

## Managing Complex Relationships and Shared Responsibilities: The Case of Lyons Creek East Water Governance

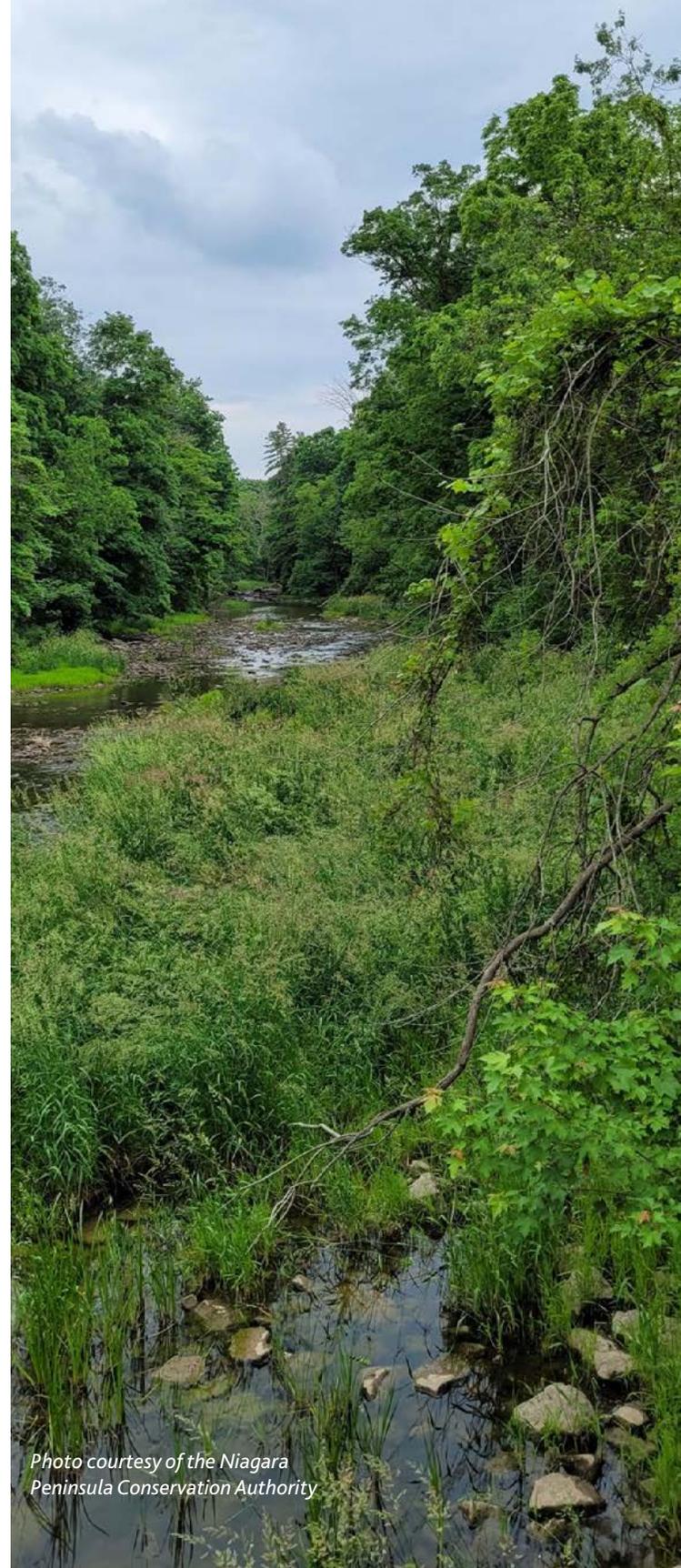
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### Introduction

Today, we recognize the unprecedented impact human activity has on the earth's climate and ecosystems. In this context, there is a growing urgency to understand civil society's relationship with our shared environment. It is now, more than ever, essential to ask, "How best do we govern the environment?" This question allows decision-makers, analysts, scientists, and practitioners to build best practices and define practical approaches within our lifetime that maximize public good and provide accountability towards all people and our planet.

To respond to such a question, one needs to understand the key features that characterize environmental policy. Environmental policy issues transcend political and social boundaries, challenging socially constructed jurisdictional scales and the representatives involved in addressing problems. For this reason, environmental policy problems are understood as 'wicked problems', a term defined by Rittel and Webber in 1973 to describe complex, multifaceted problems in policy and planning. In Canada, the federal, provincial, and municipal governments—individually or in some joint fashion—can regulate distinct aspects of the environment as no one level of government has explicit jurisdiction.

