchewana First Nation and Garden River First Nation along with the Sault Ste. Marie Tribe of Chippewa Indians headquartered in Sault Ste. Marie, Michigan and the Bay Mills Indian Community at its headwaters. The north shore of the St. Marys River is also recognized as an historical centre for the Sault Ste Marie Métis Community. Just above the rapids, ship locks, hydroelectricity generating plants and compensating works, span the river (Kauss, 1991). The compensating works are a series of gates that open and close to enable the regulation of water flow into the St. Marys Rapids in response to what is needed for hydroelectricity. Below the compensating works, lies Whitefish Island which is part of the land base of Batchewana First Nation, an Anishinaabe/Ojibway First Nation whose traditional lands extend along the eastern shore of Lake Superior to Batchewana Bay. Whitefish island is situated by the rapids which were considered an important spawning habitat for Great Lakes fish species such as Lake Sturgeon and Whitefish (NOAA Fisheries, 2021). The St. Marys River holds the highest biodiversity rating in the Great Lakes in the and is considered one of the most ecologically intact connecting rivers in the Great Lakes system (RAP, 2002).

After more than a century of navigational, industrial, and municipal activities initiated by settler colonial interests (Ripley et al., 2011) the St. Marys River was identified as an Area of Concern (AOC), one of 43 geographic areas that have experienced environmental harm that has impaired the areas beneficial uses or ability to support aquatic life (IJC, 1987). Once identified as an AOC, a Remedial Action Plan (RAP) was put in place in 1988 and a Stage 2 Report in 2002 offered sixty recommended actions to restore the nine Beneficial Use Impairments (BUIs) and one additional BUI “requiring further assessment” that were identified (Canada Water

Agency, 2025). BUIs are designations that “measure the environmental, human health or economic impact of poor water quality” (Canada Water Agency, 2024). The most recent St. Marys River AOC RAP report reveals that five BUIs remain impaired (Derickx, 2022).

1.2 Research Questions, Goals, and Objectives

In order to advance an equitable and sustainable Great Lakes blue economy, social and equity issues need to be considered alongside the environment (Bennett et al., 2021). Using a multi-dimensional blue justice framework that highlights three analytical areas - recognitional, procedural and distributional justice - this study explores the various stakeholder perspectives and experiences in the St. Marys River AOC to help inform pathways to blue justice. My overarching research question asks how blue justice can inform equitable and sustainable transitions in the St. Marys River AOC. Guided by the blue justice framework, it also asks the following sub-questions:

How are different stakeholders and rightsholders in the St. Marys River AOC (i.e. government, non-governmental organizations, industry, academics, Indigenous communities) involved in decision-making and whose different worldviews and knowledges are recognized?

What challenges constrain social and environmental health in the St. Marys River AOC?

What opportunities exist that could contribute to social and environmental health in the St. Marys River AOC?

This study seeks to contribute to blue justice scholarship by assessing intersecting injustices facing coastal communities and informing pathways to blue justice in the context of a Great Lakes connecting river.

1.3 Thesis Overview

This thesis is organized into five chapters. This introductory chapter has provided background context to this research, the objectives and the research questions. Chapter 2 reviews relevant literature on blue justice including different conceptualisations of blue justice, expanding perspectives and resistance strategies as well as an overview of AOCs and their social and ecological outcomes. Chapter 3 describes the methods and methodologies used in this study. I present the theoretical approach to the research and the blue justice framework underpinning my research questions, data collection and analysis followed by a detailed description of the study context area and participant sectors, procedures for data collection, and analysis and concluding with ethical considerations and limitations of this research. Chapter 4 presents the empirical results divided into four themes of 1) recognitional justice, 2) distributional justice, 3) procedural justice, and 4) resistance strategies. The first three themes reflect the blue justice framework underpinning this research. A fourth theme, community resistance strategies emerged during the analysis of the first three themes and further highlights how perceived injustices are addressed by communities. Chapter 5 provides analysis of the findings and puts them into discussion with the literature to inform the research questions.

This thesis concludes by highlighting the potential of blue justice to inform equitable and sustainable transitions, while identifying priorities for future research. With the purpose of informing policy and decision-making, next steps will be the dissemination of these findings through scholarly and public-facing articles, and a report intended for stakeholders, rights holders and the broader public. In addition to these practical outputs, the research will contribute to the growing body of blue justice scholarship and may serve as a model for future studies across the Great Lakes basin.

Chapter 2. Literature Review

2.1. Blue Justice

The concept of blue justice was first introduced at the World Small-Scale Fisheries Conference in 2018 (Jentoft and Chuenpagdee, 2022) to contest the exclusion and marginalization of small-scale fisheries within economic development agendas and to encourage collaborative research between academics, civil society, nongovernmental organizations (NGOs) and practitioners (Isaacs, 2019). While several scholars have discussed blue justice in the context of ocean environments (Bennett et al., 2021; Engen et al., 2021; Ertör, 2023; Gerhindinger et al., 2023; Gustavsson et al., 2021; Hein et al., 2024; Tafon, 2023) the concept of blue justice has yet to be systematically applied to freshwater environments including the Great Lakes watershed.

Blue justice provides a counternarrative to “blue economy” and “blue growth” activities that have become a new marine governance template for economic growth and the commodification of marine resources (Bennett et al., 2021). Blue growth activities include sectors such as industrial fishing, aquaculture, eco-tourism, carbon capture, renewable energy sources, deep sea mining and the development of deep-sea oil reserves (Bennett et al., 2021). While the blue economy calls for “sustainable industrialization” its adaptation has multiple interpretations and often results in goals of growth and profits over true sustainability (Camarero, 2024; Schutter et al., 2021). Blue justice case studies and reviews have shown how blue economy policies if unchecked can reproduce numerous environmental and social injustices such as displacement of coastal peoples, environmental degradation, environmental justice concerns from pollution and waste, loss of livelihood and access to marine resources, inequitable distribution of economic benefits, marginalization of

women, human rights abuses and exclusion from decision-making and governance (Jentoft & Chuenpagdee, 2022; Barbesgaard, 2018; Bennett et al., 2021).

Blue justice calls for the rights of small-scale fishers' and allied coastal groups to access and participate equitably in the blue economy (Chuenpagdee, 2020; Jentoft and Chuenpagdee, 2022). From its initial focus on small-scale fisheries, blue justice scholarship has broadened to encompass marginalized groups from racial and ethnic minorities, Indigenous people, women, youths, and more-than-human entities (Blythe et al., 2023).

2.1.1 A Three-Dimensional Blue Justice Framework

A three-dimensional blue justice framework of recognitional, procedural and distributional justice (see Figure 2) builds on the work of the environmental justice movement and existing blue justice scholarship (Blythe et al., 2021).

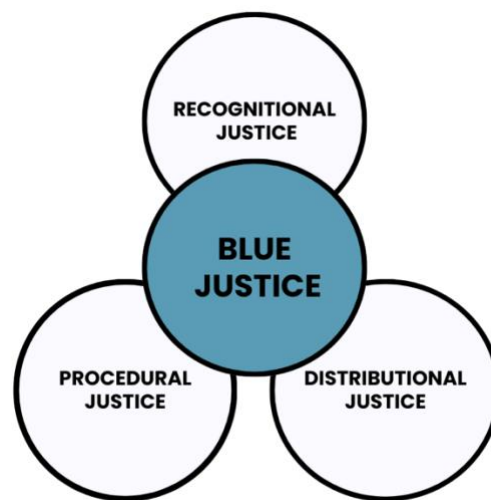


Figure 2: Blue Justice Framework

Schlosberg (2004) asserts that these three injustices are “inextricably linked” and therefore must be addressed simultaneously (p. 528). Engen (2021) applies this framework to

define blue justice as “a just and inclusive blue economy where recognitional, procedural and distributional justice concerns are at the forefront of the blue economy agenda” (p. 2). Several blue justice scholars assert that consideration of these three dimensions can provide a framework to guide policy in blue economy decision-making and management to ensure just transitions (Axon et al., 2022; Axon & Collier, 2023; Baker et al., 2023; Bennett et al., 2019).

Environmental justice scholars have defined distributive justice as the “fair and equitable distribution of environmental harms and goods as well as economic costs and benefits” (Blue et al., 2021, p. 2). Early environmental justice scholarship focused on documenting the inequitable exposure of low-income communities, communities of colour and Indigenous peoples to environmental risks such as toxic waste, pollution, health risks including occupational safety, and climate change (Agyeman et al., 2016). Distributive justice examines the social and environmental costs and benefits of economic development to examine who is receiving benefits and who bears the harms (Schlosberg, 2004). Schlosberg (2004) further argues that distributive injustices are produced and maintained by institutional systems that enable corporations and other powerful actors to profit while undermining the ability of communities to sustain land-based livelihoods. Building on these foundations, blue justice scholars have applied distributive justice in the context of marine and coastal spaces as to which groups will receive the risks, benefits, burdens and responsibilities of blue economy initiatives as well as climate and environmental change as a result of decision-making (Bennett et al., 2019; Tafon et al., 2022). Taylor (2000) described the evolution of an environmental justice paradigm that reframes environmental issues as injustices by linking distributive injustices to broader systems of social inequality such as

race, class, and gender. This evolution established recognitional justice as an inherent precondition for distributive justice.

A review of blue justice scholarship defined recognitional justice as the respect for and acknowledgement of the worldviews, knowledge systems, histories, cultures, rights, and pre-existing governance systems of diverse groups (Blythe et al., 2021). Its theoretical foundations are rooted in the work of Iris Marion Young and Nancy Fraser who challenged distributive approaches to justice that focus primarily on the allocation of environmental benefits and burdens while overlooking the broader social, cultural, and institutional structures that produce inequality (Fraser, 2008; Young, 1990). Environmental justice scholars have highlighted how misrecognition in decision-making, through disrespect, stereotypes and discrimination, has led to environmental harms for marginalized communities, especially communities of colour (Bullard, 1993; Cole & Foster, 2001; Getches & Pellow, 2002; Mohai et al., 2009).

Issues of recognitional justice are particularly significant within Indigenous environmental movements because it requires respect for Indigenous sovereignty, governance systems, traditional ecological knowledge, and relationships with ancestral territories (Schlosberg, 2004). Historically, Indigenous peoples have been rendered invisible within environmental governance while simultaneously experiencing disproportionate environmental harms through colonialism, resource extraction, and dispossession (Agyeman et al., 2016). For many Indigenous communities, environmental degradation is inseparable from cultural survival because damage to the environment is experienced as an attack on identity and “a way of life that relates to nature in a particular way” (Schlosberg, 2004, p.

529). Borrows (1997) asserts that barriers to Indigenous participation in governance is due to a lack of recognition of Indigenous knowledge systems.

Environmental governance has often privileged scientific expertise while marginalizing local, experiential, and Indigenous knowledge. Corburn (2005) argues that environmental decision-making should recognize and incorporate community knowledge alongside scientific expertise, demonstrating how diverse knowledge systems can improve environmental governance. Distributive and procedural justice alone do not adequately address historic injustice, unequal power relationships or institutional conditions that shape marginalization. Recognitional justice is therefore needed to address the structures that limit the recognition, respect, and protection of marginalized identities (Tafon et al., 2024; Tafon et al., 2022).

Recognition is closely connected to procedural and representational justice because misrecognition frequently results in political exclusion (Schlosberg, 2004). Procedural justice refers to fair and inclusive participation in decision-making processes which includes access to information, and to formal systems of justice (Wates, 2005). Fraser (2008) further expanded this concept through the notion of framing, which examines who is included or excluded from governance processes and how environmental issues are defined and scoped. As Blue et al. (2021) illustrate, Impact Assessments may exclude particular groups from participation or omit issues that are important to communities, thereby producing unjust outcomes through the framing of the decision-making process. Blue justice scholarship draws on procedural justice to examine decision-making and governance processes and ask who has power in decision-making, when and how they participate, and what degree of

influence they will have and whether government processes are fair and effective (Bennett et al., 2021; Saunders et al., 2020).

Building on environmental justice scholarship, blue justice scholars have increasingly adopted distributive, recognitional, and procedural justice as a framework for evaluating the equity of blue economy policies, marine governance, and marine development (Bennett et al., 2021; Blythe et al., 2023; Engen, 2021).

2.1.2 Expanding the concept of Blue Justice

Tafon's (2023) four-dimensional multispecies blue justice (MBJ) model goes beyond anthropocentric frameworks to extend the community of justice to more-than-human entities (e.g. marine organisms). MBJ considers the needs and values of social groups and the conditions that strengthen their capabilities to lead a decent and flourishing life which can be adversely affected by misrecognition resulting in socio-environmental harms and injustices (Tafon, 2023). This application of the capabilities approach builds on the work of David Schlosberg (2007, 2012, 2013), who argues that environmental justice should be understood in terms of the capabilities of both human and non-human ecological communities to flourish. A key contribution of this approach is its recognition of the interconnected relationship between environmental conditions and the ability of both human and ecological systems to meet their basic needs and flourish. Similarly, MBJ moves away from a dualistic paradigm that sees nature as external to human life, society and agency, socio-ecological justice builds on the interconnectedness and relationality of the human and non-human worlds (Mons et al., 2025; Anbleyth-Evans et al., 2022; Anbleyth-Evans et al., 2023). As noted by Yaka (2019), when communities perceive themselves in an intrinsic relationship with the non-human world then it is easier to recognize the right of both human and non-

human worlds to flourish. This relational understanding is facilitated by those communities who retain a “close and continuous engagement with the local environment” (p.362). Blue justice proposes interconnectedness between coastal communities and their shorelines in response to prevalent western narratives that suggest they are separate from it (Blythe et al., 2023).

The capabilities of marine coastal communities are vulnerable to the effects of climate change and pollution from industry (Tafon, 2023; Ertör, 2023; Bennett et al., 2021). Anbleyth-Evans et al. (2022) theorize that marine sacrificial zones - areas that have been environmentally degraded due to unregulated economic activities that simultaneously protect private rights, private investments and industrial development - fit into the concept of blue justice as there is an unequal distribution of humans and non-humans impacted by this environmentally destructive development. Blue justice has also been defined as “achieving environmental justice in the marine environment, where there are impacts from ports, mines, energy development and aquaculture and beyond” (Anbleyth-Evans et al., 2022, p. 1493).

Investigations into access and property is a key area of study for blue justice scholars as it is helpful to identify and explain injustices as well as societal relationships with nature (Bennett, 2022; Engen et al., 2021; Ertör, 2023; Hein et al., 2024). The coastal commons are increasingly threatened by privatization, enclosures and access restrictions (Bavinck et al., 2017; Castree 2003; Hein et al., 2024). As nature becomes increasingly commodified, coastal spaces and resources are mostly claimed by those with capital or social identity and rights-based forms of access “do not necessarily guarantee benefits but are instead dependent on positions of power and structural and relational mechanisms” (Hein et al., 2024, p. 45).

Blue justice scholars call for inclusive, participatory forms of marine governance that incorporate local ecological knowledge (Anbleyth-Evans, 2024; Ayilu et al., 2023; Axon & Collier, 2023; Bennett et al., 2018; Kyvelou et al., 2023; Pereira & Erwin, 2022; Reis-Filho et al., 2024). Epistemic or testimonial injustice occurs when an individual or groups “capacity as a knower is wronged” (Fricker, 2007, p. 1) leading to a lack of collective hermeneutical resources that capture the knowledge and experiences of marginalized groups (Schreiber et al. 2022). Barbasgaard (2025) questions the assumption that small-scale fishers and coastal communities are “neat and bonded” homogenous units of analysis and are therefore impacted unevenly (p. 2). A lack of recognition of local, traditional, and indigenous knowledge systems can lead to an absence of marine governance mechanisms that reflect their cultural norms, practices and values (Jentoft & Chuenpagdee, 2022; Bennett et al. 2023; Mons et al., 2025). Collective hermeneutical resources are particularly significant since injustices aren’t always perceived by those experiencing them thereby inhibiting claims of injustice (Blythe et al., 2023). Uncovering the nature of injustices occurring in coastal communities is a necessary first step towards amplifying voices and building pathways to blue justice (Schreiber et al., 2022).

2.1.3 Resistance strategies

An important aspect of blue justice scholarship is highlighting blue resistance movements that give voice, power and agency to coastal communities (Widener, 2018; Blythe et al. 2023; Narchi et al., 2024). In their review of blue justice emerging scholarship and resistance movements, Blythe et al. (2023) emphasize the need for further research into blue injustices and resistance movements. Bebbington et al. (2008) define blue resistance as: “Processes of collective action that are sustained across space and time, that reflect grievances around

perceived injustice, and that constitute a pursuit of alternative agendas by coastal people.” Blue resistance can also be expressed through communities’ resilience and their collective hermeneutical resources (Mons et al., 2025; Schreiber et al. 2022; Blythe et al. 2023).

Where there is conflict between proponents of blue economy proposals and marginalized coastal groups, structural inequalities and imbalances of power often prevent resolution through processes that are deliberative and collaborative (Bennett et al. 2019; Bennett et al. 2022; Ertör & Hadjimichael, 2020; Tafon et al. 2022; Sowman et al., 2023). This gives rise to communities employing diverse strategies of resistance to uphold their needs, rights and priorities (Sowman et al., 2023). Fostering relationships with social partners that include researchers, legal experts, NGOs and other civil society organizations can enhance knowledge and capacity of local communities to engage in challenging blue economy plans and projects by expanding resources, capabilities and skills (Sowman et al., 2023).

A review of blue justice scholarship categorizes “three types of blue resistance: protests, institutional tools and legislation and everyday practices” (Blythe et al., 2023, p. 7). Similarly, Mafra and Azevedo (2024) categorized four strategies of resistance; legal, political, collective, and cultural to inform future policy actions and research (Narchi et al., 2024). Practices of food sovereignty through traditional and local food systems can be seen as an example of everyday practices that resist imposed colonial and industrialized food systems (Agyeman et al., 2016). Practices of prayer, kinship and connections to ancestors (Blythe et al., 2023) as well as acts of care, solidarity and reciprocity (Aguilera, 2022) are also forms of resistance where women are often central figures (Gustavsson, 2021).

Blue resistance creates and participates in ‘opportunities for blue justice’ where alternative coastal futures are imagined (Bennett et al., 2021; Schreiber et al. 2022; Blythe et al.,

2023; Mons et al., 2025). Strengthening community identity through memory, emotions, and local knowledge can foster new economic models for development that can become pathways for blue justice (Mons et al., 2025). Camparero (2024) highlights cultural alternatives to the blue economy with *maritimidades* (maritime identities) where socio-cultural coastal practices like fishing, artisanal, and tourism “foster a sense of ownership and responsibility toward marine ecosystems, empower local communities, and promote alternative development models.” (Narchi et al., 2024, p. 17). As expressed by Hopkins et al. (2022) alternatives to colonial industrial narratives can be uncovered through “the active re-placement, re-remembering, and re-inscribing of the land and the water with non-colonial literacies, knowledges and narratives” (p. 71). Expanding on Hopkins' (2022) idea that shorelines themselves are inherently resistant, Leanne Betasamosake Simpson (2025) writes, “Shorelines embrace the unknown, the unquantifiable and the fugitive. They resist systems that seek discipline and control” (p.80). They are a reminder of “the limits of human understanding and therefore the ongoing implications of the colonial systems we currently struggle against” (p. 79). Despite the success of resistance movements in empowering communities against injustices, the responsibility of responding to injustice should not be placed solely on already marginalized communities while absolving states of their responsibility to protect citizens (Joseph, 2013).

2.3 Areas of Concern

A legacy of unregulated water pollution, contamination, and degraded habitats due to industrial expansion and urbanization in the Great Lakes led to a commitment between Canada and the United States to restore and protect the waters of the Great Lakes. The 1972 Canada-United States *Great Lakes Water Quality Agreement* (GLWQA) provides a framework to

identify bi-national priorities and implement the necessary actions to improve water quality and ecosystem health (Hartig et al., 2020b, p. 430). Guided by the *Boundary Waters Treaty* of 1909, The International Joint Commission (IJC) was created as an advisory board to the United States and Canada to resolve disputes regarding boundary water management issues and the regulation of water levels and flows. Under the revised 1987 GLWQA, the IJC identified 43 Areas of Concern (AOC) within the Great Lakes that failed to meet the specific water quality objectives of the GLWQA and impaired a beneficial use or the ability to support aquatic life (IJC, 1987). The AOC program identified 14 Beneficial Use Impairments (BUIs) that impair use through a “change in chemical, physical or biological integrity of the Great Lakes System” (IJC, 1987). Remedial Action Plans (RAPs) use a site-specific ecosystem approach to restore the degraded ecosystems by removing toxic substances and restoring impaired water resources (Sproule-Jones, 2002). They are implemented in an adaptive management approach whereby they are continuously assessed for improvements.

Five of the AOCs are bi-national, and one is found on every connecting channel that drains a Great Lakes basin. Bi-national AOCs are unique in their jurisdictional, institutional, and regulatory complexity (Hartig et al., 2020). This makes it challenging to adopt an ecosystem approach as described in the GLWQA where “management actions consider both sides of each bi-national AOC as a single, interacting system” (Child et al., 2018, p. 479) and requirements that include, funding, public support, intergovernmental and interdisciplinary participation and a decision-making process agreed upon by all parties (MacKenzie, 1993). In practice, some BUIs are more conducive to the ecosystem approach such as fish tumours or other deformities while other BUIs such as degradation of aesthetics are more place-based (Child et al., 2018). Despite the ecosystem approach guidelines of the GLWQA, the Four Agency agreement between

Ontario-Canada and Michigan-United States, allows for unilateral (domestic) delisting of an AOC for three of the bi-national AOCs (Environment Canada et al., 2012).

Each RAP encourages community input through its Public Advisory Councils (PACs) which are responsible for local project oversight (Samya et al., 2003). Stakeholder inclusion helps to reduce conflicts amongst diverse groups of actors, build the capacity that is needed to sustain long-term positive impacts, and create locally relevant solutions (Beierle and Koninsky, 2000). RAP stakeholders possess local knowledge and information and are therefore well-positioned to provide an informed perspective on the social repercussions of impending decisions relating to RAP implementation (Harris et al., 2003). The intention of RAPs was to bring agency, community and organization members together to overcome institutional barriers and work towards an ecosystem approach (Hartig and Vallentyne, 1989). However, under advisement of the IJC Water Quality Board it was decided that there should be a different RAP for each side of every bi-national AOC instead of one RAP for the entire bi-national AOC (IJC WQB, 1985).

Studies show that environmental restoration in AOCs can lead to positive economic returns for communities (Krantzberg & de Boer, 2008; Gardner, 2022). Hartig et al. (2019a) write, “AOC cleanup has been a springboard for local communities to convert areas that were once a detriment to economic growth into valuable waterfront economic assets” (p. 87). A Great Lakes Commission and Council of Great Lakes Industries (2018) study has shown a 3-1 return on investment where “each federal dollar spent on Great Lakes Restoration Initiative projects during 2010–2016 will produce an additional \$3.35 of economic activity through 2035” (Hartig et al., 2020, p. 436). This return on investment has been attributed to the restoration of ecosystem services and waterfront revitalization (Hartig et al., 2019a).

In 2004 the Great Lakes Restoration Initiative (GLRI) was set up as a bipartisan federal program in the United States that provides \$300 million annually for Great Lakes ecosystem restoration projects in AOCs (Garcia et al., 2021). Due to the economic success of GLRI restoration initiatives, we are at a “defining moment” as the Great Lakes coastal landscape transitions to a new blue economy model. As noted by Garcia et al. (2021), distributive justice inequities have often been related to GLRI funding. To ensure the blue economy is centred around sustainable and equitable freshwater resource use we must consider equity and justice in the restoration process (Garcia et al., 2021)

Emerging scholarship explores the social impacts of AOC restoration along with the economic and environmental (Angradi et al., 2022; Norris et al., 2022; Williams & Hoffman, 2020). Qualitative data collected from public stakeholder participants with respect to the broad outcomes of AOC restoration has been generally positive and shown that public perceptions of AOCs can improve over time to become more hopeful (Dorman et al., 2023). The relationship that communities have to water can be positively enhanced because of the AOC process which promotes an ethic of stewardship essential to long-term sustainability (Knauss & Lisuk, 2022; Tyner & Boyle, 2020). Research has shown that stakeholder participation is widely accepted as an essential part of fisheries management and environmental management projects (Holifield & Williams, 2018; Mease et al., 2018). Despite stakeholder involvement in AOCs there is often a disconnect between the completed restoration work and the communities they serve (Holifield and Williams, 2019). As AOC clean-up nears completion, RAP groups are prioritizing approaches that link environment, communities and economy (Mandelia, 2016).

Assessing equity outcomes as a measurement of AOC restoration success has been a focus in several recent studies (Josephs et al., 2021; Jurjonas et al., 2022; Nixon et al., 2022;

Norris et al., 2022; Williams & Hoffman, 2020; Dorman et al., 2023). These studies have identified that restoration of AOCs is unlikely to improve quality of life for communities that are already marginalized and experiencing a lack of fresh, affordable food, housing shortages, and violence (Dorman et al., 2023). A comparison of two AOC restoration outcomes with contrasting socioeconomic profiles in Muskegon County, Michigan: Muskegon Lake and White Lake found that communities with a legacy of social and environmental injustice may have uneven experiences of AOC restoration. The potential for gentrification, as a product of revitalization, was seen as a threat to housing security rather than an economic asset by residents in environmental justice risk factor neighbourhoods. Without building in a range of affordability options into AOC planning, it is possible that AOC restoration could compound pre-existing inequalities (Dorman et al., 2023). Nixon et al. (2023) writes, “remediation and restoration can present the ‘green space paradox’ in which addressing environmental degradation provides ecological and economic benefits to some, while worsening inequalities and vulnerabilities for others” (p. 2). To assist with AOC planning, attention to historic context and current socio-demographic profiles can highlight communities of social vulnerability where residents could potentially be excluded from experiencing benefits of AOC restoration (Dorman et al., 2023).

Barriers to communities and their Public Advisory Councils within AOCs is largely attributed to a lack of resources and capacity to attract and sustain engagement (Rentschler and Williams, 2022). Garcia et al., (2021) highlight equity gaps in the process and outcome stages of AOC restoration in their surveys of four Lake Michigan AOCs, including participation in decision-making due to accessibility barriers and limited public knowledge. Indigenous participation takes place in several bi-national AOC however involvement tends to be limited due to a lack of internal capacity and resources along with differing concerns around the scope

and local process (Child et al., 2018). The gathering of qualitative information by researchers looking into equity issues in marginalized AOC communities has proven to be a recurring challenge due to heightened mistrust towards university researchers, local and state officials, and non-profit organizations (Corburn, 2005). The result is a lack of input around these communities' needs and visions to inform development decisions. In three AOC case studies in Lake Michigan, Rentschler and Williams (2002) interviewed participants that listed BUIs currently not considered in the AOC process (for example, invasive species, high turbidity, lack of potable water, and flooding). Communities often have a diversity of residents with a diverse array of needs and pollution concerns (Garcia et al., 2021). Rentschler and Williams (2022) suggest that future AOC research could explore how a larger conceptualization of beneficial uses and impairments could help delist AOCs.

While not all 14 BUIs apply to every AOC, elevated levels of contaminants in the Great Lakes have made restrictions on fish consumption one of the most prevalent BUIs in all AOCs (Gandhi et al., 2020). Updated knowledge from government agencies and scientists found that PCBs, a major contaminant in the Great Lakes, is “more persistent and toxic than previously thought leading to downward revisions to fish advisory benchmarks” (Gandhi et al. 2020, p.1). For example, the Ontario government now has a stricter PCB benchmark for an 8 meals/month fish advisory which has decreased by almost 20-fold from 2000 parts per billion (ppb) during the 1980s to 105 ppb at present. Since PCBs were banned 40 years ago there is an expectation of continuing improvements in Great Lakes fish consumption advisories over the next decades (Gandhi et al., 2020). Currently AOCs need to understand whether the assumption of an 8+ meals/month fish advisory is truly a non-restrictive diet for subsistence fishers. A study by Gandhi et al. (2020), recommended fish-eating pattern surveys for the Thunder Bay and St.

Marys River AOCs before re-designating the current restrictions on fish consumption BUI due to a lack of clarity around the extent of subsistence fishing.

Studies reveal that the restoration of Great Lakes waterfronts is costly although remediation brings economic benefits. Great Lakes restoration has already cost \$22.78 billion (Hartig et al., 2020, p. 433) indicating that pollution prevention must be the priority within AOC remediation along with sustainable transitions. Great Lakes researchers call for the prevention of pollution, a design for the environment approach and working towards a sustainable economy that ensures the continuity of coastal resources (Hartig et al., 2020). A more detailed discussion of the St. Marys River AOC is found in Chapter 3 under the study context area.

Both blue justice and AOC literature highlight the importance of considering community needs, rights, and perspectives in order to ensure that long-term sustainability and benefits to communities are not undermined (Bennett et al., 2019; Mandelia, 2016). Although AOC programs are guided by an ecosystem approach meant to reflect local knowledge and gain perspectives of stakeholder groups, scholarship highlights that restoration processes and their benefits may nonetheless exclude historically marginalized coastal groups. These gaps could be addressed by a blue justice framework that informs who is benefiting from this restoration, whose knowledge and worldviews shape decision-making, and whether existing inequalities are being reproduced or reinforced. As AOC delisting increasingly reframes waterfronts as opportunities within the blue economy, blue justice provides a critical lens for assessing whether economic development builds on or perpetuates historical patterns of environmental harm and exclusion from both benefits and decision-making.

Chapter 3. Methodology and Methods

I begin this chapter by explaining the theoretical frameworks of social constructivism and blue justice that were applied to this qualitative study while collecting and analyzing the data. I then position myself within researching justice issues and the study context area. This is followed by a description of the different community sectors identified in the literature within the context of the St. Marys River Area of Concern (AOC) and an overview of nomenclature used in this study. I follow with a description of the methods that were used in participant recruitment, data collection and analysis procedures and end with ethical considerations and limitations.

3.1 Approach to the Research

This study applied a qualitative social constructivist approach so that data could be co-constructed with the participants, allowing for multiple standpoints, roles and realities (Charmez, 2014). Meanings were derived as much as possible from participants' views with an understanding of how they were socially constructed. Social constructivism "is concerned with the meaning created through defining and categorizing groups of people, experience, and reality in cultural contexts" (Kang et al., 2017, p. 16). It is well suited to examining justice as it recognizes categories of different groups of people as fluid and changing based on historical and geographical contexts as well as the production and reproduction of inequalities through unequal systems of knowledge and power (Kang et al., 2017). As Hein et al. (2024) maintain, an examination of the impacts of human development of coastlines and the subsequent challenges "involves considering the complexity and subtleties of different viewpoints and contexts" (p. 1) when evaluating ethical and moral issues. An important focus was the historical and cultural settings where the participants live and work, requiring me to position myself and acknowledge

how my own background shapes the meaning-making process as an interpreter of participants views and experiences (Cresswell and Poth, 2025).

Data collected from semi-structured interviews was analyzed using a blue justice framework of recognitional, procedural and distributive justice to explore the experiences of different stakeholder groups.

3.2 Positionality

I am a white settler from British/Scottish heritage born and raised on the shores of Lake Ontario in the traditional territories of the Michi Saagig Anishnaabeg in the city of Toronto where I still reside. I acknowledge the privilege associated with being a white, middle-aged settler woman and I seek to be self-reflective about my background, identity and potential biases.

I do not have a direct personal connection to my study context area - the St. Marys River AOC - and therefore can be seen as an 'outsider' in this research. My related experience to the Great Lakes watershed and Areas of Concern is informed instead by my connection to Lake Ontario. Growing up a few kilometres away from the heavily developed shoreline of Lake Ontario I understand what it meant to live beside but yet not in relationship with the Lake. My awareness of the lake developed after becoming involved in the social and environmental justice conversations related to water and the work of a predominantly white settler environmental non-profit world.

Although I have benefitted from the inherited wealth from my maternal great-grandparents' involvement in resource extraction, a constant theme throughout my life has been working for environmental justice organizations and community-based nonprofits that work on mitigating and remediating the historical and current legacies of extractive industries. For several

years I worked in a non-profit organization called Lake Ontario Waterkeeper (LOW) which advocated for the restoration of the Lake Ontario watershed so that the public could safely use the water to swim, drink and fish. The focus was human-centered and rooted in environmental justice. We used the tools of environmental law and policy to support citizen science. Through this experience I saw clearly how difficult it was to affect changes to law and policy to protect the environment. I also observed how Toronto citizens were separated from its waterfront in many ways. Part of my experience at LOW was reimagining ways that people could become reconnected to the Lake and to promote that connection through increased access to clean water. This disconnection is a narrative that I want to be involved in reimagining, starting with my own relationship with our Great Lakes.

Along with being a master's student in the environmental studies program at Lakehead University, I have worked for Legal Advocates for Nature's Defence, an environmental law non-profit that advocates for the protection of nature while honouring Indigenous sovereignty in Northern Ontario. This organization works to amplify Indigenous voices and increase opportunities to participate in consultation and decision-making around lands and waters. I am grateful for the opportunities I have had to work frequently in Northern Ontario and to learn how to be an ally to the Indigenous people that we worked alongside. While working with both Indigenous and non-Indigenous community members, I have seen how divisive resource extraction and development proposals are within a community and how there is a great deal of distrust for government consultation processes. The Treaty 9 community members I know feel like their concerns are not heard. From these interactions and experiences, I can see that I may hold certain assumptions about Indigenous people's experiences in dealing with government and industry.

I am inspired by an idea expressed by Barbara Day, “Every-one needs to learn the teachings about each other” (Chiblow, 2023, p. S90). It is the sharing of knowledge and the building of respectful relationships with humans and non-humans that I hope will guide this research process. I am motivated to understand and acknowledge past harms while focusing on ways to move forward. This research will be guided by the assertion that reconciliation with Indigenous peoples is also about rebuilding respectful, caring and reciprocal relationships with our lands and waters (Chiblow, 2023).

I acknowledge the biases that I have as someone who has worked for environmental organizations and who often finds myself in conflict with the interests of industry and development. I understand that this is something I need to be reflexive about. I acknowledge my white settler identity has given me great privileges in this country, and I consider it a responsibility to help in changing government structures and systems that are inequitable and cause harm to non-humans and humans.

3.3 Study Context Area

I have chosen St. Marys River Area of Concern (see Figure 2) as a study area in which to explore the theory and practice of blue justice for several reasons. Of significance is the St. Marys River rapids, rich in biodiversity and historically important as the traditional fishing and hunting grounds of the Anishnaabe people for millennia. Later the rapids were sought for settler colonial interest due to their strategic location, and 6 metre drop in elevation for navigation and hydroelectricity.

For thousands of years, Whitefish Island, located beside the St. Marys River rapids, served as the traditional meeting place, trading post, fishery and burial grounds for the Anishnaabe/Ojibway people (McCracken, 2015). According to early reports from the Jesuits who came to the region in the 1600s, the Anishnaabe would set up on the lands to net whitefish from spring to winter (McCracken, 2015). Under the Robinson Huron Treaty of 1850 and Pennefather Treaty of 1859, the Anishnaabe lands and waters were limited to reserves to enable European settlement and the development of infrastructure for resource exploitation. Batchewana First Nation was removed from Whitefish Island with the Railway Act of 1905 and Garden River continued to be dispossessed of their lands up until 1989 (Hele, 2024).

In 1981, Whitefish Island was designated a national historic site due to its significance as a meeting place and traditional burial grounds for the Anishinaabe. Shortly afterwards, Batchewana First Nation began a legal process to assert their treaty rights to have Whitefish Island returned to them. After years of unsuccessful negotiations, Hereditary Chief Edward James Sayers Nebenaigoching occupied Whitefish Island from 1989 until it was returned in 1998 (McCracken, 2015). However, First Nation commercial fishing is still only permitted in the upper reaches of the St. Marys River outside of the AOC (RAP, 1992). In 2013, Batchewana First Nation filed a claim for \$150,000 against the Federal government for the ‘catastrophic’ loss of their traditional fisheries (Purvis, 2013).

Habitat destruction and impacts from industrial pollution created by the activities of European settler interests didn’t begin on the St. Marys River until the late 19th century. It was at this time that the rapids began to be seen as a physical obstacle for the transportation of the rich timber and mineral wealth of the Lake Superior region and industrialists began to see the potential for hydroelectric power (Ripley et al., 2011). Due to the building of locks for

navigation and dams for hydroelectricity, less than 50% of the St. Marys River rapids remains (Ripley, 2011). Currently 90% of water flows through hydroelectric plants while the St. Marys' Rapids receive only 4% (Ripley et al., 2011).

Powered by hydroelectricity, several industries commenced operations, particularly along the Canadian side of the St. Marys River, and began to discharge pollutants. In 1902, Algoma Steel began making iron steel in blast furnaces, coke ovens, steel-making furnaces and rolling mills. Through six continuous outflows, they discharged coal, tar, iron and coal tar compounds (ammonia, cyanide, oil and grease and phenols) into the river for decades (RAP, 2002). Prior to the introduction of environmental regulations, records show that Algoma Steel released 10,000 kg of oil and grease into the river every day (Ripley et al., 2011). St. Marys Pulp and Paper Ltd. on the Canadian side also “released suspended solids (bark, clay, wood), cooling water and soluble organic compounds” (Ripley et al., 2011, p. 7). A tannery on the American side regularly dumped fur, hides and chemical compounds including chromium, cyanide, sulfide, and mercury (Ripley et al., 2011). Other sources of contamination include “atmospheric deposition onto the watershed, urban and rural runoff, storm sewers, combined sewer overflows, the resuspension of contaminated sediments, groundwater, and spills from ships and industries” (RAP, 1992, p. 9).

Despite its AOC status, an assessment of the St. Marys River fisheries conducted in 2002 (Gebhardt et al.) describes a large sports fishing industry (36% of the sports fishery in all Michigan waters of Lake Huron), subsistence fisheries regulated by the Chippewa-Ottawa Resource Authority (CORA) and Garden River First Nation, and Indigenous and non-Indigenous commercial fishing for whitefish at the headwaters of the St. Marys River in Whitefish Bay (outside of the AOC study context area). The 2002 report (Gerhardt et al.) was prompted by “concern about the sustainability of fish populations and the capability of the river to support

them” and a “lack of a regular, coordinated effort to assess and manage the fishery systems from the jurisdictional fragmentation among agencies on both sides of the international border” (p. 6).

The St. Marys River Remedial Action Plan (RAP) is managed by a Four Agency Management Committee that includes Environment and Climate Change Canada (ECCC- formerly Environment Canada), United States Environmental Protection Agency (EPA), Ontario Ministry of the Environment Conservation and Parks (MECP-formerly Ontario Ministry of the Environment) and Michigan Department of Environment, Great Lakes, and Energy (EGLE - formerly Michigan Department of Environmental Quality). The RAP Team composed of the Four Agency Management Committee, with the addition of the federal Department of Fisheries and Oceans and Ontario Ministry of Natural Resources, is responsible for implementing the RAP (Bi-national Public Advisory Council, n.d.). To ensure public participation as well as cross-border cooperation, a Bi-national Public Advisory Council (BPAC) was set up to inform the RAP Team about public views and opinions. The BPAC identifies and prioritizes the programs and projects that will help achieve the goals of the RAP. They are active in fostering partnerships with other community groups and encouraging stakeholder involvement (Alsip et al., 2021).

Although remediation activities are now completed on the American side of the St. Marys River, there still remains several BUIs that need to be delisted including the restriction of fish and wildlife consumption, fish tumours and other deformities, the degradation of benthos, and (Environmental Protection Agency, 2024). On the Canadian side there is an additional BUI which is loss of fish and wildlife habitat (Canada Water Agency, 2025). Remaining actions on the Canadian side are needed to improve fish and wildlife habitat, specifically a fish habitat restoration project around Whitefish Island and the implementation of a sediment management strategy. Continuing to impact water quality is pollution from Algoma Steel located in Sault Ste.

Marie, Ontario, impacts from forestry activities and invasive species (Great Lakes DataStream, 2022).

After over thirty years of remediation activities achieved through multi-jurisdictional governance structures and stakeholder participation, remediation activities have now been completed on the American side which signals they are moving into monitoring and evaluating BUIs for removal and eventual delisting (EPA, 2026). A transition to delisting offers an opportunity to inform next steps, particularly in light of blue economy planning. Despite numerous environmental reports and information on the implementation and status of the Remedial Action Plan there is very little information found on justice and equity gaps in the St. Marys River.

3.3.1 Stakeholders, Rights holders, Actors and Decision-makers

This thesis employs various terms for individuals and groups within the St. Marys River AOC. Stakeholder is a term used widely in processes that “aim to inform, consult, engage, co-produce, and work collaboratively with those who could be affected by resulting decision and other actions” (Reed et al., 2024, p. 1). Freeman (1984) defined stakeholder as “those groups who can affect or are affected by a decision” (p.4). The term is now seen as problematic due to its colonial roots and western power dynamics (see Reed et al., 2024). Without proper definition it can also become a catch-all phrase for a diversity of groups. For example, the naming of Indigenous groups as stakeholders fails to recognize their status as rights holders and can frame corporations or government interests as legitimate as Indigenous communities when it comes to extractive policies on Indigenous lands. The stakeholder paradigm also perpetuates a transactional relationship between people and place ignoring inherent cultural and spiritual

connections people have to the non-human world (Reed et al., 2024). Since the term stakeholder is used in much of the AOC literature and therefore lacks an agreed upon alternative, I have continued to use the term when necessary to avoid confusion. Where possible, terms used by participants are employed.

Stakeholders in the St. Marys River AOC were first identified in the AOC program in 1988 when the RAP team held its first two initial public information sessions which led to the formation of the BPAC. Members into the BPAC were nominated and identified based on their ‘interest and informed participation’ at these initial meetings (RAP, 1992). By the fall of 1988 the BPAC consisted of 14 Ontario members and 10 Michigan members from the following community sectors; environment; recreation and tourism; industry/shipping/small business; labour; fisheries; municipalities; academic; elected officials; citizens at large; public health; Indigenous peoples (RAP, 1992). The BPAC members were described as “technical experts as well as a number of groups with a wide range of concerns and interests” (RAP, 1992). The BPAC defined itself in 2026 as a stakeholder group with members that include “citizens, property owners, tribes, elected officials, health units, municipal staff, and university staff from both Canada and the United States” (Bi-National Public Advisory Council, n.d.). Although invited to participate in AOC/RAP consultation through the BPAC, First Nations and Métis communities within the AOC have stated a preference for one-to-one engagement (Derickx, 2022).

The RAP Team consisting of representatives from the above-mentioned Four Agency Management Committee are responsible for oversight, policy implementation, and the administration of specific sectors. They also have decision-making authority at the upper management level. The Michigan Tribes co-operatively manage natural resources with the

MDNR due to the 2007 Inland Consent Decree (Consent Decree), a settlement negotiated between Michigan and the Five Michigan sovereign tribes. The Consent Decree resolved issues around inland treaty rights to hunt, fish, and gather, and defined the extent of tribal rights affirmed in the 1979 United States District Court Ruling that tribes reserved their treaty right to fish in the Great Lakes (MDNR, 2026). Because of the recognition of their treaty rights and co-management authority, Sault Ste. Marie Tribe of Chippewa Indians and the Bay Mills Indian Community are also referred to as actors by the MDNR since they directly interact and influence decision-making processes within the context of fisheries management in the St. Marys River AOC.

Indigenous Peoples of Canada have the Aboriginal right to fish for food, social and ceremonial need, and the treaty right to fish for a ‘moderate livelihood’ as recognized and affirmed in section 35(1) of Canada’s *Constitution Act*, 1982 (Constitution Act, 1982). These rights also include governance over their traditional lands, waters and resources (Assembly of First Nations 2018). Although section 35(1) of the *Constitution Act* recognized and confirmed Aboriginal and treaty rights, it did not clarify how these rights were to be upheld (Lowitt et al., 2019). Instead, it created a legal pluralism or the layering of two legal traditions operating over the same jurisdiction (Bavinck and Gupta 2014; Denny & Fanning 2024) where colonial settler law holds decision-making power. Since 1982 more than two hundred Indigenous individuals have fought for their Aboriginal and Treaty rights in the Supreme Court of Canada (Assembly of First Nations, 2024).

Despite recognition of Aboriginal and Treaty rights in the constitution, without explicit laws and policies that define these rights, they have been challenged by incoherence, power struggles over access, and social conflict (Denny & Fanning 2024). For both Canada and the

province of Ontario there exists a duty to consult First Nations and Métis communities on decisions that could adversely impact their treaty rights to fish, hunt and gather. In 2017, the Canadian Government committed to the implementation of United Nations Declaration of the Right of Indigenous People (UNDRIP) to recognize Indigenous Peoples as “self-determining, self-governing, increasingly self-sufficient” (Canada, 2018, p. 4). This became legally binding in 2021, with the *United Nations Declaration on the Rights of Indigenous Peoples Act* (UNDA). The government committed to take an active role in decolonizing laws and policies and other activities which would be informed by the Report of the Royal Commission on Aboriginal Peoples (RCAP) and the Truth and Reconciliation Commission (TRC)’s Calls to Action. It renewed a government commitment to “nation-to-nation, government-to-government, and Inuit-Crown relationships” (Canada, 2018, p. 3). The 2021 Canada Ontario Agreement on the Great Lakes Water Quality and Ecosystem Health also committed to advancing reconciliation with First Nations and Métis peoples “based on recognition of rights, respect, co-operation and partnership” (Ontario, 2021, p. 5).

3.4. Participant Recruitment

For the purpose of this research, participants were considered for whether they could provide informed justice perspectives in the St. Marys River AOC. These participants were individuals who live and/or work in the St. Marys River AOC and represented either different government agencies involved in decision-making or rights holders and stakeholder groups as identified by the BPAC. This included fisheries managers, First Nation staff, Tribal staff, academics, riparian landowners, and non-government organizations from both the U.S. and Canadian sides of the AOC (see Table 1).