Collaborative and participatory governance models are increasingly being used as a tool for administering environmental policy. This shifts us from centralized, top-down government policy to more decentralized policymaking and problem-solving. Thus, when one considers the complexity behind environmental policy, one comes to an understanding that it requires cooperation from all levels of government, as well as representatives from various quasi-governmental and non-governmental organizations, First Nation communities and other Indigenous groups/organizations, and other members of civil society.



*Photo courtesy of the Niagara  
Peninsula Conservation Authority*

One local example of an intersectional, intergovernmental policy domain is water governance in the Niagara region. Water governance in the region is characterized by overarching Great Lakes water policy that began in the early 20th century. Today, several intergovernmental agreements bring together nations, provinces, local organizations, agencies, and citizens through a voluntary and collaborative policy framework that aims to protect the water quality of the Great Lakes. The Niagara region is surrounded on three sides by Lake Ontario, Lake Erie, and the Niagara River. These bodies of water are identified in the Canada-U.S. Great Lakes Water Quality Agreement (GLWQA). This policy brief focuses on the collaborative policy action regarding upper Lyons Creek East in Welland, Ont., which is the last contaminated sediment site identified in the Niagara River Remedial Action Plan.<sup>1</sup>

In the 1990s, a hydroelectric transformer spill prompted the scientific study of Lyons Creek to assess the sediment for Polychlorinated Biphenyl (PCB) contamination. Findings confirmed the presence of historical PCB contamination within Lyons Creek West and East. Lyons Creek West was remediated in 2007. In Lyons Creek East (specifically between the Welland Canal By-pass downstream to the Buchner Street/CN Railway Crossing), scientific experts and environment practitioners agreed to approach remediation through monitored natural recovery, following public consultation and stakeholder engagement.

In 2011, the Lyons Creek East Administrative Controls Protocol (The Protocol) was developed as a cooperative agreement between government agencies to work together to harmonise approval, permitting, and planning processes in a manner that ensured contaminated sediments in Lyons Creek East were not disturbed as the result of development, site alteration, or emergency situations. The Protocol was agreed upon by the following agencies: Environment Canada; Fisheries and Oceans Canada; Ontario's Ministry of the Environment and Ministry of Natural Resources; Niagara Region; City of Welland; the St. Lawrence Seaway Management Corporation; and the Niagara Peninsula Conservation Authority (NPCA).<sup>2</sup> The NPCA was designated as the coordinating authority for The Protocol.

The policy problem since then is two-fold. First, there have been changes to relationships between the representatives

involved in Lyons Creek East and changing laws and regulations (reflective of broader governmental changes) that have impacted the roles, relationships, and policy tools held by the involved agencies. Second, the scientific data gathered over the past several years has shown that the current method of remediation is inefficient in the most contaminated parts of the creek. As a result of the scientific data, the need to consider different approaches to remediating the most contaminated sediment has emerged. The science tells us that monitored natural recovery is not occurring in the upstream portion of the creek where contamination is the highest. However, improvements have been seen in the downstream portion where there is less contamination. Together, these changes have produced a window of opportunity for new policy development regarding governance of the creek. This window allows one to look at the strengths and challenges over the past 12 years regarding administrative controls and to assess how the changes have impacted the ability of the NPCA to implement The Protocol.

The purpose of this policy brief, therefore, is to identify the governance practices related to Lyons Creek East that can be improved upon, and to provide recommendations for addressing any challenges that have occurred since The Protocol's inception. Specifically, this analysis seeks to shed light on the relationships between the NPCA, federal, provincial, and municipal governments, along with non-state actors, through exploring how legislative, regulatory, and administrative changes since 2011 have impacted the NPCA's ability to implement The Protocol. It seeks to explain how the NPCA has worked with other governmental agencies and actors at various levels to create and implement policy in Lyons Creek East.