Participants were recruited through a mix of purposive and sampling. I first targeted sectors identified through the BPAC members list combined with website searches in specific sectors and direct referrals from academic and Environmental Non-Governmental Organization (ENGO) contacts. In total, I reached out to 32 different individuals and organizations. I focused on high-level key informant participants with expert knowledge on management and decision-making within the AOC. Initially I had proposed to interview fishers who are important stakeholders in the St. Marys River, but initial interviews revealed this could be a study unto itself requiring more capacity and relationship building that was beyond the scope of this research. As well, many participants were also fishers and could provide their unique perspectives. The following Table 1 shows an overview of the number of participants interviewed and what sector they represent:

Number of participants	Sector
3	Academics/Researchers
2	Government Agencies
1	Tribes
2	First Nations
5	Non-government Organizations

Table 1: Participant sectors

3.5 Data Collection

Semi-structured interviews were chosen for data collection as they allow for comparisons across interviews but maintain flexibility in conversation (Young et al., 2018). The benefits of interviews are that they provide high-quality data on complex problems and are often used to

gain insight into “knowledge, values, beliefs or decision-making processes of stakeholders” (Young et al., 2018, p. 17). The interviews sought to understand each individual’s experiences and perspectives using a blue justice framework for inquiry. Prior to interviewing participants, I conducted a pilot interview with a former colleague who worked for an environmental ENGO and had experience working in AOC. This helped me to further refine the interview guide (appendix C) and my interview style.

I conducted one site visit to the case study area from July 19-26, 2025, to make initial connections, conduct interviews in person and take observational field notes and photographs. I visited both the Michigan side and the Ontario side of the St. Marys River and was able to observe the shoreline on both sides of the twin cities from several locations. During my trip to the Michigan side, I was able to spend the day with fisheries biologists doing Lake sturgeon population estimates on an inland lake. These experiences and the notes I collected, although they were not used to code or in my analysis, helped me to bracket out my own views from those expressed by participants. During my trip I interviewed three participants in person at locations selected by the participants and had two cancellations, one of which was rescheduled as a Zoom interview. The rest of my interviews were conducted via Zoom from August to October 2025. In three instances I interviewed two participants at the same time. I also attended a BPAC meeting on October 6, 2025, to observe and take notes.

Research participants were given an information letter (appendix A) and asked to sign a consent form (appendix B). Interviews followed an interview guide composed of introductory questions to learn more about the individual’s life and work and to build rapport, this was followed by open ended questions tailored to assist with answering the research questions (appendix C). All participants were asked the same questions from the interview guide; however,

a couple of interviews strayed into directions that the participants led the conversation. Many participants were unfamiliar with the term blue justice but not the underlying justice concepts which were outlined in the information letter (appendix A). I also checked in with the participants prior to the interview to ensure they understood my positionality and the term blue justice before starting the interview. As all participants agreed to being recorded, I took minimal notes during the interviews in order to create a more conversational atmosphere.

Participant confidentiality was considered in the writing of the findings and participants are referenced using a numbered system along with demographic and sector information to provide context. The exception is two participants who provided consent for their information not to be confidential and for which I have provided their names and a narrative description (See Table 2).

Name	Ethnicity	Sector	Country	Narrative description
Aaron Jones	Indigenous/French-Canadian	First Nation	Canada	Aaron Jones is a member of Ketegaunseebee (Garden River First Nation) where he lives on the reserve beside the St. Marys River and works as the Guardian Team Lead.
Frank Zomer	Non-Indigenous	Tribal	United States	Frank lives in Sault Ste. Marie, MI and is the Lead Inland Fisheries Biologist for the Bay Mills Indian Community
P3	Indigenous	First Nation Youth	Canada	
P4	Non-Indigenous	ENGO	Canada	
P5	Non-Indigenous	ENGO	Canada	
P6	Non-Indigenous	Academic	Canada	
P7	Non-Indigenous	Academic	Canada	
P8	Non-Indigenous	Academic	Canada	
P9	Non-Indigenous	State Government	United States	

P10	Non-Indigenous	Academic	Canada	
P11	Indigenous	Municipal Government	Canada	
P12	Indigenous	Tribal	United States	
P13	Non-Indigenous	ENGO	Canada	

Table 2: Participant demographics and sectors

3.6 Data Analysis

I first transcribed all the interviews using Apple Notes which provided a very rough initial document to review and edit. I then listened to the audio recordings of each interview and edited the transcriptions while identifying the speakers and editing the text. I applied this practice two or three times to ensure transcription accuracy, taking note of inflection that supported the intended meaning and referencing zoom videos as necessary.

After the transcriptions were completed, I used thematic analysis as an organizing framework for the data. After transcribing the interviews, I coded excerpts of the interviews using Dedoose software to “assign units of meaning to descriptive or inferential information” (Miles & Humberman, 1994, p. 56). During this first coding step, I created 80 codes that I felt related to my research questions and reflected what I had read in the literature. After coding the data, I stepped out of Dedoose to write down some initial patterns that were arising from the first coding in order to create basic themes. I then used the blue justice framework of procedural, distributional and recognitional justice to organize the basic themes I had found. Basic themes that didn’t fit under the blue justice framework offered an opportunity to inform other themes. After connecting back to the literature, I could see that several categories embodied strategies of resistance employed by coastal community groups when faced with blue injustices.

3.7 Ethical considerations

Potential ethical risks of this study included some findings harming reputations or exacerbating tensions amongst different groups. Prior to interviewing participants, I ensured that they had been properly informed on the issues and the purpose of the research so that they understood how their data would be used and also that their participation was completely voluntary and could be withdrawn at any time during the study. This information was provided in the information letter (appendix A) and consent form (appendix B) which was reviewed and signed by each participant before the interview. Where confidentiality was waived, an agreement was made to share a final draft so that participants could review and edit or withdraw consent. All raw data (transcriptions, written letters, signed consent forms) will be stored on a password protected computer to maintain confidentiality. All participants will be provided with a final copy of the resulting thesis and any subsequent articles, and reports upon request.

3.8 Limitations

There were some limitations to this research during the collection of the data as well as during analysis and interpretation. Of note was a limitation in my capacity to interview participants from every stakeholder group and government agency identified by the BPAC. There were several organizations and government agencies that I had hoped to interview but for various reasons I wasn't able to connect with. Some of the reasons include a lack of a response to my interview request emails, a lack of funding for another trip to the region to make connections in person and the timeline and scope of this project. This absence of several stakeholder perspectives including Batchewana First Nations, Federal government representatives, tourism, industry, and health units present an incomplete picture. Another consideration is that the

interviews and interpretation of the data are inevitably influenced by my own positionality and the use of a blue justice framework as a lens for this research.

Chapter 4. Findings

This chapter presents qualitative data collected from 10 interviews with 13 participants to answer the question of how blue justice can inform equitable and sustainable transitions in the St. Marys River Area of Concern. Participants discussed a variety of topics revealing their unique perspectives related to their specific demographic and sector. These findings are presented under the organizational themes of recognitional, distributive and procedural justices along with the emergent theme of strategies of resistance employed by coastal communities.

4.1 Recognitional Justice themes

The following section includes findings around the theme of recognitional justice which examine the factors that limit the recognition, respect, and protection of marginalized identities, cultures, perspectives, and knowledge. Examining whose cultural perspectives and voices are limited can reveal the roots of structural inequalities and power dynamics. Blue justice literature views recognitional justice and capabilities of the human and non-human as critical for achieving other aspects of justice such as distributional and procedural (Tafon et al., 2023). These sub-themes were selected because Indigenous culture and rights, Traditional Ecological Knowledge, and fish consumption advisories emerged through the analysis as key areas where misrecognition was experienced or identified by participants.

4.1.1. Indigenous Culture and Rights

Several participants from both Indigenous and non-Indigenous backgrounds recognized the historic importance of Bawaating as the gathering place for fishing, trade and ceremony for the

Anishinaabe nation (P11, P5, P4, Aaron Jones, P9). P11 said, “Prior to settlement, prior to the 1600s, this was like Toronto. This is where every First Nation clan would meet and come.” P5 explained, “people came from all the watersheds in Turtle Island and met at Bawaating once a year. And so much came from that for thousands and thousands of years.” P4 mentioned how colonial settlement meant the creation of a geopolitical border right through Bawaating while “family members are on both sides of the river. It was never a line, and the medicine line is a very difficult and problematic thing.” Despite participants' general understanding of the importance of Bawaating to the Anishnaabe people Aaron Jones pointed out that no BUI exists to address harms to Anishnaabe use of the river. As Aaron Jones explained,

The St. Mary's River Area of Concern (AOC) has multiple BUIs. Not one of them is tied to Indigenous use of this water. And the level of impact to that area has created a lot of cultural harms on top of the ecological and social harms that are listed in the BUIs that are created as an AOC. And it's shocking that our community or neighbouring communities were not included in that. I think going forward into the future, that is something that absolutely needs to be looked into because there have been a lot of cultural impacts to our communities that have been specific to the St. Mary's River Area of Concern.

Within Aaron Jones's lifetime he has seen an increase of degradation to the shorelines around Garden River First Nation due to changes in water levels from the management of the Soo locks and the hydro-electric dams upstream. These fluctuations in water levels have had a detrimental effect on his community's relationship to the river which he explained have gone undocumented and unrecognized.

Several participants acknowledged impacts to Indigenous use of the river such as the loss of the great whitefish fishery at the rapids (P12 and P4), degraded water quality, and dwindling fish and wildlife populations (P10). Two participants (P10 and P12) acknowledged a lack of

historical First Nations participation within the BPAC [Bi-national Public Advisory Council], “I feel like we have come quite a way just in the past five years. I think before that the First Nations weren't as involved.” P4 expressed,

Well, I think starting from a place of what reconciliation really is, is to be listening. And we haven't listened to Indigenous voices very well at all. And of course, we didn't get the histories. And just in recent years, we've had a tremendous dark chapter of the formation of this country with the residential school story...Colonial settler people want reconciliation, many, many do. But giving up the wealth that we have is very, very hard. And it's going to take a long time.

Aaron Jones explained that the AOC program was created in a time when “governments in general cared less about Indigenous people.” He expressed that without a lack of recognition of Indigenous use of the river will mean that delisting the St. Marys River as an AOC will unlikely have any meaningful impacts on his community.

4.1.2. Traditional Ecological Knowledge

Several non-Indigenous participants expressed a respect for Traditional Ecological Knowledge (TEK)¹ and a worldview that acknowledges relationality between humans and non-humans. P13 who is an avid fisher found himself at a meeting where he heard Joe Tom Sayers of Batchewana First Nation speak. He shared,

It was the first time I heard someone say, we do not own the land, we are keepers of the land. And it really got me thinking that what we're doing now will affect the next seven generations and we should act accordingly. That we're not doing it for ourselves, we're

¹ Defined here by Potawatomi scholar Whyte (2012): “TEK (traditional ecological knowledge) systems, then, are systems of responsibilities that arise from particular cosmological beliefs about the relationships between living beings and non-living things or humans and the natural world” (p. 5).

doing it for those that come after us. And I thought, what a beautiful concept but how do you foster that?

Non-Indigenous participants spoke of increased recognition and integration of TEK by academic institutions and ENGOS. Referring to Algoma University, P8 explained, "...our university is obliged to engage with Indigenous worldviews, and we do. And that's good." P4 sees TEK as a bridge in land-based education, "You need an Indigenous people's perspective to bring together the story in a way that puts people back into the story of the land rather than us being something on the outside that's just acting upon it." However, Aaron Jones felt that his communities' values and perspectives aren't very reflected in decision-making in the St. Marys River.

P9 explained that TEK in fisheries management is most coherent in the formally dictated legal agreements between the Tribes and Michigan State. After the 2000 Consent Decree numerous conflicts came up between the State and the Tribes around commercial fishing as MDNR felt that the Tribal governments were working against the best interest of the resource. In negotiations for the 2023 Consent Decree the Tribes pushed for integration of TEK as part of management but the State fought against it.

P9 described how conflict and tension between the Tribes and the State is related to the use of TEK in commercial fishing in the Great Lakes. He felt that conflict arises when there is money involved. He further explained how the 2007 Inland Consent Decree dictates how the Tribes work with the MDNR to co-manage the subsistence and recreational fisheries within the St. Marys River AOC. Management is rooted in Western science, specifically around the Walleye fishery. However, benchmarks such as biological monitoring, catch limits or strict requirements don't affect other species fished in the St. Marys River. P9 explained, "It's more kind of a bigger picture. And there simply isn't the harvest pressure on those species that would

impact, or they would cause us to need to move in a different direction.” He further explained that as fisheries management is rooted in Western science, the Tribal natural resources departments hire 75% non-Tribal staff biologists. Therefore, he felt TEK was there to inform Tribal fishers how to be more successful as fishers and for “teaching that next generation to do the things that historically they've always done, that's where really that comes into play.”

In summary, TEK isn't incorporated into fisheries management, although Aaron Jones explained that sustainable practices have been used by Garden River First Nation fishers long before governments made rules and regulations. Several non-Indigenous participants revealed alignment with Indigenous worldviews and felt it was important to engage with TEK. However, management decisions within the St. Marys River AOC are rooted in western science.

4.1.3. Fish Consumption Advisories

Garden River First Nation communities are showing interest in learning more about fish contamination via social media and community posters however most survey respondents hadn't heard about the Guide to Eating Ontario Fish (the Guide) which advises anglers on how to safely consume fish to minimize exposure to toxins. According to Aaron Jones, fish consumption advisory information is difficult to access for his community. While he feels the Guide does provide some good information, he explained that “the level of accessibility is very difficult for a lot of people, even for someone like me who's a professional within this industry. It is not a user-friendly website to use.” He found his community preferred print copies of the Guide; however, these have also been difficult to access for his community as it is geared towards recreational users. As he explained,

But even with the books that they would give out, they were often given out when sport fishermen would get the Ontario fishing regulations. Yeah, when you got your license. But Indigenous communities, status card holders, do not need a fishing license. So, there was just less accessibility to that information to the people that need it the most.

Aaron Jones found the Guide is especially difficult to understand around the difference between general population and sensitive population guidelines (women of reproductive age < 50, pregnant women, children < 15) leaving his community at risk. High levels of mercury can negatively impact fetus development and negatively impact the young person's brain development. Aaron explained, "I don't know if everyone knows that. I don't think everyone knows that because that information is hard to find."

The Guide also doesn't include or reflect Indigenous cultural traditions around fish preparation that can help to reduce contamination. He explained,

The length and size of fish matters but also the way you prepare the fish. Traditional Indigenous ways of consuming fish such as smoking fish help to sweat out toxins. Skin, fatty parts on the fish, like the belly and organs can have higher amounts of toxins. People need to be aware of this.

When asked what Garden River First Nation fishers would need to have trust in the fish, he replied, "Just more information going out to people."

Other non-Indigenous participants showed less concern for fish consumption advisories. P8 felt that the guidelines were well documented and that the responsibility was on fishers to understand the guidelines: "And I think the ministry does a pretty good job with that. Most fishermen kind of know of it." Michigan State has its own fish consumption advisories that are released to the public by the Michigan Department of Health. According to P9 who is non-Indigenous, Tribal subsistence fishers, and state recreational anglers tend to ignore consumption

advisories. As he explained, “They don't notice, they don't care. We don't ever get asked about those types of things.”

As a condition for delisting the Restrictions on fish Consumption BUI on the Canadian side, it was recommended that BPAC conduct a fish consumption survey to ensure that there was adequate recognition of fisher consumption when determining what should be considered a restrictive diet. P10 shared that based on survey results they received, eight meals a month was a good assumption. The BPAC fish consumption survey got 679 responses. They attempted to be inclusive with First Nations and worked with Garden River First Nation to help fund the Garden River First Nation community fish consumption survey. Batchewana First Nation chose not to participate directly in the survey making it unclear whether BPAC was able to reach a large portion of the First Nations subsistence fishing population within the AOC.

Participants revealed that fish consumption advisories don't always recognize the unique needs of subsistence fishers by ensuring they have access to the information they need to make informed health decisions particularly around vulnerable populations. This applied particularly to Indigenous rights holders who access information in different ways than recreational fishers. Indigenous subsistence fishers also don't see their cultural traditions reflected within the Guide.

4.2 Distributional Justice

Distributional justice concerns the fair distribution of the benefits, burdens, and risks arising from environmental governance and development among different coastal communities and stakeholder groups. Distributional justice considers the harms and benefits over time and how they have changed livelihoods and lifestyles (Bennett et al. 2021). This section explores the uneven distribution of harms from environmental degradation as well as privatization and

access within the St. Marys River AOC. The sub-themes in this section were selected because they emerged through the analysis as key areas of unevenly distributed harms, risks, and benefits, and they align with distributional justice concerns in the blue justice literature, including uneven impacts to fishers, harms to Indigenous livelihoods and traditional food sources, risks to human and ecosystem health, and public access and relationship to the river.

4.2.1 Impacts to fishers, Indigenous livelihoods and traditional food sources

Participant perceptions about fish consumption in the St. Marys River AOC showed that fish contamination unevenly impacts fishers. Several non-Indigenous participants suggested that recreational fishers mostly catch and release and generally don't eat the fish. P4, who does a lot of work out on the water sometimes interacts with the fishers. They shared, "we ask them, you know, are you eating the fish? And most people are not eating the fish." P13 explained from his experience as a recreational fisher living in Sault Ste. Marie that fishing is a huge pastime for residents however they fish mostly for social reasons and not for food. But he also knows many people who fish up to 200 days out of the year and bring home a fish each time. As he explained, "It's actually fish and feed if you really enjoy it. I enjoy fish, I enjoy cooking fish. I want a meal." While P11 said, "We have fishing derbies out here. But not one ounce of meat gets eaten from any of these fish caught in this river." P8 observed that, "people of all sorts of economic statuses do it. I'm sure some people are doing it to support themselves from a food point of view." While it is unclear from these participant observations as to what extent recreational and sport fishers are consuming fish for food it is evident that fishing is a huge part of the culture and a main draw for tourists. As P11 explained, "...it's a culture. Especially in the States, fishing is a real culture. All our tourism in Northern Ontario is based on fishing. In the spring, summer and then hunting in the fall."

Several participants confirmed that Tribes and First Nations have community members that fish for subsistence within the St. Marys River. As P9 explained, “there is still tremendous opportunity for tribal fishers to exercise rights in that area, even though it isn't open to their commercial fishers.” Aaron Jones explained that in Garden River First Nation a lot of community members rely on fish for subsistence reasons as a main food source. He explained his own relationship to fish:

Fish protein is one of the main proteins that I have in my diet. And I usually eat about one fish per week. I would eat more, but I'm trying to limit the number of fish I eat because of these fish consumption guidelines. I'm selective of what I eat, and I tailor my personal fish consumption habits to what I think is healthiest for me and my family. There are personal, spiritual, and cultural subsistence benefits.

Restrictions on fish consumption due to contaminated sediments has changed traditional consumption habits for Garden River First Nation community members. Aaron Jones explained how his own consumption habits have altered even within the last ten years so that he no longer eats fish livers. He further explained, “That was something that our people have always done, you know, making sure that we consume all parts of anything that we'd be catching.”

Aaron Jones shared that results from a 2024 Garden River First Nation Community Fish Consumption survey showed that the St. Marys River is the least preferred water body for community members to fish in and that 46% of respondents said they don't eat fish from the St. Mary's River because of uncertainty around contamination. He explained that the majority of the survey responses were most concerned or concerned about contaminants and fish because of historic environmental contamination of the St. Mary's River.

Several participants described how sustainable food harvesting practiced by the Anishnaabe for millennia have been impacted within the AOC. Three participants described the loss of the great whitefish fishery at the rapids which meant a loss of livelihood for small-scale fishers and their relationship to the fish and river (P12, Aaron Jones, Frank Zomer). P12 explained,

Well, when you look at the history and the amount of fishing going on, there was a huge stock of whitefish that was native to the St. Marys River. There was a stock of whitefish there that did very well, spawning in the rapids. And there was an incredible amount of fish there so that native fishers would come out with these big hoop nets, sort of and they would go in their canoes, and they would dip into the water, and they would come out with a full net of whitefish, and we think that that stock is extirpated. That stock of whitefish that was native to the rapids in particular is probably extinct. So that will probably never come back.

According to Aaron Jones the loss of the fishery impacts generations by reducing their capacity to experience a culturally important feature of the river. He explained, “it's really harmed our community's relationship with this water body.” He further explained how he used to go waterfowl hunting for geese and ducks with his uncles when he was young but within his lifetime, he has seen the effects from changing water levels to on the shorelines of the St. Marys River where there was once good riparian habitat for waterfowl, fish and aquatic life. He also shared that Garden River First Nation doesn't have any relationship with the IJC that controls the locks or the hydroelectric dam excluding them from input into decision-making on the water releases that dramatically alter these water levels.

Another traditional food source that has significant cultural and historical value to the Anishnaabe people is Manoomin. Frank Zomer shared that it was largely the reason the

Anishnaabe moved into the Great Lakes region 10-15,000 years ago. Poor stewardship practices common to logging and the draining of wetlands contributed largely to the loss of Manoomin along Michigan shorelines. Within the St. Marys River AOC system-wide hydrological changes to accommodate shipping, wave impacts and shoreline alterations were also contributing factors. Recently there has been a big push toward Indigenous sovereignty and as Frank Zomer explained, “Manoomin really fits into that in a big way”. He then explained how important it was for food security,

Manoomin is important not only because it is the reason that people moved here thousands of years ago, but it also allowed those people to survive the harsh winters. It was this thing that they could harvest every fall. They could very easily dry and store it for a long period of time. It's a really high nutrient packed source of food. So, it was really the thing that allowed people to survive in Michigan and throughout the Great Lakes.

While the Anishnaabe in the St. Marys River AOC have experienced many impacts to their traditional food sources and relationship to the river they have also not received any profits from the settler economies that impacted the river. As Aaron Jones shared, “I think there's a lot of people profiting off of this river, and those profits have not been shared with the people that had the closest relationship to this river.”

4.2.2 Impacts from pollution

Both Indigenous and non-Indigenous participants shared that contaminated sediments continue to impact the river as they continue to leach from contaminated industrial lands. These sediments contain ammonia, oil and coal and other chemical substances. These same participants feel that remediation will not completely eliminate the legacy of contamination. Several

participants remarked on the pollution that continues to enter the river through air emissions and spills from Algoma Steel. P11 explained that air emissions from steel manufacturing contain, “benzene, sulphur dioxide, manganese. They're all carcinogens or irritants...Our local doctors are leaving town because of health concerns.” Aaron Jones echoed, “And those air emissions go into the air, but when it rains, it settles.” P13 shared their view of groundwater contamination coming from Algoma Steel:

One hundred and twenty-five years of slag. It is still leaching out of that and will always leach out of that. They can't stop it so the quality will improve but it will always be questionable as to what's in there.

Air emissions beyond provincial standards for carcinogens have a direct impact on neighbouring communities and particularly an area in Sault Ste. Marie, ON called Bayview located beside Algoma Steel. P11 described how the particulate from Algoma Steel settled to the point where vehicles are covered in powder when residents wake up in the morning. He added, “It's kind of like the slums over in that Bayview area.”

The impacts of pollution of polycyclic aromatic hydrocarbons (PAHs), which are produced by the industries along the river are also what sees a rise in fish tumours. P10 shared that fish tumours is a BUI that BPAC was hoping to delist but recent monitoring has shown an unexplained increase in fish tumour rates. They hoped that Algoma Steel's transition to an arc furnace will help reduce PAH impacts.

Three participants shared how they believe industry has degraded the environment to a point where “we can't go back” to what the river was. P9 said, “St. Marys River is probably one of the most impacted waterways. From the upper peninsula perspective it has dramatically changed from what it was 200 years ago. And it's not going to go back to what it was.” While P4

said, “The life of the Great Lakes is like the rebalancing of, the re-equilibrium of. We can't go back to where we were.” Frank Zomer expressed how, “we've got pollution to a certain degree. We've got these huge hydrologic changes. And some of those can be mitigated, I think, but some of them just can't be. They just always will be.”

Going back to what was is not the goal of the AOC program. As P10 a non-Indigenous participant involved with BPAC shared, “The idea is not getting things back to being no advisories because that's just not feasible, right? There are advisories everywhere within the Great Lakes, but the idea is we want them to be similar to areas that haven't been impacted or classified as an Area of Concern.” When asked what delisting the AOC would mean to participants, many felt that this wouldn't necessarily change negative public perception and relationships with the river. Frank Zomer feels that delisting the AOC isn't going to impact “what's actually happening on the ground” He doesn't think it will make people more comfortable swimming, eating the fish or as he put it, “having those relationships in a good way.” As an example, a couple of participants mentioned how the City of Sault Ste. Marie, Ontario recently proposed building a swimming pool within the St. Marys River channel. While P8 thought this was a positive idea, P11 explained, “But there's a lot of pushbacks because people are thinking who wants to swim downstream from Algoma Steel?”

Pollution impacts communities within the AOC negatively by creating divisiveness between those who are for or against industry. P10 who is a non-Indigenous participant involved in BPAC felt that there is a lot of negative perception about the river being contaminated because of Algoma Steel. She related that, “the people that hate it have that really negative perception that the water is highly polluted, and you can't eat the fish, and you can't touch the water and things like that. Whereas that perception is not accurate.”

Participants revealed that pollution from industries causes public health risks from carcinogenic substances released into the air and water and marginalizes communities close to the source points. Community divisiveness is created by those who support industry and believe the water is safe and those who don't. Public perceptions formed by a lack of knowledge of the water quality and fish contamination levels creates distrust and breaks down cultural relationships with the river.

4.2.3 Privatization and Access to the Water

P11 shared how private industrial and commercial sites contaminated from industrial uses, called brownfields, can be left contaminated and unused for years restricting access to the water. They described how land owned by Suncor right that he considers “prime land” on the shoreline of downtown Sault Ste. Marie, ON has been left unused since the 1950s because it has not been remediated.

Despite being a popular tourist attraction on the Michigan side of the River, the Soo Locks create a long corridor that restricts access to the water within the heart of Sault Ste. Marie, MI. Frank Zomer has observed that people benefit from a connection to the water and thinks the city of Sault Ste. Marie, MI could do more to allow people access to the water. He explained,

It's been probably 100 years of just focusing on shipping and areas for shipping and how do we get things off or make it so that ships can stop here in a better way. I think we just need to shift thinking more to how people can be a part of that relationship with the water instead of just focusing on the locks.

Participants shared how private property on the shoreline restricts public access and relationship to the river. Brownfields remain contaminated until the owner decides they want to do something with these lands preventing opportunities for developments that benefit the community.

4.3. Procedural Justice

Procedural justice refers to fairness, inclusiveness, and transparency in decision-making and governance processes. It examines who holds power in decision-making, whether governance processes are fair and effective, and whether stakeholders have meaningful opportunities to participate. The sub-themes in this section emerged as key areas participants mentioned when answering questions about decision-making within the St. Marys River AOC. They include sectors such as economic development, fisheries management, and remediation, as well as the theme of public participation. These areas demonstrate whether government processes are inclusive, including who is involved in decision-making and who is not. Data collection and research are also included as a theme, as they inform decision-making and are key to ensuring transparency, corporate and government accountability, and access to the information needed for informed participation.

4.3.1 Economic development

Many participants discussed the dominant influence of industry related to resource extraction along the river. P8 observed, “There is a lot of colonized shorelines to say politely in this region.” P12 acknowledged, “Well in the channel they'll jump at anything to develop the shoreline.” When speaking of the economic development in the region P11, who works for a municipality commented that “What's been done is necessary, even though a little excessive, but

a lot of it was necessary to function today, to even have an economy in, you know, just bringing in Western science into everything. It was necessary.” They explained that when decision-making happens around proposed developments in the city of Sault Ste. Marie, Ontario “we have to be a little pro-development.” He explained that developments can proceed as long as companies have the capital to meet environmental engineering criteria and won’t be affecting source water protection zones. P8, a non-Indigenous participant who grew up in the region of Sault Ste. Marie, Ontario reflected on the attitude in the north which perpetuates this economic growth model:

And so, if one area is contaminated by a mine or a gravel pit or a steel plant or a paper mill, you know, there are dozens more rivers that are just fine. The other one is that there’s not a lot of stuff on the go here. So, try not to break what good things we have going for us.

Several participants reflected on Algoma Steel, its importance to the local economy and the regulatory exemptions Algoma Steel has been granted by the government as it transitions towards an electric arc furnace in its efforts to decrease greenhouse gases and local air pollutants. P11 called it “industry politics” and explained,

They drive the economy. If we shut them down, it’s going to suffer the entire city. And they know that. And, I mean, in reality everybody does need steel. The facility largely drives our economy, our local economy. They’re the biggest employer. They compensate well. They’ve been around since before 1900. They’ve been producing steel. It is really the foundation of Sault Ste. Marie and say colonial settlement here. And, I mean, in reality everybody does need steel.

Within the last couple of years, the MECP approved an Environmental Compliance Approval (ECA) for site-specific standards for air and noise emissions that are well above the provincial

standards for health and safety. When asked if Algoma Steel's significant track record of air and water spills, reported in the past several years, were considered in how the MECP grants decisions on ECAs, P11 replied, "That is confidential. They won't share any information about that." They also explained that provincial pollution enforcement penalties are not an effective deterrent to Algoma Steel, "After the exemption expires, they continue to emit. And if they get fined, they just build it into their annual budget because the production is far more, the production revenues are far more than the penalties."

P11 described how they feel there is a lack of transparency to the public around Algoma Steel's air and water emissions. After attending Algoma Steel's Community Liaison Community (CLC) meetings meant to inform the public he felt the data they provided was purposefully obfuscated. As he described,

They try to disguise it, so it doesn't really make sense. It's not presented in a useful way. And that was actually brought up recently [in a CLC meeting]. We have to physically do the math ourselves to see if they're even complying with their own ECA and stuff like that.

When spills from Algoma Steel have occurred, there is often a delay in the notifications about spill events. As he explained, "Sometimes they're just dealing with so much to contain. They don't get around to reporting until a couple days later." P9 said, "there's spills every year on the St. Mary's River. And, you know, I remember last year we were struggling to get notified when certain spills were happening. We would be the last to learn."

P11 described how the details of Algoma Steel's operations remain confidential even to the city staff and government agencies meant to monitor and enforce environmental standards. They explained how Algoma Steel has its own wastewater facility and lagoon which they manage themselves and "they don't let the Ministry of Labour or the Ministry of the

Environment in there unescorted.” The city of Sault Ste. Marie, Ontario doesn’t have access to Algoma Steel’s private lands which means they are unable to apply city pollution mitigation measures for water that enters the sewer system. As they explained,

The city has oil grit separators for what they produce and collect. We would have some kind of pollutant removal technology or station. It would all be underground. But as it goes through here [Algoma Steel] we don't touch it, we can't touch it. The city has no access to it. The city only has the property strip of that open channel because this is all owned by private industry on both sides.

One American participant described how there is no real accountability from Canadian entities across the United States-Canada border as their comment letters on issues impacting the St. Marys River feels like they go “into the void” without feedback.

The St. Marys River is considered a key transportation corridor because of the Soo Locks. From Frank Zomer’s perspective, “I would say river wide, shipping is king.” Several participants mentioned the dredging currently being undertaken to widen the Soo Locks on the U.S. side is currently underway to build a new lock that can accommodate bigger ships. One participant discussed plans for the future development of a new port on the Canadian side that is also being proposed due to its strategic position for the transport of goods and processing of critical minerals from mining the proposed Ring of Fire. P11 explained,

We're actually looking at something called the Port of Algoma as a part of a multimodal initiative. Multimodal meaning multiple modes of transportation. Sault Ste. Marie is so strategically positioned to move products by water, air, and road. We’re right on the border. We have access to international waters, as well as the Great Lakes, like through the Great Lakes. We can go right down I-75 all the way down to Florida. But for multiple modes of transportation - it's called multimodal initiative. We're missing a big deep seaport for water transportation. Anyway, we're revitalizing the Port of Algoma.

Several participants expressed concerns around a new plant which would process ferrochrome primarily used to make stainless steel. P12 and Indigenous participant, explained how the city of Sault Ste. Marie, ON really pushed to get a ferrochrome plant. He explained, “...which would just be awful because all that chromium will be coming here. That’s a huge polluter.”

Participant statements reflect how industries based on resource extraction continue to dominate the St. Marys River AOC. Large employers like Algoma Steel have a lot of influence due to job scarcity and their importance to local and national markets. The Ontario government has provided Algoma Steel with concessions to by-pass provincial emission standards in order to support their transition to an arc electric furnace and stay in business. Current infrastructure projects such as the widening of the Soo Locks and plans for future development build on national and provincial priorities that frame the St. Marys River as an ideal and strategic location for continuing to develop the same industrial economic model.

4.3.2 Fisheries management

Several participants remarked on the St. Marys River’s “world-renowned” recreational fishery found in the rapids. P9 gave several reasons there isn’t any commercial fishing in the AOC. Mostly because the resident fish populations aren’t desirable commercial species, but it can also be dangerous due to the flows and lost commercial fishing gear which are safety concerns. This has meant that sports fishers are considered a key voice in management. As P12 noted, “I would say the whole local economy is benefitting because of tourism and fishing.” P9 a non-Indigenous participant involved in fisheries management, explained that all sport fishing

groups and charter captains that operate on the St. Marys River are key stakeholders. They explained,

Some of the organizers of some of the tournaments have folks that are obviously pretty key and kind of looped in as to what's going on because they've got an economic importance there. The charter captains that operate on the St. Marys River are not an organized group, but they're important constituents, they always have a voice and they want to make sure their voice is heard because while there's no commercial fishing on the St. Marys River, charter fishing is in a sense, a version of commercial fishing because there's a personal economic gain associated with use of the resource.

Two participants also explained how the purchase of fishing licences helps to fund fisheries management agencies on both sides of the border. P13 related how it was the Sault and District Anglers Association that helped to influence the beginning of the recreational fishing licence. He explained, “we got the Ministry involved and at that time there was no fishing licence, but the Ministry was proposing a licence, and we all agreed that we would buy a licence if all the money went back into fisheries enforcement and fisheries conservation.”

Fisheries management in the St. Marys River AOC is focused on the management of key species. P9 named three key species as Atlantic salmon, walleye and lake sturgeon. Atlantic salmon and walleye are important because of their abundance and importance in creating fisheries. Lake Sturgeon has intrinsic value as a unique charismatic species which the Tribes as co-managers on the Michigan side also have an important cultural connection to. Collaborative partnerships have arisen around the management of these key species. An example is the walleye fishery where there is a very tight cooperation between all the agencies on the cross-border St. Marys River Fisheries Task Group (SMRFTG) as P9 explained,

There's a very strong and popular subsistence fishery for walleye that occurs in the St. Marys. There are recreational fishing tournaments for walleye on the St. Mary's every

year, so it attracts tournament anglers. It's very important to the local community, for local anglers as well. The stocking program that occurs for walleye is very cooperative. The Sault Tribe actually is the one that collects eggs, rears them in their ponds and actually does the stocking of the fish. Monitoring is collaborative, deciding where fish go is collaborative. So, it's been ongoing for decades.

Frank Zomer shared how Lake Sturgeon is a species that brings many agencies together to conduct population estimates in the hopes of identifying how to protect these fish and identify spawning grounds. These agencies include Bay Mills Indian Community, Sault Tribe, Lake Superior State University, State of Michigan, Ontario, Ministry of Natural Resources, Department of Fisheries and Oceans, Canada. P9 explained why there is such a focus on only a few key species:

Many of the species, we can't quantify them. So, you can't set a quota if you don't know how many fish are really out there, right? And populations ebb and flow and we don't have the resources to monitor every single species because it takes a different type of survey, different time of year to monitor each of these different species. We are obviously not funded to do that. The Tribes don't have money or staff to do that. The Federal government isn't going to do that. They don't even have management authority here.

Changes to ecology and the spread of invasive species into the St. Marys River within the last two decades has impacted the fish community and by extension the focus on only certain species by fisheries management. P9 shared how salmon were not native to the St. Marys River but were introduced from the Pacific Ocean in the 1960s:

We've seen tremendous changes in Lake Huron over the past two decades with the introduction of invasive mussels and the impacts those have had on the ecology of the lake, which has tremendously changed the fish community in Lake Huron, which has impacted what anglers pursue, both Tribal and state in the St. Marys itself.

P13 explained that when they change a fisheries regulation it's usually restrictive in nature either by making the season shorter, changing the size limit or closing a certain fishery. He also explained that stocking doesn't always create sustainable fish populations. The amount of fish they were releasing through stocking programs wasn't able to match the amount caught so fish populations were still going down. Because of this he explained, "the Ministry changed its philosophy from stocking to if it wasn't a sustainable population in the first place, they weren't going to waste their time."

Participants shared that recreational fishing strongly influences management decisions due to its economic value to the river. The Tribes also exert influence over important subsistence species. Because of ecological and industrial changes to the Great Lakes the St. Marys River fish populations have changed which has led to fisheries management practices of stocking key species and restrictions to maintain the resource. Management collaborations between agencies on both the U.S. and the Canadian side happen around key species important to everyone.

4.3.3 Remediation

Two participants involved in BPAC commented on the results of Canada and the United States conducting remediation efforts separately. As P10 explained the United States, "are just monitoring to ensure that their remaining BUIs meet those kinds of targets. But all of their management activities are completed, whereas on the Canadian side, we're still actively doing management." P12 noted, "You know, the BPAC never really agreed that they should be doing this separately. We always thought that they should be doing it together in Canada and the United States. But they're not." P12 has observed that politics has also had a large impact on the

progression of the AOC program and what has kept it going over the years has been the efforts of citizens. They explained,

If you look, it's been 30 years, so it started in 1990 the RAP. And there was great anticipation from the public, from all the agencies. There was a lot of excitement, you know, to clean up this river, finally, and to be all looking at it together. And then in 1995, Michigan had a Republican government. And then in Congress, there were real cuts from the Republican Party to funding. And so, our funding pretty much dried up in 1995. But we, the citizen's group kept meeting every, you know, all those years. And then there was interest again. You know, it swings back and forth, you know, with the politics, right, and budget cuts and different priorities.

P6 and P7 explained that the difference in funding for the AOC programs in Canada compared to the United States is a different order of magnitude. As P7 explained, “we’re talking about hundreds of thousands of dollars in Canada versus millions in the U.S.” P12 attributes Great Lakes Restoration funding as a big reason for why the United States has sprinted ahead of Canada by enabling them to complete restoration projects making them closer to delisting their side of the AOC. They further explained how this funding has helped the American side restore a section of the rapids and complete sediment clean however the Canadian side has lacked a similar influx of funding to complete remediation activities at the same pace.

They also explained that because the United States and Canada conduct remediation separately, there can be points of contention around remediation strategies. One area of contention is the remediation of contaminated sediments. While the U.S. have dredged and removed the sediments on their side, Canada has been using the method of natural recovery where contaminants are buried by clean sediment over time. On the Canadian side there is a large amount of “badly” contaminated sediment deposits that are a legacy from the steel and pulp and paper industries. P12 further explained, “Canadians are claiming that it’s all clean and we’re

saying, no there's those contaminants still existing below that one inch. So, if somebody digs below one inch, they're going to be in."

P10 explained that the decision to not remove the contaminants involves another level of administrative oversight that is initiated whenever someone wants to do "any type of in water activity." An example would be dredging that occurs when putting in a dock. So, any citizen undertaking a project like this would need to get the necessary permit and consider mitigation strategies in order to prevent the resuspension of contamination into the water. As they explained, "Then what they could do as a mitigation strategy, such as putting up like a silk curtain to capture sediments from kind of being carried along downstream." Permits for dredging go through the Conservation Authority and then the Ministry of Natural Resources, Department of Fisheries and Oceans, and Environment Canada review and sign off on it. However, P12 expressed concerns that this process does not have enough rigour and oversight. He explained,

We don't believe that the Conservation Authority has the expertise to do that. And what we've seen in the past is that they'll just issue a permit and the dredging will take place. And all those contaminated sediments will be mobilized again and put down in the currents that go to the U.S. side, you know, so they're endangering health and the environment by dredging without the proper containments. We're worried that that will happen in the future. Because when they just say it's all clean now because there's a layer on top of thin sediments we don't agree with that.

Two participants noted that the RAP has limitations in failing to consider impacts to the St. Marys River AOC from pollution sources outside its defined geographic boundaries. P12 sees a big issue is pollution from the smaller tributaries that run through Sault Ste. Marie, Michigan and Sault Ste. Marie into the St. Marys River containing unknown sources of sewage including E. Coli. He explained, "And the U.S. and Canadian government said, that's not part of the Area

of Concern. The Area of Concern is only the river itself, not the little tributaries that run into it, which we didn't agree on either.” Aaron Jones noted, “Areas of Concern aren't just industrial contaminants, but they are also shoreline riparian zones, and you know, making that connection.”

While there are two BUIs relating to fish, which are restrictions on fish consumption and fish deformities. P9 explained that fisheries managers day to day activities aren't directly involved with AOC remediation efforts pertaining to fish habitat. He admitted that fisheries would definitely benefit from improved habitat but wasn't sure it would change the scope of their work.

There's a disconnect...If we had stronger, healthier fish populations, it would benefit recreational angling, it would benefit subsistence fishing. It may attract even more people to the area. And if we got to that point, then great, maybe we would need to kind of reassess some things.

P9 also noted a disconnect between fisheries managers and industry and environmental regulators: “I mean, there are communication pathways, but they're not super-efficient...And I think that's where we are. And everybody does their little thing, and it's not integrated or well connected.” P6 explained that a lack of funding and capacity can limit government representatives from building partnerships and engaging with colleagues in other jurisdictions.

A lot of the people in these agencies know what has to be done. They know they have to come to these meetings. They know they have to participate, but they're not allowed to because it's not directly under the scope of work or due to all the other restrictions. So provincial employees in Ontario, and this is common across Canada, are generally not allowed to leave Ontario for meetings and things like that. They have to stay in the province. They don't generally support outer province travel. So, you know, there's a whole bunch of things in place, limitations that prevent them from being able to do the things they want to do and engage in the ways that they want to engage.

Participants shared themes of disconnection or lack of integration when discussing remediation in the AOC leading to fragmented, inconsistent approaches and progress.

Participants highlighted the lack of connection to remediation work between the health of riparian zones and tributaries that flow into the St. Marys River as well as between the agencies whose sectors overlap with remediation.

4.3.4 Public Participation and Engagement

Several participants involved directly with the BPAC agree that it is a valuable forum for the public and government agencies from both countries to come together to exchange ideas and information. P10 felt, “What really brings us together is our kind of community engagement and involvement.” P4 felt it is a place where public concerns can be really heard by government agencies. As they explained, “Yeah, so they've definitely done some really great work doing letters of support and they are listened to. Like the government agencies and so on that receive a letter from BPAC, it is read and listened to.” P11 who attends BPAC meetings as an agency representative confirmed that public concerns are taken into consideration, “I will take their concerns seriously.” However, there are restrictions to how much agency representatives can influence decision-making. As they explained, “We can't just create new programs because they all have a cost to them.”

P10 explained that BPAC is not consulted on every issue pertaining to the AOC as it was set up to be consulted specifically around BUIs. As they explained, “That's what they're funded for is to remove these beneficial uses from the list. And so, they're not really able to put time into looking at new and emerging concerns and things like that.” This means that there is a bit of a “grey area” on whether the BPAC “have to be consulted or should be consulted” around

development proposals or water issues outside the scope of the AOC program. P4 told an anecdote about how BPAC funded a small group to do PFAS testing in the Pointe Des Chênes region of Sault Ste. Marie, ON and all the members were so surprised about how many government people showed up for the group's presentation. They had done testing using proper protocols and supplied quantitative data that the government could use. As they explained, “Everyone was so amazed, but they were very concerned, and they each had their own little piece about it.”

Table 3 describes how the participants who attend BPAC meetings listed government agency reps, rights holders and stakeholder groups who are considered regular attendees.

Country	Stakeholder/Decision-maker group	Sector
United States	State of Michigan EGLE Coordinator	State government agency
	Bay Mills, Indian Community	Tribal Nation
	Sault Ste. Marie Tribe of Chippewa Indians	Tribal Nation
	Chippawa Ottawa Resource Authority (CORA)	Inter-Tribal Government agency
	Lake Superior State University	Academic/Research
	Riparian landowners involved with ENGOS	public
Canada	Algoma University – RAP Coordinator	Academic/Research
	Batchewana First Nation	First Nation
	Garden River First Nation	First Nation
	Lake Superior Conservancy	Environmental non-government organization

	Algoma Steel	Corporation
	Ontario Ministry of Natural Resources	Provincial government agency
	Ontario Ministry of Environment Conservation and Parks	Provincial government agency
	Department of Fisheries and Oceans	Federal government agency
	City of Sault Ste. Marie, Ontario	Municipal government agency

^s Table 3: Stakeholder, rights-holder and government agency groups who participate in BPAC

Participants remarked on the absence of representation at BPAC meetings from certain stakeholder, rights-holder and government agencies. P12 noted, “City of Sault Ste. Marie, Michigan does not attend BPAC meetings as they do not have a representative. Algoma Steel is off and on. They will participate as a member, but I haven't seen anybody lately.” He explained that participation from First Nations is “off and on” because of capacity issues. “You know, sometimes they have environmental staff and sometimes they don't.” He also explained that in the States the Great Lakes Restoration Initiative (GLRI) ensures a budget for Tribal staff and therefore they have the staff capacity to regularly attend BPAC meetings. About First Nations participation in BPAC P10 explained, “I think, it had to do with capacity and the ability to attend these meetings. We have since been able to provide some funding to have them attend the BPAC meetings and things like that. And so, it has been a lot easier to engage with them. Yeah, I think we're doing better now.” Aaron Jones added, “I think there is a desire to be more inclusive, but I think it's just challenging to figure out how that inclusivity would practically work, you know? He shared that “funding definitely has been a challenging thing for many Indigenous communities, including ours. Just a lot of project funding is short-term and minimal.” BPAC has previously funded a water quality position at Garden River First Nation. Having worked with

staff at both the ECCC and the St. Marys River RAP, Aaron Jones added, “It seems like there's a lot of compassionate staff there that want to help out. Of course, they don't control the funding that they gather and are even able to give out.”

According to P8, who has direct experience with bi-national RAPs, engaging First Nations from the very beginning has led to more successful outcomes. He gave the example of the Cornwall AOC Planning Advisory Committee (PAC) who engaged with the Mohawk Council of Akwesasne Environment Division from the very beginning while on the United States side the New York DC did not engage well with the St. Regis Mohawk Tribe. He explained, “I think for like six years, the Mohawk Tribe weren't even coming to the meetings. They're like, no way, we don't have to. You're not listening to us. We've got our own guidelines. You do not follow our guidelines. And so that caused a lot of friction.”