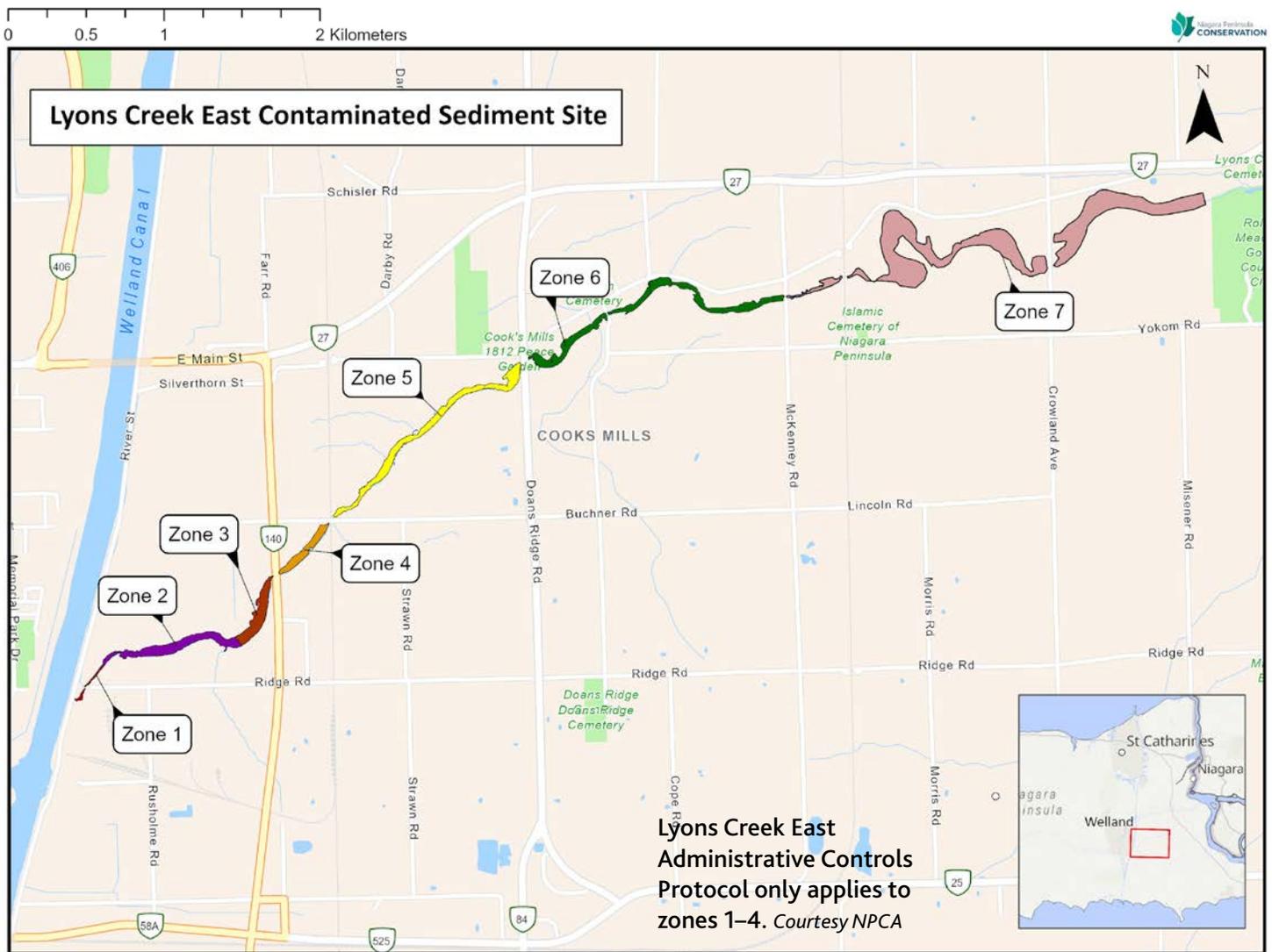
To that end, the main questions it aims to address are:

1. What best practices can we draw from nearly 30 years of literature surrounding the multi-jurisdictional governance of the Great Lakes?
2. How have legislative, regulatory, and administrative changes since 2011 impacted the NPCA's ability to implement the Lyons Creek East Administrative Controls Protocol?

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<sup>1</sup> In 1987, the federal and the provincial governments designated Niagara River as an "Area of Concern" (AOC) under the GLWQA with the United States. In turn, a Remedial Action Plan is in place guiding the restoration of water quality and ecosystem health. For more information visit <https://ourniagarariver.ca>

<sup>2</sup> Since the publication of The Protocol, several agencies have been renamed. Environment Canada is now Environment and Climate Change Canada; Ontario's Ministry of the Environment is now Ministry of Environment, Conservation and Parks; and the Ministry of Natural Resources is now known as the Ministry of Natural Resources and Forestry.



We use the concept of Multi-Level Governance (MLG) as a framework for examining the relationships between federal, provincial, and local governments, as well as local quasi-governmental agencies and non-governmental agencies and actors within civil society. The lens of MLG understands that relationships develop along both a horizontal and vertical axis.

The vertical axis is understood as joint action across upper and lower levels of government in multitiered systems like Canada’s federal system. In contrast, the horizontal axis is understood as cross-governmental and intersectoral action that allows for the development of collaborative networks between the public sector and non-state actors in the non-profit and private sectors.

It is through using the concept of MLG and lessons learned in the literature that this policy brief seeks to describe how changes to legislation, regulation and administration initiated across various tiers of government have the potential to impact the NPCA’s ability to implement The

Protocol. It will identify components in the system that can be improved upon and provide recommendations for addressing challenges.

This brief is organized accordingly. First, it will explain the research methodology followed by a review of social science literature exploring governance of the Great Lakes. It will then introduce the case study of Lyons Creek East, followed by the findings. Lastly, the brief will provide a discussion surrounding the key takeaways and conclusions drawn from the research, and a list of recommendations aimed at addressing policy development going forward.