A few participants expressed how the BPAC doesn't represent a diversity of voices. As P4 noted, “Even though it's like the meetings are open to the public, it's usually the same faces that show up every month. P11 called BPAC, “an environmental advocacy group” consistent with how another BPAC member described the backgrounds of people attending BPAC meetings that mostly come from the environmental sector whether they are retired government agency representatives that were involved in natural resources, had worked for an environmental agency or students who are interested in an environmental career path and want to build their resumes.

P4 explained that trying to engage more with the public has been a big focus at BPAC meetings. Particularly to get people more excited about the work they are doing and to engage youth. In their opinion the scientific technical language could be a deterrent, “it's just the language that they use. It sometimes takes me so long to hear what they're actually talking about.” While P10 shared that much of the community engagement is happening through “the

reports that they're writing and things like that.” They shared that BPAC has historically had tables at events and are moving into expanding their social media and website presence but there have been some tech issues. They also explained, “But then it's also nice that this year they’ve had funding to have an outreach assistant. So, whenever there is funding for that additional work, then that's when both those updates get made.”

Three participants expressed that they didn’t find it easy to participate in the BPAC and that it lacked visibility in the community. The BPAC website does not include an invitation to join BPAC or explain how one becomes a member and is not necessarily meant to be inclusive to the general public. When asked how you become a BPAC member, P12 said, “our rules require that you give us a letter that whoever you're representing agrees that you can participate, and then we just vote for you as a member. You can also apply if you are a riparian landowner.” P8 who has decades of experience with water issues and AOCs described his experience trying to join the BPAC, “I said I'd be interested in participating. But no follow-up...It's just quiet.” He feels more needs to be done to engage people because of the importance public participation is meant to have in the AOC program:

There should be press releases about what's going on. I mean, the whole idea behind AOCs is to get the public to agree that what you've done is satisfactory. The EPA doesn't decide. Environment Canada doesn't decide. It's the province and the state's responsibility to clean up. And then they go to the respective federal agencies, and they will turn around to the public and say, are you happy with this? So, I think that needs to be worked on quite a bit here.

Some participants on the Canadian side expressed disappointment in the lack of visible community engagement and activity for the AOC. As P13 shared,

I get discouraged with the lack of apparent action by RAP and BPAC because they seem to get funding to operate the office but it's not obvious that they're doing anything except issuing the odd study or this odd report or something.

P8 expressed, "...the folks in Cornwall [AOC] are actually a lot more active and getting going on stuff. Whereas here, it hasn't been. So, it really shows three decades later that makes a big difference."

Despite limitations expressed by participants there were concerns about what would happen once the St. Marys River was delisted and there were no longer funding and resources for public participation and stewardship initiatives through the AOC program. P10 suggested that they could move more towards the work of the Lakewide Action Management Plan (LAMP). P12 hopes BPAC can continue in a different capacity once the St. Marys River is delisted so there is ongoing citizen involvement and watershed stewardship.

BPAC members expressed the importance of BPAC as a forum for the public to voice their concerns and exchange information with government agency reps. They shared that their concerns are taken seriously even though government representatives are limited in their decision-making influence and funding capacity to act on all suggestions. Issues around community engagement were brought up several times by participants. BPAC members expressed that public engagement is an ongoing priority especially around youth engagement. However, there is a lack of capacity and funding to do this as well. A few participants not involved in the BPAC felt BPAC activities weren't visible or responsive to the public and that more work needs to be done to inform the public on AOC activities. It was suggested that improved science communication would be helpful. Lessons learned from other AOCs show that more public engagement in general and ensuring Tribes and First Nations are brought in at the

early stages of bi-national RAPS helped to achieve greater success with remediation. One participant suggested the challenge is to figure out what inclusivity means for First Nations.

4.3.5 Data Collection and Research

Several academic and ENGO participants asserted there is insufficient water quality monitoring data that is up-to-date, accurate and easily accessible to inform policy and decision-makers in the St. Marys River. A lack of data gives an incomplete picture of the river's health in order to make informed management decisions. P6 mentioned that earlier in 2025 "the International Joint Commission released a statement that Lake Superior cannot be managed." due in large part to a lack of winter data as most data is collected in the spring, summer and fall. She went on to say that there are data gaps everywhere in the north including in the St. Marys River and most significantly in Lake Superior. As they explained, "You cannot manage something if you do not have the information. We can't just think we know the future. Think we know the past or think we know the present. This information has to be collected."

P6 explained that the responsibility of water quality monitoring for our groundwater, rivers, streams and drinking water was the responsibility of Conservation Authorities in Ontario. As they explained, "It's under the Clean Water Act. It was created that governments, these conservation authorities were created to be source water protectors." However, due to lack of funding, capacity and changes to their mandates the regional conservation authorities are unable to fulfill this role. Data gaps exist especially in winter data because it is difficult to collect. Several barriers to collecting winter data include safety on ice, capacity and equipment. As P6 explained, that a real setback is not having enough trained researchers willing to do winter data collection under difficult climate conditions.

P7 explained that water quality monitoring for policy and decision-making should be guided by a minimum of “three years of collected data and ideally five” however you need “decades of data to be able to determine what is normal and what are the changes or the effects.”

As P6 and P7 explained, until recently, data collection around water quality monitoring in Canada has been extremely fragmented. The idea for bringing water quality monitoring data from provincial databases and regional hubs together on one online platform started with DataStream which was developed by The Gordon Foundation, a Canadian charity. As P7 further explained, “so, essentially, what they've done is created a platform that integrates with everyone else's separate piecemeal platforms to bring it all into one place so that it can be the authority.” The federal government has now recognized the need for data integration and Canada Water Agency (CWA), which officially formed in 2024, is now working on a National Freshwater Data Strategy in collaboration with regional water quality monitoring hubs. They also explained how the CWA has provided a much-needed structure for government agencies to work together:

They actually have a way to work directly with one another and break down those silos, which is actually very rare in government to have a unit like this that operates this way. So, this is kind of almost the first opportunity to do this on our national scale.

They further explained that building pathways that bring policy makers and decision makers together with those collecting data is critical:

The whole issue is that the science people and the policy people keep trying to work on their own and push their own things forward. They have to come together and move forward together in order to succeed. You can't have one side pushing or pulling the other side. It's just not going to work that way, and it hasn't for 200 years.

According to P6, federal funding for data collection on the Canadian side of the AOC, is often dependent on politics, subject to short timelines and uncertainty of renewal depending on a

government's budget priorities. "We don't have that same pathway to funding that the U.S. gets. That direct funding that is literally placed for ten, fifteen, twenty years. We get everything piecemealed into one year." When funding is short term, it makes building relationships with communities around water quality monitoring challenging. As they explained,

We build this relationship, we work with them, we collect this data that we share with them. And then these key people that have built these relationships get taken away. And then you have to rebuild the relationships. You have to rebuild the funding, the resources, the programs.

Two participants spoke of the need for a freshwater institute on the Canadian side that matches the kind of work being done at the Lake Superior State University (LSSU) Center for Freshwater Research and Education. P6 explained the need for a freshwater institute in Sault Ste. Marie, ON in order to keep Canada's commitments to the GLWQA which outlines prioritizing science and research. P8 expressed that central to community engagement and public participation is having a centre for water research. He shared that "people with expertise in water aren't abundant in this area. And so, if you had it as a powerhouse there would be people there that would be able to drive the agenda of the AOC and contribute to it." He described how in the Cornwall AOC there were a lot of pushbacks from the community when they created the St. Lawrence Institute for Environmental Sciences. He explained,

They thought that in order to clean up the AOC, they'd have to shut down the chemical plant, they'd have to shut down the paint factory, they had to shut down the paper mill. As it turned out, all those industries did close, but not because they were mandated to. They closed for their economic reasons...I suspect there might be the same sort of apprehension here, because Algoma Steel is a huge employer in the region. Can't avoid that. I think there's a lot of political pressure for them [researchers] not to be present in a big way.

P8 shared how research that gets funding doesn't always reflect the needs of coastal communities. They provided the example of the received a \$2.2 million grant from Natural Resources Canada that LSSU and Algoma University received in 2025 to look at the impact of oil spills in the Great Lakes. As they explained, "I think it'd be more like research to find alternatives to oil rather than studying the impact of oil."

In summary, participants explained that the Lake Superior Watershed, including the St. Marys River, cannot be effectively managed due to a lack of data and research. Policies and decisions should ideally be informed by decades of data in order to understand how water quality is being affected in a rapidly changing world. The Canada Water Agency is working on a national freshwater data strategy, but one participant felt that in order for a national data strategy to be effective, science and policy experts need to work together instead of each pushing their own agendas. A research institute on the Canadian side, similar to the LSSU would help to contribute and drive the agenda of the AOC. There was the suggestion that a strong research presence could feel threatening to industry in the region. Several participants shared that a lack of long-term funding and capacity has led to a lack of consistent water quality monitoring on the Ontario side, especially for winter data. Government funding for academic research often aligns with political priorities and not with research gaps and needs determined by researchers.

4.4 Strategies of Resistance

Based on the exploration of recognition, distributional, and procedural justice themes, what emerged from participant interviews were actions that communities in the St. Marys River were taking to resist injustices and reflect community needs. This included community-based data collection to make their own informed decisions, education of Indigenous histories,

imagining alternative futures, rebuilding relationships with the river, continuing to harvest traditional foods, petitions, protests and legal processes. Strategies also involved building relationships with other communities and sectors.

4.4.1 Community-based Data Collection and Monitoring

Participants shared that in the absence of data collection on water quality and fish contamination levels, communities within the St. Marys River AOC are partnering with academics and ENGOs to do their own data collection. Leveraging government funding mechanisms, several First Nations communities are conducting community-based water quality monitoring programs and surveys that can help inform community decisions.

Several participants mentioned the work of NORDIK Institute, a community-based research hub affiliated with Algoma University that assists with community-based monitoring that reflects the needs of communities. P6 described how NORDIK has built a reputation for establishing community-based monitoring hubs with several First Nations communities in the St. Marys River, Lake Huron and Lake Superior. Funding received by the Great Lakes Local Action Fund helped to start community-based water quality training and testing programs in Garden River First Nation, Missanabi Cree First Nation and Batchewana First Nation. In 2025, the Canada Water Agency gave NORDIK funding to create a northern framework that could be used by communities and governments to acquire data “in a timely and scalable way.” As P6 explained, NORDIK has “a different connection to the needs of these communities and what the government has access to.” NORDIK has been tasked with providing a guidance document that will be useful to both the government and to other communities who want to implement community-based monitoring programs. P6 explained that NORDIK “does all the provincial

monitoring now in the North. They are the first non-governmental organization to take over provincial water quality monitoring and join the provincial water quality and monitoring network.” Since February 2024 they have been monitoring the St. Marys River using government standard protocols with a community-based Sault Ste. Marie team.

Another key aspect to their work is the collection of qualitative data which in the opinion of P6 has not been well represented on DataStream up to this point or well collected by the Provincial database. As P6 explained, “that’s where regional hubs come into play in terms of creating synthesis narratives and being able to pull together our different community stories across the region.” They also explained the importance of this qualitative data: “Working with communities, there is so much experience. They are the experts of that community, that region, the knowledge that exists there is tremendous...To be able to make an informed management decision, you need the complete story.”

NORDIK produces reports and studies to assist communities in making decisions. An example is a road salt study for the municipality of Sault Ste. Marie which Aaron Jones mentioned was a concern for Garden River First Nation. As P6 spoke to the success of the program which has grown because people “are really driven and motivated.” They explained that as a result of the data being collected communities are able to inform their own decisions. As they explained, “Missanabie Cree First Nation they internally make their decisions based on this data. So indirectly with these smaller northern communities, there are decisions being made within their collective.” P4 also added,

It's very exciting when it feeds back into a big picture of the water quality work because I think there's nothing that you can do that's more meaningful than water quality testing on

the waterway where you fish, you boat, you maybe drink the waters, your grandchildren swim in it, perhaps.

Aaron Jones shared that when BPAC asked Garden River First Nation to participate in the fish consumption survey they were conducting as a step towards removing the Restrictions on Fish Consumption BUI, Garden River First Nation decided they would do their own community fish consumption survey and create a community report. He explained, “We can't just allow an external organization to come into our community to collect data from us without any sort of agreements or additional benefits towards our community.”

P12 shared that the Inter-Tribal Fisheries and Assessment Program (ITFAP), a branch of the Chippewa Ottawa Resource Authority (CORA), already conducts annual fish contaminant monitoring. It is shared with other state and federal agencies and released to the public and it is the longest running record of contaminants of any tribal fishery in the world. Aaron Jones shared that the Garden River First Nation has been conducting a Fish Contamination Survey using western science fish contamination survey methods to reflect Indigenous Fish harvester needs. The work is being led by a master's student who is also a community member. He explained, “We're really happy to have community members that have different levels of experience who are bringing these research skills that are specifically helping out our community.”

Water First is another ENGO that does water quality monitoring and supports Indigenous Youth Internships that promote Indigenous self-determination and data sovereignty. P3 explained that training their own community members means that they don't have “to reach out to non-native organizations for help. I know it's not bad, but we could do it ourselves, basically.” As a water carrier she feels a relational responsibility for “basically just everything in the

community, the animals, the community members, the youth, elders, all of that, everyone.” She further explained,

I’ve always known water is life and water has always been important and I’ve always thought we need to protect it. We shouldn’t be harming anything. We should be able to scoop it up and drink it with our hands without going through a whole process. I want to protect it more than ever. Being a water carrier, like me, it’s important.

Aaron Jones explained how Water First internships have several community benefits. Since it is part of the Mamaweswen, North Shore Tribal Council’s program who represent seven nations, there is an intern for each neighbouring nation, and this really helps with networking and interacting with other First Nations communities. He explained how the internship length of a year and a half benefit youth by providing more training time. “That extra time so you really get almost two field seasons here. And they provided enough training to give our intern a jumpstart in this career field.” P6 explained how the Water First and NORDIK programs also complement each other, “More or less, we go monitoring together because they collaboratively work on any data that we collect. They share.”

According to participants, working with ENGOs like NORDIK and Water First enable First Nations to collect data that reflects their needs, train community members to continue the work and help them to make informed decisions for their communities. Indigenous youth internships that provide two years of funding for training in water monitoring skills and science communication help provide a skill-building foundation that empowers local water protectors.

4.4.1 Indigenous Sovereignty

First Nations and Métis peoples have been employing various strategies to reclaim their lands and waters and assert their sovereignty within the St. Marys River AOC. P4 explained the

Powley Case where the Supreme Court upheld Métis harvesting rights in the Sault Ste. Marie region; “And they went through ten years and sixteen judges. At every single step of the way the Métis won their cases hands down.” She explained the significance of the case from her perspective:

As environmental NGOs, as people who are conservationists and environmentalists, we've largely separated ourselves in the historical way of being that we're going to make this a land trust and protect it from human beings. We're going to have a park and we're going to protect it from human use. But that is really the colonial past of our park system, right? It's to push indigenous people out, like Lake Superior Provincial Park for the Métis and for Batchewana First Nation their villages were burned to the ground. And they both reclaimed space there, particularly Batchewana, but those kinds of stories are prevalent in the colonization act of creating parks.

Several participants acknowledged Batchewana First Nation sovereignty. P10 explained how BPAC is working with Batchewana First Nation for a habitat restoration project beside Whitefish Island: “So they are the owners of the land. And so, they are the leaders of this project and BPAC is helping, in terms of finding funding and things like that.” P13 who volunteers with an ENGO described the efforts of Batchewana First Nation’s former Chief Dean Sayers and Garden River First Nation to be recognized as a nation:

Dean Sayers was in the news again. In fact, it was the Ministry of Natural Resources meeting where I first met him, and I also met the Chief of Garden River. In both cases they came in and stated their case and then left. They talked about nation to nation and we only negotiate as nation-to-nation. We don’t negotiate with individuals or the groups, and they walked out.

Another expression of self-determination that could be seen as resistance to a lack of recognition of Indigenous sovereignty was the formation of the Anishinaabeg Joint Commission that formed in 2016 similar to the IJC. It included the Sault tribe of Chippewa Bay Mills Indian tribe

(Gnoozhekaaning), Garden River First Nation and Batchewana First Nation. As P8 explained, “All got together and sort of wrote up this treaty that they would all dedicate themselves to protecting the Bawaating, the St. Marys River.”

According to participants, First Nations and Métis have been asserting their sovereignty within the Marys River AOC despite lack of recognition in decision-making processes. They have employed legal battles to reclaim traditional territories, employed strategic non-participation in consultations and created their own Joint Commission to steward the St. Marys.

4.4.2 Citizen Action Against Developments

Two participants shared how citizens within the St. Marys River AOC have employed different strategies to prevent development projects that have the potential to impact health and shoreline habitat. P12 explained how Sault Ste. Marie pushed to get a ferrochrome plant which would support critical mineral processing from the Ring of Fire mining development but raised concerns because of the known pollution effects of these types of plants. P11 shared how, “The local medical community, I'm pretty sure every single one of them, opposed it and submitted that to the provincial government, the municipality, and everyone that they could have. They all signed it. There were over one hundred doctor signatures on it.” He explained how he thinks the plant is on hold now as he hasn't heard anything else about it.

P4 shared how a citizen group called the Pointe Protection Association organized to oppose the Pointe Estates condominium development proposal that would have been built right in a wetland bordering the St. Marys River. They described the dedicated volunteers who fought hard against this from the Ontario Municipal Board up to the Supreme Court level and won.

Citizens in St. Marys River AOC have employed petitions and legislation to stop developments pursuing economic gain at the expense of public health and the environment.

4.4.3 Building relationships with the river

P4 shared how being out on the river can shift perspectives and become an educational platform for the river's histories and ecology. They felt that bringing us back to a new equilibrium starts with "us humans being more engaged with the world that sustains us." A Canoes for Conservation tour developed by the Lake Superior Watershed Conservancy in partnership with the Huron-Superior Regional Métis Community offers a safe, ecological and cultural teaching platform to learn about the St. Marys River while paddling in a 36-foot canoe. Throughout the paddle, Métis interpretative guides teach about the water and the place. Inside the canoe the public that are from different cultures, generations and expert backgrounds come together and share experiences. As they described,

People are always saying I've never seen the city from this perspective. When I'm standing on the water, I'm always looking across at the south side. There are different kinds of knowledge and expertise coming on board, sharing. Whether it was what they knew about the shipping or they knew about the canals, or they knew about the ecology or they knew about, you know, bringing elders on board and having ceremonies. And it is just very rich.

The interpretive guide experience helps to focus conversations on "a thread of learning, "It isn't just about taking people out somewhere, but it's about engaging with them in a way that makes them have a sense of respect and knowledge about what they're seeing and learning about how to conduct themselves." The idea is to reconnect people to the water and care for it again. As P4 said, "we have to stop thinking about the trees, the waters, the animals as natural resources for

our purpose, our use. And we have to start thinking about it more in the way of all of our relations.”

For Aaron Jones, relationship with the river now is key to ensuring his community’s traditional relationship to it for future generations. As he explained,

Because these relationships that our community members have with the land are some of the most important relationships that we have. And we want to make sure that we continue those relationships. And the more that our people use and care about this river, just the more attention is going to be paid to it. And yeah, hopefully it’ll be better for future generations.

Several participants shared the opportunities they see from connecting people to the waterfront. P4 shared how in Duluth, Wisconsin they have done an amazing job with waterfront development that “brings human beings back to the edge of the water” and that this is also starting to happen in Sault Ste. Marie, ON:

And I think that in living in an industrial city, which is now getting waterway walks, you know, the hotels have patios on the water. People are out boating on the water. People are interacting with the river with a sense of love and interest and beauty.

Participants share how connecting people to the river rebuilds a relationship to the river while learning its history. For Garden River First Nation that means passing traditional knowledge down and fostering care and stewardship for future generations.

Chapter 5. Discussion and Conclusion

In this chapter I build on the findings to address the research questions which are; who influences and whose worldviews and knowledges are most prominent in decision-making?; what challenges exist to constrain social and environmental health?; and what opportunities exist for equitable and sustainable transitions? Chapter 4 presented the findings within four themes highlighting intersecting injustices and the resistance strategies that coastal communities have employed to amplify and address these injustices. This chapter is organized into sub-theme sections that inform each of the research questions, while referencing the literature in order to answer the overarching question of how the theory and practice of blue justice can inform equitable and sustainable transitions in the St. Marys River.

5.1 Decision-making

Exclusion from decision-making and governance usually precedes and intensifies injustices (Bennett et al., 2021). Examining who influences decision-making, whose knowledge and worldviews are recognized, and how governance processes include or exclude stakeholders and rights holders is therefore central to understanding procedural justice. Governance and decision-making processes can privilege certain knowledge systems, worldviews, and stakeholder interests while marginalizing others, shaping whose voices influence development and environmental management. In this section, I argue that procedural injustice within the St. Marys River AOC is a byproduct of governance structures that prioritize industrial expansion and economic growth above the health of coastal communities and non-human nature, while simultaneously failing to facilitate meaningful public engagement or incorporate diverse knowledge systems and marginalized stakeholder and rights holder's priorities in decision-making.

5.1.1 Colonial Resource-Extraction Economies

Blue justice scholars have observed that coastal spaces and resources are disproportionately claimed by actors who have access to capital, allowing economic interests to shape governance outcomes (Bennett et al., 2021; Ertör, 2023; Hein et al., 2024). The findings suggest that colonial resource-extraction economies introduced in the late nineteenth century still largely influence and shape current governance and development priorities within the St. Marys River AOC. Participants described the colonized shoreline of dams, locks and private industrial lands, including brownfields in the channel between the twin cities of Sault Ste. Marie. These physical features are not just reminders of the past but symbols of the current institutional structures that remain embedded in decision-making processes, influencing whose interests are prioritized and which voices carry authority. The findings indicate that an industrial sector which includes shipping, hydroelectricity, and industrial manufacturing has dominant power and agency within the region as they underpin the local economy and provide employment opportunities where there is scarcity.

Findings also suggest that industrial development is prioritized over environmental and community concerns. On the Canadian side federal and provincial priorities continue to support domestic steelmaking through financial assistance and regulatory exemptions in the face of international market pressures (Flood, 2025). The 2025 Environmental Compliance Approval (ECA) decision granted by the MECP illustrates this dynamic by allowing Algoma Steel to continue releasing emissions of toxic pollutants containing carcinogens, such as benzene (884% of provincial standards) and benzopyrene (53,000% of provincial standards) while it transitions to an electric arc furnace (Wilson et al., 2024). Algoma Steel's promise of an eventual transition to an electric arc furnace which would reduce its carbon emissions by 70% justifies the

perpetuation of health inequities and exclusion from decision-making (LAND, 2024).

Participants also noted that fines for environmental spills were absorbed by companies as the routine cost of doing business, making them ineffective as regulatory deterrents. These examples suggest that government regulatory frameworks often accommodate industrial production rather than enforce environmental protection.

Participants further observed that development proposals routinely proceed as long as developers can afford the costs of meeting environmental engineering criteria. The proposed ferrochrome plant, the deepening and widening of the Soo Locks, and the proposal for a deep-water port on the Canadian side of the river collectively signal an intensification of industrial activity in the region. Public opposition to developments like the ferrochrome plant and the Pointe Estates condo development, suggests that meaningful public participation does not always occur prior to the approval of major developments made by decision-makers. Decision-making processes in the St. Marys River AOC appear to favour economic and corporate development while limiting other stakeholders and rights holders from participation in shaping development plans. This finding supports blue justice scholarship that suggests structural inequalities and power imbalances prevent meaningful public participation in coastal governance (Bennett et al., 2018; Bennett et al., 2022).

In this sense, the channel can be seen as a “sacrificial zone” (Anbleyth-Evans, 2022) where social and ecological losses are tolerated in order to protect economic growth, employment and industrial development. The recurring narrative that resource-extraction developments are necessary to sustain jobs and the local economy serves to normalize these social and ecological trade-offs while obscuring the socio-environmental harms to coastal

communities. Most significantly the reduction of capacities and flourishing for both marginalized people and non-human nature.

Weak regulatory enforcement of pollution and habitat protection has also led to a reduction in capacities for marine resources. Participants emphasized that industrial activities have reduced the capacity of the river to support commercial fisheries, the harvesting of traditional foods and relationships with the river. As Sproule-Jones (2002) noted, a lack of strong regulatory mechanisms in the Great Lakes, and particularly in AOCs, have failed to balance competing uses contributing to the marginalization or exclusion of certain activities. Although marine spatial planning has not been applied to the St. Marys River, blue justice scholars have similarly noted how coastal governance has privileged blue growth sectors at the expense of small-scale fisheries, residents and coastal tourism (Stalmokaitė et al., 2023). The findings suggest that future development decisions must not only consider environmental impacts but how the cumulative effect of industrial expansion erodes benefits, access, treaty rights, and livelihoods for other stakeholder and rights-holder groups.

5.1.2 Lack of inclusive public participation

Blue justice calls for inclusive, participatory forms of marine governance that allow for local and traditional knowledge to meaningfully influence decision-making (Anbleyth-Evans, 2024; Bennett et al., 2021). In the St. Marys River AOC, the Bi-national Public Advisory Council (BPAC) provides an established, formal mechanism for public participation. By bringing community members and organizations from both the United States and Canada together with government agencies to help overcome institutional barriers it supports an ecosystem approach as guided by the GLWQA (Hartig and Vallentyne, 1989).

Participants generally viewed BPAC as an effective forum for engaging with decision-makers on issues related to the RAP. BPAC members reported that their concerns and submissions are taken seriously by government agencies and have helped to inform remediation and consultation on BUI delisting. Participants also gave examples where BPAC has provided technical support and elevated attention to emerging concerns such as PFAS. These findings suggest that BPAC creates opportunities for local knowledge to help influence decision-making and provides opportunities for the co-production of data through funding support.

However, participants also identified limitations to BPAC's ability to address broader public participation in social and ecological issues related to the AOC. Notably its mandate is limited to the RAP and the BUIs established decades ago, therefore constraining its ability to address emerging environmental issues such as climate change, invasive species, industrial developments and new contaminants of concern. This limitation is particularly evident in relation to new development proposals. Participants noted that BPAC is sometimes consulted on development proposals as a courtesy and one participant described this as a "grey area." As a result, there is a procedural gap for public participation on new and emerging issues affecting river stewardship and addressing use impairments outside of the 14 BUIs initially identified thirty years ago. While community members may influence how historical pollution is addressed, they have less opportunity to shape current and future decisions that could impact coastal communities.

Resource limitations also constrain BPAC's ability to promote inclusive participation. Participants noted that limited funding and capacity has led to a need to prioritize the technical reporting and administrative aspects of the RAP program over community outreach and engagement. These types of challenges have also been observed across other Public Advisory

Councils where resource and capacity constraints limit their ability to attract and sustain participation (Rentschler & Williams 2022). Consequently, there has been a lack of community diversity reflected in BPAC, and an absence of many stakeholder groups initially identified at the formation of the BPAC i.e. recreation and tourism; industry/shipping/small business; labour; fisheries; municipalities; academic; elected officials; citizens at large; public health. The BPAC has also identified the importance of engaging youth which has been challenging to date. Participants suggest that a lack of public engagement and outreach has also contributed to low public awareness on the status of the RAP and uncertainty around the environmental improvements achieved through remediation. As a result, distrust in the water quality persists despite substantial remediation efforts.

5.1.3 Uneven influence of small-scale fisheries within fisheries management

Findings suggest that procedural, recognitional and distributive injustices exist within fisheries governance as due to recognitional injustice, inclusion in fisheries governance and its benefits is unevenly distributed amongst different fisher communities sharing the St. Marys River AOC. Participants' comments reveal that small-scale fisheries in the St. Marys River AOC are not a "homogeneous group" (Barbasgaard, 2025) as they have different rights, dependencies on fish, objectives for fishing and decision-making influence. As Hein et al. (2024) argue, rights-based access does not necessarily translate into benefits due to systemic power relations. Recreational fisheries carry substantial influence because of their economic importance through tourism and licence revenues that support fisheries management. As P9 noted, sports fishing associations and charter operators are vocal and shape decisions about key species. Tribes

likewise have influence on which species are prioritized and participate in related decisions around their subsistence fisheries.

Within the St. Marys River different governance structures determine whether rights holders can meaningfully influence fisheries management decisions. Although both Tribes and First Nations hold inherent and treaty rights to fish, their influence differs based on their respective relationships with government agencies. The court settlements that established the Inland Consent Decree created a co-management relationship between Michigan and the Tribes. By contrast, First Nations are not treated as decision-makers by the Canadian state and have less influence in fisheries management decision-making in Ontario.

The accessibility of fisheries data is improved by co-management relationships. Because the Michigan Tribes co-manage their fisheries with the State, CORA has been monitoring fish contamination yearly to ensure important health and safety knowledge is updated for Tribal subsistence fishers. On the Ontario side fish consumption surveys are done by the Ontario government whose target audience is recreational anglers who they regulate and can monitor through fishing licences. The licensing system allows recreational anglers increased knowledge and access to the Ontario Guide to Fish Consumption (the Guide).

The findings suggest that Indigenous fish consumption habits are not adequately reflected in the Ontario Guide to Fish Consumption. Furthermore, barriers to accessing the Guide that are unique to First Nation fishers means that valuable health and safety information is not reaching enough community members that rely on fish as a main part of their diets. Traditional food consumption habits or food preparation methods are also not reflected in the Guide.

Recent fish consumption surveys conducted by BPAC and Garden River First Nation in 2024 were initiated by a limited understanding of fish consumption practices within the

Canadian portion of the AOC. This highlights a broader knowledge gap regarding the diversity of fisheries in the St. Marys River and the varied motivations for fishing. The findings suggest that fisheries management and monitoring efforts may not fully account for the experiences of fishers who harvest fish for subsistence or "provisional" purposes (see Nguyen et al., 2025).

For both Indigenous and non-Indigenous fishers who rely on fishing for subsistence and provisional reasons, this lack of recognition may constitute a form of hermeneutical injustice, whereby their experiences and needs are insufficiently understood within existing knowledge and management frameworks (Fricker, 2007). As one participant noted, First Nations subsistence fishers in the AOC who depend on fish for food security, as well as for personal, spiritual, and cultural benefits, do not see their knowledge or worldviews reflected in fisheries management practices. These findings point to an important area for future research on subsistence and provisional fisheries within the St. Marys AOC, including the informal economies and social networks they support. First Nations also need to be recognized as decision-makers within fisheries management similar to the Tribes in Michigan State and long-term investments should be made to support First Nation stewardship capacity.

5.1.4 Knowledges and Worldviews in Water Governance

Participants revealed that colonialism continues to shape life in the St. Marys River through institutions, laws and policies and a ‘resourcist’ mindset. Participants also described a ‘northern’ mindset where a scarcity for jobs and opportunities prompts fears of losing the industries that are the largest employers. As P11 expressed, the impacts of colonial settlement were “necessary” in order to have any economy. However, several participants expressed hope in moving towards relationality and interconnectedness with the non-human world that Anishnaabe

governance offered and how it could help to inform a western science approach as a way forward. As P4 explained, putting the story of people back into the land rather than something on the outside just acting upon it. As an Anishnaabe woman and water carrier, P3 felt a relational responsibility to care for the human and the non-human realm and as Yaka (2019) noted it is easier to recognize the right of both human and non-human worlds to flourish when we are in relationship with the non-human world. Blue justice proposes interconnectedness between coastal communities and their shorelines in response to prevalent western narratives that suggest they are separate from it (Blythe et al., 2021) thus suggesting the value of incorporating Indigenous worldviews into water governance along with western science.

In conclusion, governance and decision-making in the St. Marys River AOC remains shaped by colonial economic structures and the influence of dominant industrial stakeholders. Although the BPAC provides an important mechanism for public participation, its mandate and resource constraints limit its ability to address new developments, emerging environmental issues, and Indigenous uses of the river. Limited community engagement and science communication have also contributed to persistent distrust of the river despite decades of remediation efforts. In fisheries management, the needs and experiences of provisional and First Nations subsistence fishers remain insufficiently recognized due to gaps in data and knowledge. More just and sustainable governance will require greater inclusion of diverse stakeholders and rights holders, stronger recognition of Indigenous rights and knowledge systems, and decision-making processes that balance economic objectives with environmental, social, cultural, and treaty considerations.

5.2 Social and Environmental Constraints

There are several challenges and constraints to social and environmental health in the St. Marys River AOC that inhibit equitable and sustainable transitions. These challenges result from a legacy of colonialism, fragmentation in governance, gaps in data and perceptions of loss which combine to limit sustainable traditions. This section examines four interconnected challenges: the limits of reconciliation within the AOC program, barriers to implementing an ecosystem approach, deficiencies in data and knowledge, and perceptions of environmental loss that shape understandings of what futures are possible for the river.

5.2.1 The Limits of Reconciliation

Findings suggest that many historical and ongoing harms experienced by Indigenous communities in the St. Marys River AOC are undocumented and unrecognized. The AOC program and the BUIs created within the GLWQA do not reflect these harms or how to address them. Participants identified procedural, distributional and recognition injustices experienced by Indigenous peoples within the St. Marys River AOC including dispossession from traditional territories, environmental burdens associated with pollution and waste, the loss of their commercial fisheries at the rapids, uneven distribution of economic benefits, exclusion from decision-making, and lack of recognition of Aboriginal and treaty rights. These concerns are consistent with injustices identified in the blue justice literature (Jentoft et al. 2022; Barbesgaard, 2018; Bennett et al., 2021a).

Several participants noted increased recognition of Indigenous histories and efforts to involve First Nations in the BPAC and in co-management activities. However, as Aaron Jones emphasized, it remains “challenging to figure out how that inclusivity would practically work.”

P4 also described settler resistance to reconciliation as an unwillingness to “give up the wealth that we have,” suggesting that reconciliation would require a broader shift in values and governance and a dismantling of colonial systems that continue to harm the environment and vulnerable populations. As Chiblow (2023) notes, reconciliation also involves rebuilding reciprocal, healthy relationships with waters. AOC restoration can produce uneven outcomes where legacies of social and environmental injustice persist (Garcia et al., 2021). without addressing historical and ongoing harms, delisting may be meaningless for Indigenous communities who are still not meaningfully included in water governance.

As P13 explained, the Chiefs of Batchewana First Nation and Garden River First Nation have called for their Aboriginal and treaty rights to be upheld and for nation-to-nation recognition consistent with UNDA, shifting their relationship with the federal government from one of consultation to one of collaboration in decisions affecting their lands and waters.

Without addressing historical and ongoing harms, delisting may have limited meaning for Indigenous communities that remain excluded from water governance and whose rights and relationships with the river have not been restored. To improve future development in the St. Marys River, harms to Indigenous peoples must be recognized (Bennett et al., 2021), and treaty rights must be supported through the decolonization of laws and policies which lead to increased Indigenous self-determination and nation to nation governance (Canada, 2018).

5.2.2. An Ecosystem Approach in the RAP

The findings suggest that fragmented governance and regulatory complexity undermine procedural justice by limiting the implementation of an ecosystem approach within the St. Marys River AOC. Although the intention of the GLWQA was to envision the river as a single

interconnected system (Childs et al., 2018), remediation activities remain divided across regulatory and political boundaries typical of bi-national AOCs (Hartig et al., 2020). Maintaining separate RAPs in Canada and the United States has contributed to uneven rates of progress and different remediation approaches which constrains the ability to address ecosystem health throughout the river as a whole.

Participants identified inconsistent RAP funding between countries and shifting political priorities as major contributors to uneven progress. Participants attributed the United States' faster pace toward delisting to Great Lakes Restoration Initiative funding and noted tensions arising from different remediation approaches, particularly for contaminated sediments. For contaminated sediments, Ontario has ostensibly shifted responsibility and costs to proponents wishing to develop in contaminated sediment zones rather than assuming accountability for cleanup and resuspension of contaminants. This approach undermines coordinated ecosystem restoration and raises concerns around corporate transparency while risking the resuspension of contaminants that impact ecosystem health.

Another barrier to an ecosystem approach is governance boundaries that fail to reflect ecological systems and connectivity. Participants noted that smaller tributaries and riparian zones should also be considered in remediation planning due to their importance as pathways for pollutants and contributors to river health. BPAC advocated for the inclusion of tributaries within the RAP, however, this recommendation was not adopted by government agencies. Sproule-Jones (2000) notes that top-down approaches, in which state or provincial agencies define both problems and solutions, are generally less effective in AOC remediation.

An ecosystem approach has been hindered by procedural issues that include fragmented governance, inconsistent funding for monitoring and reporting, and limited incorporation of

stakeholder recommendations, undermining inclusive decision-making and fair and transparent processes. The RAP's narrow geographic boundaries further constrain an ecosystem approach by excluding interconnected shorelines and tributaries, despite their importance to ecological processes and community relationships with the river.

5.2.3 Gaps in Data and Research

Findings reveal procedural injustices around access to monitoring and reporting information for deliberative processes in the St. Marys River AOC. Academic and NGO participants identified significant gaps in water quality monitoring in the St. Marys River AOC, including a lack of current, accurate and accessible scientific data to make informed management decisions. As Childs et al. (2018) explained, routine monitoring and surveillance in connecting rivers in the Great Lakes is not as comprehensive as in the Lakes themselves. Ontario conservation authorities who are mandated by the *Clean Water Act* to monitor provincial water quality, lack the funding and capacity to fill these gaps. This is especially concerning in light of emerging issues such as climate change and the introduction of PFAS (per- and polyfluoroalkyl substances) or “forever chemicals”.

Participants also highlighted that decision-making processes tend to privilege standardized quantitative data, which can limit the inclusion of other forms of knowledge. As P4 explained, government agencies often require quantitative data produced through formal protocols in order to support decision-making. According to P6 and P7 there is a practical difficulty to collecting qualitative data due to its inability to be effectively standardized for input into government databases. However, qualitative data can help explain outlier results in quantitative data through “synthesis narratives” revealed through community stories. If governments rely mostly on technical quantitative data, then it is unlikely that consideration for

cultural norms, practices and values of marginalized coastal communities will be reflected in marine mechanisms (Jentoft et al., 2022; Bennett et al. 2023; Mons et al., 2025).

These gaps in monitoring and knowledge integration contribute to broader uncertainty and distrust regarding water quality and fish in the St. Marys River. Participants described distrust of the water quality and fish in the St. Marys River and how that can become a powerful limitation towards imagining alternative economies. Reported spills into the water and air from Algoma Steel contribute to this distrust. Due to lack of funding and capacity, fisheries described an inability to properly monitor all fish species which means a focus on key species important to managed fisheries. Without sustained monitoring and analysis of water quality that is accessible to the public there are risks to public health.

Blue justice calls for sound environmental decisions informed by adequate scientific evidence that relies on insights from both the natural and social sciences (Bennett, 2018). Within the St. Marys River inadequate data and research constrains the abilities of decision-makers to respond to changing ecological and social impacts. The exclusion of local and traditional ecological knowledge further limits the incorporation of coastal communities lived experiences and realities into decision-making. This results in an incomplete picture of the river's social and ecological systems and contributes to public uncertainty and distrust thereby limiting relationships with the river. Addressing these challenges would require consistent and adequate funding for monitoring and knowledge production that incorporates local and traditional knowledge to better inform decision-making.

5.2.4. Perceptions of Loss

The impression of permanence created by the physical presence of locks and dams makes it difficult to envision alternative futures within the AOC. As one participant reflected there are certain things that can't be mitigated and "they just always will be" while several participants said that we can't go back to what the river once was. The loss of the rapids, now reduced to 10% from hydroelectric dams and gates, are believed to no longer support a native whitefish population. Loss of the river's previous capabilities becomes normalized if we don't remember the river's history.

Indigenous relationships with the river and access to traditional food sources have been harmed and it may take a while for people to rebuild these relationships. A recurring theme among participants was reconnection and rebuilding of relationship to the river which has been challenged by distrust, lack of access and degradation of riparian shorelines. Writer Robert MacFarlane speaks of 'shifting baseline syndrome' where we accept as normal whatever we grew up with and don't even realize the level of degradation that has occurred (MacFarlane, 2025). The ability to imagine alternate realities is constrained by a dominant colonial narrative where stakeholders who represent strategic national interests are given more recognition than possibilities presented by marginalized and less consolidated groups (Stalmokaitė et al., 2024).

Colonial shaping of the river combined with shifting ecological baselines, normalize environmental changes to the St. Marys River AOC, thereby constraining the ability of communities to pursue alternative futures that foster relational and reciprocal relationships with the river.

5.3 Opportunities for Equitable and Sustainable Transitions

An examination of resistance strategies in the St. Marys River AOC reveals partnerships between coastal communities, academics and NGOs. In her study on a systems integration approach to support just transformation of the blue economy, Kelly (2023) argues that transformational pathways where social and cultural factors are the foundation should focus on the engagement of local stakeholders and build out from there both conceptually and geographically. Within the St. Marys River AOC, several actions taken by coastal communities inform transformational pathways or pathways to blue justice.

As direct government allocation towards water quality monitoring has diminished in Ontario, ENGOs and Academics in partnership with coastal communities are leveraging both federal and provincial grants for data collection and habitat protection. NORDIK community-based water quality monitoring and Water First partnerships provide local Indigenous communities with youth skills training while filling data and research gaps. Notably Water First partnerships support women's leadership in water governance in the role of water protectors. These partnerships can help in building relationships of trust through the collection of data and increased self-sufficiency that directly benefits communities. Data collected by trained community members can benefit community decision-making and promote self-determination as well as rebuilding relationships with the river. Partnerships and collaborations also develop between First Nations communities who are working out on the water together.

The regional hubs spearheaded by NORDIK are forming part of a network that the Canada Water Agency has identified as having the potential to assist with data gaps in the St. Marys River and Lake Superior while providing a template for a network of regional data centres that feed data into one consolidated national database. This model represents a bottom-up

approach where research reflects community needs, building trust in the process and in the data collected. Berkes (2015) suggests that just transitions are facilitated when social and political issues are handled at local levels instead of central authorities whenever possible. Community-based monitoring is a solution to fill the data gaps undertaken at the local level that can advance just transitions through self-determination and inclusion in decision-making and be scaled up over time (Kelly, 2023). Challenges facing these programs include a lack of long-term funding commitments making it hard for NGOs to sustain these relationships and build long-term growth.

As Mons et al. (2025) maintain, memory, emotions, and local knowledge can strengthen community identity and foster new economic models. Alternatives to blue economy models could look towards socio-cultural coastal practices. Camparero (2024) speaks of ‘maritime identities’ such as fishing, artisanal and tourism. Restoration of manoomin (wild rice) which has been associated with Indigenous food sovereignty could provide food security and ecological health. While these economies are challenged by pollution and fluctuating water levels, small habitat restoration efforts have already been undertaken. Restoration of the little rapids section of the St. Marys River has seen a return of swift water rapids habitat ideal for fish spawning after removing a causeway and replacing it with a bridge (Bunch, 2017). Batchewana First Nation has also received funding to construct shoals to benefit fish habitat beside Whitefish Island (Kirk, 2024) and a community-driven initiative to assess climate risks to their traditional values, lands and resources (Canada, 2026).

Interpreted guided tours offer educational opportunities for learning about the river’s histories, and ecology while fostering stewardship for the river. An example being Canoes for Conservation which honours this approach. The promotion of respectful relationships with the river and Indigenous peoples helps to replace the “colonial industrial narratives” through active

remembering and replacement with “non-colonial literacies, knowledge and narratives” (Hopkins et al. 2022, p. 71)

Providing a water research centre on the Canadian side akin to Michigan’s Lake Superior State University’s Center for Freshwater Research and Education could provide a tourism destination that fosters stewardship and advances research on the Great Lakes by attracting water experts to the region. Although participants mentioned challenges such as political will and funding, they felt strongly that a research institute would really help push the agenda of the AOC and help Canada meet its commitments to research as outlined in the GLWQA.

5.4 Concluding remarks

An exploration of blue justice within the bi-national St. Marys River AOC reveals procedural injustices such as a fragmented approach to remediation and management, characterized by jurisdictional siloes, gaps in data and research on water quality and fish contamination levels, limited integration of local and Indigenous knowledge, limited public participation in decision-making, and ongoing challenges in upholding treaty rights. While institutional fragmentation weakens communication pathways between agencies, gaps in water quality monitoring and fish contamination data leads to a lack of understanding of the river’s ecosystems and impedes fisheries management. Despite efforts to include First Nations in remediation activities, pathways to reconciliation remain hindered by a lack of recognitional justice that addresses harms to Indigenous relationships with the river, and limited opportunities for meaningful participation in decision-making.

These constraints along with distributional injustices that include ongoing pollution, degraded shorelines, lack of access to the shoreline in urban areas, harms to traditional food

sources and public perceptions of loss, make transitions away from dominant colonial resource-based economies difficult. In response, coastal communities are forming relationships with social actors, including academics, non-governmental organizations (NGOs), researchers, experts, and professionals who share a similar vision to restore relationships with the river. These collaborations support transitional strategies such as community-based monitoring, legal advocacy, decolonizing dominant narratives, revitalizing traditional harvesting methods, and building reciprocal relationships of care with the river. These actions taken by coastal communities and individuals also reveal community needs while empowering community decision-making and river stewardship.

This research highlights several priorities for future study. In particular, further research is needed to better understand the contributions of subsistence and provisional fisheries in the St. Marys River to food security, cultural continuity, livelihoods, and health. Interdisciplinary approaches could assist the development of frameworks for assessing the cultural, social, and economic value of small-scale fisheries within the St. Marys River and the Great Lakes as part of blue economy development. Future research is needed to examine the justice implications of economic development plans proposed in the St. Marys River and apply a blue justice lens to other Great Lakes communities to support more equitable and sustainable decision-making.

Beyond these research priorities, this study provides a framework for examining blue justice in the Laurentian Great Lakes, where the concept has not yet been systematically applied. Overall, the application of a three-dimensional blue justice framework worked well to reveal injustices and how they intersect in the St. Marys River. It showed the interrelated nature of these dimensions and their complexity. Its application was useful in illuminating the systemic and institutional causes at the root of injustices. For example, a lack of First Nation participation in

BPAC community engagement efforts cannot simply be explained by a lack of funding and capacity but must also be considered in a broader context of the drive for economic development, settler colonialism and a lack of historic inclusion in the framing of the RAP. For policy makers, this framework could be used to identify potential trade-offs from development projects such as infringement of Treaty rights, impacts to culture, livelihoods and ecological health as well as highlighting currently underserved and underrepresented sectors.

Through applying the blue justice framework, my analysis revealed opportunities to imagine alternative futures for the St. Marys River AOC. These findings suggest that the framework could be strengthened by more explicitly incorporating future-oriented visions or pathways for advancing blue justice. While blue justice calls for interconnectedness between humans and their shorelines, the three-dimensional blue justice framework remains largely human-centred. Future work could therefore explore the application of Tafon's multispecies blue justice framework which extends consideration to non-human entities and more fully recognizes the interconnected relationship between both humans and ecological systems. Such an approach would support a more relational understanding of justice, one that considers the conditions necessary for both human and non-human communities to meet their basic needs and flourish. Since blue justice is both a theory and a movement, ongoing framework development should be grounded in collaborative research with communities most affected by blue injustices.

In conclusion, expanding blue justice in the St. Marys River AOC requires moving beyond fragmented approaches to governance towards one grounded in interconnection and relationality that recognizes the relationship between communities and non-human nature. By fostering governance that values these relationships as well as diverse knowledges and rights,

collaborative partnerships can help foster the collective action needed to advance more equitable and sustainable transitions.

References

- Aguilera, M.Y.R. (2021). Grieving geographies, mourning waters: Life, death, and environmental gendered racialized struggles in Mexico. *Feminist Anthropology*, 3(1), 28–43. <https://doi.org/10.1002/fea2.12060>
- Agyeman, J., Schlosberg, D., Craven, L., & Matthews, C. (2016). Trends and directions in environmental justice: From Inequity to Everyday Life, Community, and Just Sustainabilities. *Annual Review of Environment and Resources*, 41(1), 321–340. <https://doi.org/10.1146/annurev-environ-110615-090052>
- Allison, E. H., & Ellis, F. (2001). The livelihoods approach and management of small-scale fisheries. *Marine Policy*, 25(5), 377–388. [https://doi.org/10.1016/s0308-597x\(01\)00023-9](https://doi.org/10.1016/s0308-597x(01)00023-9)
- Allison, E. H., Kurien, J., & Ota, Y. (2020). The human relationship with our ocean planet. World Resources Institute. <https://dev-oceanpanel-wp.pantheonsite.io/wp-content/uploads/2022/05/Human-Relationship-with-the-Ocean-Full-Paper.pdf>
- Alsip, P. J., Hartig, J. H., Krantzberg, G., Williams, K. C., & Wondolleck, J. (2021). Evolving institutional arrangements for use of an ecosystem approach in restoring great lakes areas of concern. *Sustainability*, 13(3), 1532. <https://doi.org/10.3390/su13031532>
- Anbleyth-Evans, J. (2022). The blue economy in Chile: justice and rights for marine democracy. <http://dx.doi.org/10.2139/ssrn.4135961>
- Anbleyth-Evans, J. (2023). Port developments and marine democracy in Latin America. *Marine Policy*, 157, 105767. <https://doi.org/10.1016/j.marpol.2023.105767>
- Anbleyth-Evans, J., Araos Leiva, F., Gaymer, C., Alvarez Abel., R., Campos, L. & Hidalgo, C. (2024). From a Brown to a blue economy in Chile. *Environmental Challenges*, 14, 100846. <https://doi.org/10.1016/j.envc.2024.100846>
- Angradi, T., Launspach, J., & Wick, M., (2022). Human well-being and natural capital indicators for Great Lakes waterfront revitalization. *J. Great Lakes Res.* 48(4), 1104–1120.
- Assembly of First Nations (2018). *First Nations Fishing Rights* [Fact Sheet]. Assembly of First Nations. <https://afn.ca/all-news/news/first-nations-fishing-rights-fact-sheet/>

- Axon, S., Bertana, A., Graziano, M., Cross, E., Smith, A., Axon, K., & Wakefield, A. (2023). The US Blue New Deal: What does it mean for just transitions, sustainability, and resilience of the blue economy? *The Geographical Journal* 189 (2): 271–282. <https://doi.org/10.1111/geoj.12434>
- Axon, S., & Collier, S. (2023). Breaking Blue: Establishing comprehensive policy for a just and inclusive transition for the Blue Economy, *Marine Policy* 147, 105343 <https://doi.org/10.1016/j.marpol.2022.105343>
- Ayilu, R. K., Fabinyi, M., Barclay, K., & Bawa, M. A. (2023). Blue economy: industrialisation and coastal fishing livelihoods in Ghana. *Reviews in Fish Biology and Fisheries*, 33(3), 801–818. <https://doi.org/10.1007/s11160-022-09749-0>
- Barbesgaard, M. (2018). Blue growth: Savior or ocean grabbing? *The Journal of Peasant Studies* 45(1), 130–149.
- Bavinck, M. & Gupta, J. (2014) Legal Pluralism in Aquatic Regimes: A Challenge for Governance. *Current Opinion in Environmental Sustainability, SI: Sustainability Science*, 11, 78–85. <https://doi.org/10.1016/j.cosust.2014.10.003>.
- Bavinck, M., Berkes, F., Charles, A., Esteves Dias, A. C., Doubleday, N., Nayak, P., & Sowman, M. (2017). The impact of coastal grabbing on community conservation– a global reconnaissance. *Maritime Studies* 16(8). <https://doi.org/10.1186/s40152-017-0062-8>
- Bebbington, A., Bebbington, D. H., Bury, J., Langan, J., Pablo Muñoz, J., & Scurrah, M. (2008). Mining and social movements: Struggles over livelihood and rural territorial development in the Andes. *World Development* 36 (12): 2888–2905.
- Beierle, T. C., & Konisky, D. M. (2000). Values, conflict, and trust in participatory environmental planning. *Journal of Policy Analysis and Management*, 19(4), 587–602. <http://www.jstor.org/stable/3325576>
- Bennett, N. J., Kaplan-Hallam, M., Augustine, G., Ban, N., Belhabib, D., Brueckner-Irwin, I., Charles, A., Couture, J., Eger, S., Fanning, L., Foley, P., Goodfellow, A. M., Greba, L., Gregr, E., Hall, D., Harper, S., Maloney, B., McIsaac, J., Ou, W., . . . Bailey, M. (2017). Coastal and Indigenous community access to marine resources and the ocean: A policy imperative for Canada. *Marine Policy*, 87, 186–193. <https://doi.org/10.1016/j.marpol.2017.10.023>

- Bennett, N. J. (2018). Navigating a just and inclusive path towards sustainable oceans. *Marine Policy*, 97, 139–146. <https://doi.org/10.1016/j.marpol.2018.06.001>
- Bennett, N. J., Blythe, J., Cisneros-Montemayor, A. M., Singh, G. G., & Sumaila, U. R. (2019). Just Transformations to Sustainability, *Sustainability*. 11: 3881. <https://doi.org/10.3390/su11143881>.
- Bennett, N. J., Blythe, J., White, C. S., & Campero C. (2021). Blue growth and blue justice: Ten risks and solutions for the ocean economy. *Marine Policy*, 125, 104387. <https://doi.org/10.1016/j.marpol.2020.104387>
- Bennett, N. J. (2022). Mainstreaming equity and justice in the ocean. *Frontiers in Marine Science*, 9. <https://doi.org/10.3389/fmars.2022.873572>
- Bi-national Public Advisory Council for the St. Marys River Area of Concern. (2025). <http://bpac.algomau.ca/>
- Bi-National Public Advisory Council for the St. Marys River Area of Concern (n.d.) *St. Marys River BPAC Members Handbook* <http://bpac.algomau.ca/wp-content/uploads/2015/09/St.-Marys-River-BPAC-Members-Handbook.pdf>
- Blythe, J. L., Gill, D. A., Claudet, J., Bennett, N. J., Gurney, G. G., Baggio, J. A., Ban, N.C., Bernard, M. L., Brun, V., Darling, E. S., Di Franco, A., Epstein, G., Franks, P., Horan, R., Jupiter, S. D., Lau, J., Lazzari, N., Mahajan, S. L., Mangubhai, S., Naggea, J., Turner, R. A., & Zafra-Calvo, N. (2023). Blue justice: A review of emerging scholarship and resistance movements. *Cambridge Prisms: Coastal Futures*, 1(e15), 1–12. <https://doi.org/10.1017/cft.2023.4>
- Blue, G., Bronson, K., & Lajoie-O'Malley, A. (2021). Beyond distribution and participation: A scoping review to advance a comprehensive environmental justice framework for impact assessment. *Environmental Impact Assessment Review*, 90, 106607. <https://doi.org/10.1016/j.eiar.2021.106607>
- Borrows, J. (1997), Living between water and rocks: First Nations, environmental planning and democracy, *University of Toronto Law Journal*, 47, 417–68.

- Bueger, C., & Mallin, F. (2023). Blue paradigms: understanding the intellectual revolution in global ocean politics. *International Affairs*, 99(4), 1719–1739.
<https://doi.org/10.1093/ia/iad124>
- Bullard, R. (1999). Dismantling environmental racism in the USA. *Local Environ.* 4(1), 5–19.
<https://doi.org/10.1080/13549839908725577>
- Bunch, K. (2017, September 11). Return of the Rapids: Restoration Success on the St. Marys River. International Joint Commission. <https://ijc.org/en/return-rapids-restoration-success-st-marys-river>
- Camarero, L. D. (2024). Maritimacies and nature-culture collectives as inputs for a sustainable blue economy on the east coast of Uruguay. *Latin American Perspectives*, 51(3), 216–231. <https://doi.org/10.1177/0094582x241284570>
- Canada. (2018). Principles Respecting the Government of Canada's Relationship with Indigenous Peoples. Department of Justice Canada. <https://www.justice.gc.ca/eng/csj-sjc/principles.pdf>
- Canada. (2026, March 18). First Nation Adapt: funded projects in 2025-2026. <https://www.rcaanc-cirnac.gc.ca/eng/1698771955468/1698771985864>
- Canada Water Agency. (2024, August 12). St. Marys River: Area of Concern. Government of Canada <https://www.canada.ca/en/canada-water-agency/freshwater-ecosystem-initiatives/great-lakes/great-lakes-protection/areas-concern/st-marys-river.html>
- Canada Water Agency (2025, October 14). St. Marys River: Area of Concern. Government of Canada <https://www.canada.ca/en/canada-water-agency/freshwater-ecosystem-initiatives/great-lakes/great-lakes-protection/areas-concern/st-marys-river.html>
- Carlson, A. K., Leonard, N. J., Munawar, M., & Taylor, W. W. (2024). Assessing and implementing the concept of Blue Economy in Laurentian Great Lakes fisheries: Lessons from coupled human and natural systems. *Aquatic Ecosystem Health & Management*, 27(2), 74–84. <https://doi.org/10.14321/ae hm.027.02.74>
- Castree, N. (2003). Commodifying what nature? *Progress in Human Geography* 27(3): 273–297.

https://doi.org/10.1191/0309132503_ph428oa

Charmez, K. (2017). Constructivist Grounded Theory. *The Journal of Positive Psychology* 12, 3, 299–300. <https://doi.org/10.1080/17439760.2016.1262612>.

Chuenpagdee, R. (2020) Blue justice for small-scale fisheries: what, why and how. In Kerezi, V., Kinga Pietruszka, D., & Chuenpagdee, R. (eds.) *Blue Justice for Small-Scale Fisheries: A Global Scan*. TBTI Global Publication Series.

Chuenpagdee, R., Isaacs, M., Bugeja-Said, & A., Jentoft, S. (2022). Collective Experiences, Lessons, and Reflections About Blue Justice. In: Jentoft, S., Chuenpagdee, R., Bugeja Said, A., & Isaacs, M. (eds) *Blue Justice. MARE Publication Series, 26*. Springer, Cham. https://doi.org/10.1007/978-3-030-89624-9_34

Chiblow, S. (2023). Reconciling our relationships with the Great Lakes. *Journal of Great Lakes Research*, 49, S87–S92. <https://doi.org/10.1016/j.jglr.2023.02.007>

Child, M., Read, J., Ridal, J., & Twiss, M. (2018). Symmetry and solitude: Status and lessons learned from binational Areas of Concern. *Aquatic Ecosystem Health & Management*, 21(4), 478–492. <https://doi.org/10.1080/14634988.2018.1521188>

Cohen, P. J., Allison, E. H., Andrew, N. L., Cinner, J., Evans, L. S., Fabinyi, M., Garces, L. R., Hall, S. J., Hicks, C. C., Hughes, T. P., Jentoft, S., & Ratner, B.D. (2019) Securing a just space for small-scale fisheries in the blue economy. *Frontiers in Marine Science* 6, 171. <https://doi.org/10.3389/fmars.2019.00171>

Cole, L.W., Foster, S.R., 2001. *From the Ground Up: Environmental Racism and the Rise of the Environmental Justice Movement*. NYU Press.

Corburn, J. (2005). Street Science: community knowledge and environmental health justice. *Electronic Green Journal*, 1(23). <https://escholarship.org/uc/item/20k0s0xn.pdf>

Cresswell, J. & Poth, C. (2025). *Qualitative Inquiry and Research Design: Choosing Among Five Approaches* (5th ed.) Sage Publications Inc.

- Denny, S. K., & Fanning, L.M. (2024). Challenges and opportunities for Mi'kmaq Aboriginal and Treaty rights to fish in Nova Scotia, Canada. *Marine Policy* 166, 106223. <https://doi.org/10.1016/j.marpol.2024.106223>
- Derickx, Lisa. (2022). Status Report and Strategic Plan: St. Marys River Area of Concern. Sault Ste Marie: Algoma University. Bi-national Public Advisory Council http://bpac.algomau.ca/wp-content/uploads/2023/12/SMR-AOC-Status-Report_Feb2022_Final.pdf
- Dorman, R., Buday, A., Woznicki, S. A., DeVasto, D., & Fergen, J. (2023). Great Lakes for whom? Community outcomes in the Muskegon Lake and White Lake areas of concern. *Journal of Great Lakes Research*, 49(5), 1166–1178. <https://doi.org/10.1016/j.jglr.2023.07.008>
- Engen, S., Hausner, V. H., Gurney, G. G., Broderstad, E. G., Keller, R., Lundberg, A. K., Murguzur, F. J. A., Salminen, E., Raymond, C. M., Falk-Andersson, J., & Fauchald, P. (2021). Blue justice: A survey for eliciting perceptions of environmental justice among coastal planners' and small-scale fishers in Northern-Norway. *PLoS ONE*, 16(5), e0251467. <https://doi.org/10.1371/journal.pone.0251467>
- Environment Canada, United States Environmental Protection Agency, Michigan Department of Environmental Quality, & Ontario Ministry of Environment (2012, September 21). Compendium of Position Papers: A Four Agency Framework of Roles and Responsibilities for Implementation of the Detroit River, St. Clair River, St. Marys River Areas of Concern, Shared Remedial Action Plans and the Lake St. Clair Management Plan. <http://www.delistingdetroitriver.com/policyframework/four-agency-framework>
- Environment and Climate Change Canada (2022, September 2). Canada-United States Great Lakes water quality agreement. Canada. <https://www.canada.ca/en/environment-climate-change/corporate/international-affairs/partnerships-countries-regions/north-america/great-lakes-water-quality-agreement.html>
- Ertör, I. (2023). ‘We are the oceans, we are the people!’: fisher people’s struggles for blue justice. *The Journal of Peasant Studies*, 50(3), 1157–1186 <https://doi.org/10.1080/03066150.2021.1999932>

- Ertör, I., & Hadjimichael, M. (2020) Editorial: Blue degrowth and the politics of the sea: Rethinking the blue economy. *Sustainability Science* 15(1), 1–10.
<https://doi.org/10.1080/03066150.2021.1999932>
- Flood, A. (2025, September 29). Support for Algoma Steel Industry Pensioners Announced by Ontario Premier. CBC News. <https://www.cbc.ca/news/canada/sudbury/algoma-steel-ottawa-ontario-funding-1.7646160>
- Fraser, N. (2008). Scales of Justice: Reimagining Political Space in a Globalizing World. Columbia University Press.
- Freeman, R. E. (1984). Strategic management: A stakeholder approach. Pitman.
- Fricker, M. (2007). Epistemic Injustice: Power and the ethics of knowing. In BIROn Birkbeck, University of London. <https://doi.org/10.1093/acprof:oso/9780198237907.001.0001>
- Gandhi, N., Jackson, D.A., & Bhavsar, S.P. (2020). Assessment of Fish Consumption Beneficial Use Impairment at the Great Lakes Thunder Bay and St. Marys River Areas of Concern, Canada. *Journal of Great Lakes Research*, 46(3), 560-568.
<https://doi.org/10.1016/j.jglr.2020.03.009>
- Garcia, H., Murphy, L., Wendland, B., & Wu, T. (2021). Assessing Equity and Environmental Justice in the Great Lakes Restoration Initiative [MS Thesis] University of Michigan.
<https://dx.doi.org/10.7302/971>
- Gardner, G. (2022). Economic benefits of remediating the White Lake and Muskegon Lake areas of concern. *J. Gt. Lakes Res.*, 48(4), 1093–1103.
- Gebhardt, K., Fielder, D., Greenwood, S., Robbins, H. & Sutton T. (ed.) (2002) St. Marys River Fisheries Assessment Plan. Great Lakes Fisheries Commission, Special Report.
https://glfc.org/pubs/lake_committees/huron/smrfinal.pdf
- Getches, D., & Pellow, D. (2002). Beyond ‘traditional’ environmental justice. In: Mutz, K., Bryner, G., Kenney, D. (eds.), Justice and Natural Resources: Concepts, Strategies, and Applications. Island Press, 3–30
- Great Lakes Commission. (2021). An Action Plan for Growing the Great Lakes Blue

Economy. Great Lakes Commission. <https://www.glc.org/library/2021-glc-action-plan-for-growing-the-great-lakes-blue-economy/>

Great Lakes Commission and Council of Great Lakes Industries. (2018). Assessing the Investment: The Economic Impact of the Great Lakes Restoration Initiative [Factsheet]. <https://www.glc.org/wp-content/uploads/GLRI-Fact-Sheet-20180924.pdf>

Great Lakes Datastream. (2022). Garden River First Nation takes water monitoring into their own hands. <https://datastream.org/en-ca/article/garden-river-first-nation-takes-water-monitoring-into-their-own-hands>

Gustavsson, M., Frangoudes, K., Lindström, L., Álvarez Burgos, M. C. & de la Torre-Castro, M. (2021). Gender and Blue Justice in Small-Scale Fisheries Governance *Marine Policy* 133, 104743. <https://doi.org/10.1016/j.marpol.2021.104743>.

Harris, C. C., Nielsen, E. A., McLaughlin, W. J., Becker, D.R. (2003). Community-based social impact assessment: the case of salmon-recovery on the lower Snake River. *Impact Assess. Project Appraisal*, 21, 109–118.

Hartig, J. H. and Vallentyne, J. R. (1989). Use of ecosystem approach to restore degraded areas of the Great Lakes. *Ambio*, 18(8) (1989), pp. 423-428. <https://www.jstor.org/stable/4313632>

Hartig, J. H., Krantzberg, G., Munawar, M., Doss, M., Child, M., Kalinauskas, R. et al. (2019a). Achievements and lessons learned from the 32year old Canada-U.S. effort to restore impaired beneficial uses in great lakes areas of concern. *Aquatic Ecosystem Health and Management*, 21(4), 506–520. <https://doi.org/10.1080/14634988.2018.1539603>

Hartig, J. H., Perrecone, J., Clement, T. (2019b). Restoring fish and wildlife habitat in U.S. Great Lakes Areas of Concern. *Journal of Natural Resources Policy Research*, 9(1), 1–21. <https://doi.org/10.5325/naturesopolirese.9.1.0001>

Hartig, J. H., Krantzberg, G., & Alsip, P. (2020). Thirty-five years of restoring Great Lakes Areas of Concern: Gradual progress, hopeful future. *Journal of Great Lakes Research*, 46 (3), 429–442. <https://doi.org/10.1016/j.jglr.2020.04.004>

- Hein, J., Klepp, S., & Bercht, A.L. (2024). Bringing a justice lens to ocean access. *Maritime Studies* 23, 45. <https://doi.org/10.1007/s40152-024-00387-9>
- Hele, K.S. (2024) Garden River First Nation. In *The Canadian Encyclopedia*. Retrieved, June 8, 2025 from <https://www.thecanadianencyclopedia.ca/en/article/garden-river-first-nation>
- Holifield, R., & Williams, K. C. (2018). Recruiting, integrating, and sustaining stakeholder participation in environmental management: A case study from the Great Lakes Areas of Concern. *Journal of Environmental Management*, 230, 422–433. <https://doi.org/10.1016/j.jenvman.2018.09.081>
- Hopkins, C. (2022). The Land Remembers. In Bastien, T. Hopkins, C., & Lawson, K. (Eds) *Water, Kinship, Belief* (pp. 69-90). Toronto Biennial of Art and Art Metropole.
- International Joint Commission (IJC) (1987). Revised Great Lakes Water Quality Agreement of 1978. International Joint Commission United States and Canada. https://www.ijc.org/sites/default/files/GLWQA_e.pdf
- International Joint Commission (IJC) Water Quality Board (WQB). (1985). Report on Great Lakes Water Quality. IJC, Windsor, Ontario, Canada, 212
- Isaacs, M. (2019). Is the Blue Justice concept a human rights agenda? PLAAS Policy Brief. Bellville: Institute for Poverty, Land and Agrarian Studies. <http://hdl.handle.net/10566/5087>; <https://uwcscholar.uwc.ac.za/items/0cff4587-60be-4435-995c-86f28c911b7b>
- Jentoft, S. & Chuenpagdee, R. (2022). Interactive Learning and Governance Transformation for Securing Blue Justice for Small-Scale Fisheries. *Administration & Society*, 54(7), 1255-1282. <https://doi.org/10.1177/00953997211073947>
- Jouffray, J., Blasiak, R., Norström, A. V., Österblom, H., & Nyström, M. (2020). The Blue Acceleration: The Trajectory of Human Expansion into the Ocean. *One Earth*, 2(1), 43–54. <https://doi.org/10.1016/j.oneear.2019.12.016>
- Joseph J (2013) Resilience as embedded neoliberalism: A governmentality approach. *Resilience* 1(1), 38–52.

- Josephs, J. J., Hollenhorst, T. P., Wick, M. J., Angradi, T. R. (2021). Environmental justice and Great Lakes Areas of Concern: Addressing the need for more research. *Environmental Justice* 14 (5), 315–321.
- Jurjonas, M., May, C.A., Cardinale, B.J., Kyriakakis, S., Pearsall, D.R., & Doran, P.J. (2022). A synthesis of the Great Lakes Restoration Initiative according to the Open Standards for the Practice of Conservation. *Journal of Great Lakes Research* 48(6), 1417–1431. <https://doi.org/10.1016/j.jglr.2022.01.008>
- Kang, M., Lessard, D., & Heston, L. (2017). Introduction to Women, Gender, Sexuality Studies. ScholarWorks. <https://doi.org/10.7275/r5qz284k>
- Kauss, P. B. 1991. Biota of the St. Marys River: Habitat Evaluation and Environmental Assessment, *Hydrobiologia* 219, 1:1-35. <https://doi.org/10.1007/bf00024745>
- Kirk, M. (2024, November 13). \$747K in federal funding boosts local environmental projects Sault Star. <https://www.saultstar.com/news/local-news/747k-in-federal-funding-boosts-local-environmental-projects>
- Knauss, C., & Lisuk, J. (2022). Stewardship after delisting: Sustaining long-term progress in Michigan’s Areas of Concern. *Journal of Great Lakes Research* 48(6), 1454–1464. <https://doi.org/10.1016/j.jglr.2022.02.005>
- Krantzberg, G., & De Boer, C. (2008). A valuation of ecological services in the Laurentian Great Lakes Basin with an emphasis on Canada. *American Water Works Association*, 100(6), 100–111. <https://doi.org/10.1002/j.1551-8833.2008.tb09657.x>
- Lowitt, K., Levkoe, C. Z., Spring, A., Turlo, C., Williams, P. L., Bird, S., Sayers, C. D., & Simba, M. (2020). Empowering small-scale, community-based fisheries through a food systems framework. *Marine Policy*, 120, 104150. <https://doi.org/10.1016/j.marpol.2020.104150>
- MacFarlane, R. (2025). *Is A River Alive?: A Journey with Water*. Random House Canada.
- MacKenzie, S.H. (1993). Ecosystem Management in the Great Lakes: Some Observations from Three RAP Sites. *Journal of Great Lakes Research* 19(1), 136–144. [https://doi.org/10.1016/S0380-1330\(93\)71204-6](https://doi.org/10.1016/S0380-1330(93)71204-6)

- Mandelia, A. (2016). Great Lakes Areas of Concern: Life after Delisting. Great Lakes Regional Office, International Joint Commission United States and Canada. https://ijc.org/sites/default/files/GreatLakes_AreasOfConcern_LifeAfterDelisting.pdf.
- McCracken, K. (2015, April 20). Public Spaces and Indigenous Land: Whitefish Island. Active History. <https://activehistory.ca/blog/2015/04/20/public-spaces-indigenous-land/>
- Mease, L. A., Erickson, A., & Hicks, C. (2018). Engagement takes a (fishing) village to manage a resource: Principles and practice of effective stakeholder engagement. *Journal of Environmental Management*, 212, 248–257. <https://doi.org/10.1016/j.jenvman.2018.02.015>
- Michigan Department of Natural Resources (MDNR) (2026, June 4). Inland Lakes Consent Decree FAQ. State of Michigan. <https://www.michigan.gov/dnr/faqs/tribal-coordination/inland-lakes-consent-decree-faqs>
- Miles, M., and Huberman, M. (1994). Qualitative data analysis: An expanded sourcebook. (2nd ed). Sage Publications Inc.
- Mohai, Paul, David, Pellow, Timmons Roberts, J., 2009. Environmental justice. *Annu. Rev. Environ. Resour.* 34, 405–430.
- Mons, S., Oyarzun, F., Martínez, C., Tremblay, G., Gelcich, S., Farías, L., Romero, P., Manríquez, V., Sepúlveda, C., Bonet, M., Guerrero, N., Inzunza, S., & Farías, A. (2025). Positioning blue justice at local scales: insights for transdisciplinarity through art-science integration. *Ecology and Society*, 30(1). <https://doi.org/10.5751/es-15852-300135>
- Narchi, N. E., Moura, G. G. M., & Leddy, G. (2024). Blue economies and ocean grabbing in Latin America. *Latin American Perspectives*, 51(3), 5–25. <https://doi.org/10.1177/0094582x241283774>
- Nixon, R., Carlton, J.S., and Ma, Z. (2022). Drivers of revitalization in Great Lakes coastal communities. *Journal of Great Lakes Research*. 48(6),1387–1400. <https://doi.org/10.1016/j.jglr.2022.03.008>

- NOAA Fisheries. (2021, April 27). Great Lakes Fish Are Benefiting from Restored Rapids Habitat, Study Finds. NOAA Fisheries. <https://www.fisheries.noaa.gov/feature-story/great-lakes-fish-are-benefiting-restored-rapids-habitat-study-finds>.
- Norris, C., Nigrelli, C., Newcomer-Johnson, T. A., White, D. P., Beaubien, G. B., Pelka, A., & Mills, M. A. (2022). Defining community revitalization in Great Lakes Areas of Concern and investigating how revitalization can be catalyzed through remediation and restoration. *Journal of Great Lakes Research*, 48(6), 1432–1443. <https://doi.org/10.1016/j.jglr.2022.05.006>
- Nguyen, V. M., Fiorella, K. J., Castello, L., Badhon, M. K., Beaudoin, C., Coffin-Schmitt, J., Cooke, S. J., Fisk, A. T., Nyboer, E., O’Keefe, D. M., Rice, E. D., Stedman, R., Venker, N., & Macneil, A. (2025). Provisioning fisheries: A framework for recognizing the fuzzy boundary around commercial, subsistence, and recreational fisheries. *Fisheries*, 50(8), 366–379. <https://doi.org/10.1093/fshmag/vuae031>
- Ontario. (2021). Canada Ontario Agreement on the Great Lakes Water Quality and Ecosystem Health. Ontario Government. <https://www.ontario.ca/document/canada-ontario-great-lakes-agreement>
- Purvis, M. (2013, January 29). Batchewana Says \$150-Million Claim Justice for Loss of Fishery. The Sault Star. <https://www.saultstar.com/2013/01/29/batchewana-says-150-million-claim-justice-for-loss-of-fishery>
- Reed, M. S., Merkle, B. G., Cook, E. J., Hafferty, C., Hejnowicz, A. P., Holliman, R., Marder, I. D., Pool, U., Raymond, C. M., Wallen, K. E., Whyte, D., Ballesteros, M., Bhanbhro, S., Borota, S., Brennan, M. L., Carmen, E., Conway, E. A., Everett, R., Armstrong-Gibbs, F., . . . Stroobant, M. (2024). Reimagining the language of engagement in a post-stakeholder world. *Sustainability Science*, 19(4), 1481–1490. <https://doi.org/10.1007/s11625-024-01496-4>
- Remedial Action Plan (RAP). (1992). St. Marys River Area of Concern Environmental Conditions and Problem Definitions. Remedial Action Plan Stage 1. Ontario Ministry of the Environment and Michigan Department of Natural Resources. <http://bpac.algomau.ca/wp-content/uploads/2015/09/The-St.-Marys-River-Area-of-Concern-Stage-1-Remedial-Action-Plan-Report-on-Environmental-Conditions-and-Problem-Definitions-1992.pdf>

- Remedial Action Plan (RAP) (2002). Stage 2: Remedial Strategies for Ecosystem Restoration. Environment Canada, U.S. Environmental Protection Agency, Ontario Ministry of Environment, Michigan Department of Environmental Quality. <http://bpac.algomau.ca/wp-content/uploads/2015/09/The-St.-Marys-River-Area-of-Concern-Stage-2-Remedial-Action-Plan-Report-on-Remedial-Strategies-for-Ecosystem-Restoration-2002.pdf>
- Rentschler, A., & Williams, K. C. (2022). Community engagement and the importance of partnerships within the Great Lakes Areas of Concern program: A mixed-methods case study. *Journal of Great Lakes Research*, 48(6), 1473–1484. <https://doi.org/10.1016/j.jglr.2022.08.005>
- Ripley, M. P., Arbic, B., & Zimmerman, G. (2011). Environmental History of the St. Marys River. *Journal of Great Lakes Research* 37, 5–11. <https://doi.org/10.1016/j.jglr.2011.01.008>.
- Samya, M., Snow, H., & Bryan, H. (2003). Integrating social impact assessment with research: the case of methylmercury in fish in the Mobile-Alabama River Basin. *Impact Assessment and Project Appraisal*, 21(2), 133–140. <https://doi.org/10.3152/147154603781766392>
- Saunders, F., Gilek, M., Ikauniece, A., Tafon, R., Gee, K. & Zaucha, J. (2020). Theorizing Social Sustainability and Justice in Marine Spatial Planning: Democracy, Diversity, and Equity. *Sustainability* 12(6): 1–18. <https://doi.org/10.3390/su12062560>.
- Schlosberg, D. (2007). *Defining Environmental Justice: Theories, Movements, and Nature*. Oxford University Press.
- Schlosberg, D. (2004). Reconceiving Environmental Justice: Global Movements and Political Theories, *Environmental Politics*, 13(3), 517-540.
- Schlosberg, David, 2013. Theorising environmental justice: the expanding sphere of a discourse. *Environ. Politics*, 22(1), 37–55.
- Schreiber, M.A., Chuenpagdee, R. & Jentoft, S. (2022). Blue Justice and the co-production of hermeneutical resources for small-scale fisheries, *Marine Policy*, 137, 104959. <https://doi.org/10.1016/j.marpol.2022.104959>

- Schutter, M. S., Hicks, C. C., Phelps, J., & Waterton, C. (2021). The blue economy as a boundary object for hegemony across scales. *Marine Policy*, 132, 104673. <https://doi.org/10.1016/j.marpol.2021.104673>
- Simpson, L.B. (2026). *Theory of Water: Nishnaabe Maps to the Times Ahead*. Alchemy by Knopf Canada.
- Sowman, M., Mbatha, P., & Von Holdt, J. (2023b). Strategies for addressing conflicts arising from blue growth initiatives: insights from three case studies in South Africa. *MAST. Maritime Studies/Maritime Studies*, 22(4). <https://doi.org/10.1007/s40152-023-00341-1>
- Sproule-Jones, M. (2002). Restoration of the Great Lakes: Promises, practices, and performances. *International Journal of Sustainability in Higher Education*, 4(2). <https://doi.org/10.1108/ijshe.2003.24904bae.006>
- Stalmokaitė, I., Tafon, R., Saunders, F., Gee, K., Gilek, M., Armoškaitė, A., Ikauniece, A., Matczak, M., Turski, J., & Zaucha, J. (2023). Exploring social justice in marine spatial planning: planner and stakeholder perspectives and experiences in the Baltic Sea Region. *Journal of Environmental Planning and Management*, 68(5), 1105–1127. <https://doi.org/10.1080/09640568.2023.2279512>
- Tafon, R., Glavovic, B., Saunders, F. & Gilek, M. (2022). Oceans of Conflict: Pathways to an Ocean Sustainability PACT. *Planning Practice and Planning*, 37(2): 213–230. <https://doi.org/10.1080/02697459.2021.1918880>.
- Tafon, R., Saunders, F., Pikner, T. & Gilek, M. (2023) Multispecies blue justice and energy transition conflict: examining challenges and possibilities for synergy between low-carbon energy and justice for humans and nonhuman nature. *Maritime Studies*, 22, 45. <https://doi.org/10.1007/s40152-023-00336-y>
- Tafon, R., Saunders, F., Zaucha, J., Matczak, M., Stalmokaitė, I., Gilek, M., & Turski, J. (2024). Blue justice through and beyond equity and participation: a critical reading of capability-based recognitional justice in Poland's marine spatial planning. *Journal of Environmental Planning and Management*, 67(10), 2206–2228. <https://doi.org/10.1080/09640568.2023.2183823>
- Taylor D. E. (2000). The rise of the environmental justice paradigm: injustice framing and the social construction of environmental discourses. *Am. Behav. Sci.* 43, 508–80

- The Great Lakes and St. Lawrence Cities Initiative (2025). Economic Transformation Action Plan: A Blueprint for Economic Growth and Freshwater Stewardship in the Great Lakes & St. Lawrence River Region. <https://glslcities.org/wp-content/uploads/2025/0/Cities-Initiative-Economic-Transformation-Action-Plan-1.pdf>
- Tyner, E. H., & Boyer, T. A. (2019). Applying best-worst scaling to rank ecosystem and economic benefits of restoration and conservation in the Great Lakes. *Journal of Environmental Management*, 255, 109888. <https://doi.org/10.1016/j.jenvman.2019.109888>
- United States Environmental Protection Agency (EPA). (2024). St. Marys River AOC. <https://www.epa.gov/great-lakes-aocs/st-marys-river-aoc>
- United States Environmental Protection Agency (EPA). (2026, May 22). Great Lakes AOCs. <https://www.epa.gov/great-lakes-aocs/list-great-lakes-aocs>
- Von Thenen, M., Armoškaitė, A., Cordero-Penín, V., García-Morales, S., Gottschalk, J. B., Gutierrez, D., Ripken, M., Thoya, P., & Schiele, K. S. (2021). The Future of Marine Spatial Planning—Perspectives from Early Career Researchers. *Sustainability*, 13(24), 13879. <https://doi.org/10.3390/su132413879>
- Wates, Jeremy, 2005. The Aarhus convention: a driving force for environmental democracy. *J. Eur. Environ. & Plann. Law*, 2(1), 2–11. <https://doi.org/10.1163/187601005X00561>
- Whyte, K. P. (2013). On the role of traditional ecological knowledge as a collaborative concept: A philosophical study. *Ecological Processes*, 2(1), 7. <https://doi.org/10.1186/2192-1709-2-7>
- Widener, P. (2018). Coastal people dispute offshore oil exploration: toward a study of embedded seascapes, submersible knowledge, sacrifice, and marine justice. *Environmental Sociology*, 4(4), 405–418. <https://doi.org/10.1080/23251042.2018.1441590>
- Wilson, J., Nadarajah, R., & Costello, C (2024, November 1). *Re: ERO #019-9084 – Algoma Steel Environmental Compliance Approval (air and noise)*. Canadian Environmental Law Association. <https://archive.celafoundation.ca/wp-content/uploads/2024/11/1592-CELA-Submission-for-ERO-019-9084-FINAL.pdf>

- Williams, K.C., & Hoffman, J.C. (2020). Remediation to Restoration to Revitalization: Engaging Communities to Support Ecosystem-Based Management and Improve Human Wellbeing at Clean-up Sites. In: O'Higgins, T., Lago, M., DeWitt, T. (eds) Ecosystem-Based Management, Ecosystem Services and Aquatic Biodiversity. Springer, Cham. https://doi.org/10.1007/978-3-030-45843-0_27
- Yaka, Ö. (2018). Rethinking Justice: Struggles for environmental commons and the notion of Socio-Ecological Justice. *Antipode*, 51(1), 353–372. <https://doi.org/10.1111/anti.12422>
- Young, I. M., 1990. Justice and the Politics of Difference. Princeton University Press.
- Young, J. C., Rose, D. C., Mumby, H. S., Benitez-Capistros, F., Derrick, C. J., Finch, T., Garcia, C., Home, C., Marwaha, E., Morgans, C., Parkinson, S., Shah, J., Wilson, K. A., & Mukherjee, N. (2018). A methodological guide to using and reporting on interviews in conservation science research. *Methods in Ecology and Evolution*, 9(1), 10–19. <https://doi.org/10.1111/2041-210x.128>

Appendix A - Information Letter

Exploring the Theory and Practice of Blue Justice in the St. Marys River Area of Concern

Dear Potential Participant,

Thank you for your interest in this research project. Your time and help are truly appreciated. This sheet gives some basic information on the research, what you can expect, how the data will be handled and used in the future. If anything is unclear or you want more information, please feel free to ask any question you wish, our contact details are at the end of this document.

What is this research about?

I am a graduate student, under the supervision of Dr. Charles Levkoe, at Lakehead University and will be conducting a research project called Exploring the Theory and Practice of Blue Justice in the Lake Superior Watershed for my thesis. This research project will use the theory and practice of blue justice to explore the intersecting injustices facing fisheries in the St Marys River and the possibilities for equitable and sustainable transitions. Blue justice is an organizing framework rooted in social and environmental justice that recognizes the meaningful involvement and fair treatment of small-scale fisheries and allied coastal groups in how marine resources are used, managed and enjoyed.

What is being requested of me?

You are being invited to participate in this research because of your important role in St Marys River. We are asking you to participate in an interview to share your knowledge and perspectives about blue justice in relation to the work you and/or your organization does around the St Marys River. The interview will be approximately one hour in length, and we can do the interview in-person or over Zoom, whatever your preference. Also, with your permission the interview will be recorded and transcribed. Your participation is completely voluntary, your decision to participate in the study will not affect your existing relationships (if any) with the research team members. You may refuse to answer any questions or withdraw from the study at any time.

Are there any benefits or risks I should be aware of?

We hope this research will generate new knowledge about blue justice in freshwater environments and how fisheries management may support equitable and sustainable food system outcomes in the St Marys River. We aim to contribute to the fisheries management literature and hope the work will be of practical application to actors involved in management of the St Marys River. While there are very few perceived risks from participating in this research, we recognize that some questions about fisheries may be perceived as sensitive, and you may not want certain information made available to others. We are not aiming to collect specific data about local fisheries (e.g. total catches, economic value of fisheries). Your participation is voluntary, and you are only being asked to offer information you feel comfortable sharing with us.

How should I expect to be treated?

This research aims to maintain the highest standards of ethical conduct and integrity. Centrally,

this means that in participating in this research you should feel that you, and your contribution to this research, have been treated with respect. Participation is entirely voluntary, and all information offered will be treated in good faith. You are welcome to refuse to participate, withdraw from the research at any time and refuse to answer any of the questions asked without any negative consequences for yourself or your organization. All questions about the research, its aims and outcomes will be answered openly and honestly.

While we retain final editorial control over what we choose to write, you are free to withdraw any information you have contributed at any stage by contacting us and indicating your wish to do so. If you choose to withdraw after your data has been included in a publication, only that data which has not already been published in the public domain will be removed from subsequent research. You are welcome to see articles and other publications arising from this research.

What will happen to the data after it is collected?

Only the members of the research team will have access to the interview transcript and identifiable materials (including audio recordings, hand-written notes and your consent form). All raw data, audio recordings and typing up of interviews will be encrypted and stored on password protected computers and in locked filing cabinets in Dr. Levkoe's office at Lakehead University for a minimum of seven years following completion of the research and then destroyed. The final research results will be shared through a variety of methods including academic and public-facing publications, graduate student theses, and conference presentations. Summary pages can be requested by participants at any time by contacting the researchers directly.

This study has been approved by the Lakehead University Research Ethics Board. If you have any questions related to the ethics of the research and would like to speak to someone outside of the research team, please contact Sue Wright at the Research Ethics Board at 807-343-8010 ext. 8283 or research.ethics@lakeheadu.ca.

If you have further questions about these processes or feel uncomfortable with any aspect of them, please let us know as soon as possible.

Thank you again for your time and assistance.

Julia Hambleton
Graduate Student, Environmental Studies
(e) jhamble1@lakeheadu.ca
(t) 647-274-8005

Charles Z. Levkoe
Department of Health Sciences, Lakehead University
t. 807-343-8010 ext. 7954
e. clevkoe@lakeheadu.ca

Appendix B - Consent Form

Name of Participant _____ (please print)

- I have discussed the details of this research project and agree to participate in the research.
- I understand that the purpose of the research is to use the theory and practice of blue justice to explore the intersecting injustices facing fisheries in the St Marys River and the possibilities for equitable and sustainable transitions.
- I understand that my participation in this study will bring minimal risks or harm.
- I understand that my participation in this study is voluntary and that I may withdraw at any time for any reason without penalty.
- I understand that there is no obligation to answer any questions that I feel are invasive, offensive or inappropriate.
- I understand I may ask questions of the researcher at any point during the research process.
- I understand that the results of this study may be distributed in academic journals, conference presentations and in other publications and that a summary of the results will be available to participants.
- I understand that only the interviewers will hear or read the transcript of the recording and that it will be stored securely.
- I agree to have this interview recorded (please circle one):

Yes

No

- I wish to remain confidential in this research

Yes

No

(i.e. information I provide will not be attributed to me)

I am fully aware of the nature and extent of my participation in this project as stated above.

Participant's Signature

If you have any questions or concerns about this study, please contact Dr. Charles Z Levkoe (clevkoe@lakeheadu.ca; 807-346-7954). If you have questions about your rights as a research participant in general, please contact Sue Wright at the Research Ethics Board at 807-343-8283 or research@lakeheadu.ca

Appendix C - Interview Guide

Date:	
Time:	
Location:	
Interviewer Name:	
Interviewee Name:	

Demographic Questions

Gender Pronouns:	
Indigenous/non-indigenous:	
Sector:	
# years in sector:	
Municipality or region:	

Introductory Questions

1. Tell me about your experience living and/or working within the St. Marys River Area of Concern?
Prompt for fishers:
a) Do you fish for subsistence, recreation or commercially?
b) How long have you been fishing?
c) What areas do you fish? What species of fish do you catch?
d) What kind of equipment do you use?
e) What do you do with your catch?
f) What has this experience been like for you?
g) Tell me about your personal connection to the St Marys River

h) Can you give some examples?
Prompts for: Decision makers and non-governmental organizations:
a) How is your organization involved in the St Marys River AOC?
b) What has this experience been like for you?
c) Tell me about your personal connection to the St Marys River
d) Can you give some examples?
e) What are you responsible for and what do you do?
2. What do you feel are the most important priorities for decision-makers in the St. Marys River?
Prompts: (ex. environmental, social, economic)
a) What is the most important thing to protect or preserve?
b) Why these particular priorities?
c) What are the least important priorities?
3. What other users of the river do you interact with?
Prompts: (ex. municipal, industrial, recreational, tourism, public)
a) In what ways do you come into contact with them?
b) Do these relationships support or constrain the work you want to do? Explain
c) Do they impact your experience of the river? If so, how?
d) Can you give some examples?

Procedural Justice

4. To what extent have you been consulted in decision-making around the management and use of the St. Marys River Area of Concern (AOC)?
Prompts:
a) How have you been consulted (e.g., surveys, public consultation meetings, focus groups, etc.)
b) Can you give me examples?
c) What kind of expertise or knowledge did you contribute?
d) How were you notified about this/these opportunity(ies) to participate?
e) Is there a formal decision-making or stewardship process?
f) Is participation ongoing?
g) Are your views/suggestions respected/implemented?

5. Do you feel like your involvement in these types of decision-making activities has an impact on decision-making?
Prompts:
a) Can you share more?
b) Can you give an example?
c) Relative to other groups, how much do you feel that your perspective matters?
6. Do you feel that there are certain groups left out of decision-making?
Prompts:
a) Why do you think that?
b) Can you give me an example?
c) Is there anything you would change about the decision-making process?

Recognitional Justice

7. How do you feel that management decisions in the St. Marys River AOC utilized your knowledge and experience?
Prompts:
a) Can you give me an example?
b) What impact has this had?
8. To what extent do you feel that management decisions in the St. Marys River AOC have recognized the important priorities you mentioned above?
Prompt:
a) Can you give me an example?

Distributional Justice

9. How have you been affected by decisions about the St. Marys River's current status as an AOC?
Prompt: (areas of discussion could include livelihood, culture, health and well-being)
a) Can you give me examples?

10. Who benefits the most and who is marginalized by decisions about the way the river is currently managed and used?
Prompts: (ex. Public, fishers, First Nations, businesses, etc.)
a) Should this change?
b) What are the obstacles for this change?

Closing questions

11. When the St. Marys River is considered healthy again after the remediation of contaminants and habitat restoration is completed it will be delisted as an Area of Concern. How will delisting the St. Marys River impact you?
Prompts:
a) What opportunities would this bring up for you?
b) What concerns would this bring up for you?
12. Is there anything else you'd like to tell me about your experience in the St. Marys River Area of Concern?
12. Is there anyone else I should talk to about this who has experience and knowledge of the St. Marys River from living and/or working within this Area of Concern?