## Research Method

Research was conducted using a combination of archival sources and interviews with four key representatives in the policy domain. The archival data consist of several documents, including the *Fisheries Act* (federal), the *Provincial Policy Statement* (provincial), the *Planning Act* (provincial), the *Conservation Authorities Act* (provincial),

as well as municipal and regional plans and policies. The analysis of the archival data informed the in-depth interviews with key stakeholders across federal, provincial and local governments, and quasi-governmental agencies. In total, four interviews occurred in July 2023. The interviews were designed to provide context and obtain critical knowledge from experts engaged in the policy domain to explain the impact of changes identified through the qualitative analysis.

Five components of MLG (defined by Homsy, Liu, and Warner, 2019) were analyzed: 1. sanctioning and coordinating authority, 2. provision of capacity, 3. knowledge co-creation, 4. framing of co-benefits, and 5. public engagement. These components help us to apply the concept of MLG when analyzing the vertical interjurisdictional partnerships and horizontal networks created to jointly address a complex or “wicked” policy problem. The five components are also closely related to findings drawn from the academic literature surrounding the effective governance of the Great Lakes.

The analysis below is divided into two parts. First, we summarize the lessons learned in Great Lakes water governance by examining nearly three decades of social scientific research. Second, we examine, through our analysis of archival and interview data, the nature of water governance surrounding upper Lyons Creek East. These two sections will shed light on how legislative, regulatory, and administrative changes since 2011 impacted the NPCA’s ability to implement The Protocol.

## Literature Review: Lessons in Great Lakes Water Governance

Findings from 30 years of literature surrounding the Great Lakes governance regime can be condensed into the following five themes: 1. the role for upper-tier governments, 2. the role for municipalities, 3. community partnership and engagement, 4. need for governance, as opposed to government, and 5. flexible and responsive institutional design.

### 1. Role for upper-tier governments

Research tells us it is important to consider the role of upper-tier governments (i.e. federal/provincial) in facilitating or hindering policy action in the Great Lakes.

There are three key roles for upper-tier governments, according to the literature: 1. coordinate and support local initiatives (Caldwell 1994; Hartig 1997; Hartig 1998), 2. facilitate and provide funding and resources at the local level (Zeemering 2018; Rentschler and Williams 2022), and 3. support and direct local capacity-building to facilitate community growth, sustainable development and problem-solving at the local level (Krantzberg 2018).

### 2. Role for municipalities

The literature places a high priority on municipal partnerships with agencies such as Ontario’s conservation authorities, and partnerships between city planners and environmental professionals (Hartig 1997; Alisp et al. 2021). The understanding is that municipalities play a crucial role in connecting local institutions and planners, facilitating the building of networks between various stakeholders on the local level.

### 3. Community partnership and engagement

Early on, a challenge for Great Lakes governance was identified in generating stakeholder endorsement of policy initiatives (Hartig, Thomas, and Iwachewski 1996). Literature states there is a need to build local partnerships, as meaningful action occurs through engagement with local communities and non-governmental civil society (Alisp et al., 2021; Child et al., 2018; Grover and Krantzberg 2015; Krantzberg 2018; McLaughlin and Krantzberg 2012 & 2018; and Rentschler and Williams 2022; and Zeemering 2018).

### 4. Need for Governance as Opposed to Government

Here, we highlight the shift from command-and-control government systems towards more networked governance approaches. The networked approach allows for the emergence of horizontal organization, where there is collaboration between each level of government and across government, non-governmental institutions, private organizations, and civil society. In the literature, there is a clear call from researchers for the need to examine and foster this style of collaboration within Great Lakes water policy (Hartig 1996; Krantzberg 2008; Krantzberg and Manno 2010). Remedial Action Plans (RAPs)<sup>3</sup> are seen as prime examples of how this shift to a governance model can succeed (Alisp et al. 2021; Krantzberg 2018;

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<sup>3</sup> Remedial Action Plans (RAPs) are required for each designated Area of Concern (AOC) under the Canada-U.S. Great Lakes Water Quality Agreement (GLWQA). RAPs specify the Beneficial Use Impairments (BUIs) that need to be addressed before an AOC can be delisted from the Agreement. The GLWQA lists the 14 BUIs, however this, in itself, does not determine which BUIs are impaired or not impaired within a specific AOC. Rather BUIs are determined in a cooperative partnership between federal, provincial and local representatives based on specific conditions to each AOC, through RAPs.

McLaughlin and Krantzberg 2018). The shift towards governance is made possible through encouraging formal intergovernmental frameworks, strong informal networks, and management informed by multidisciplinary science (Child et al., 2018).

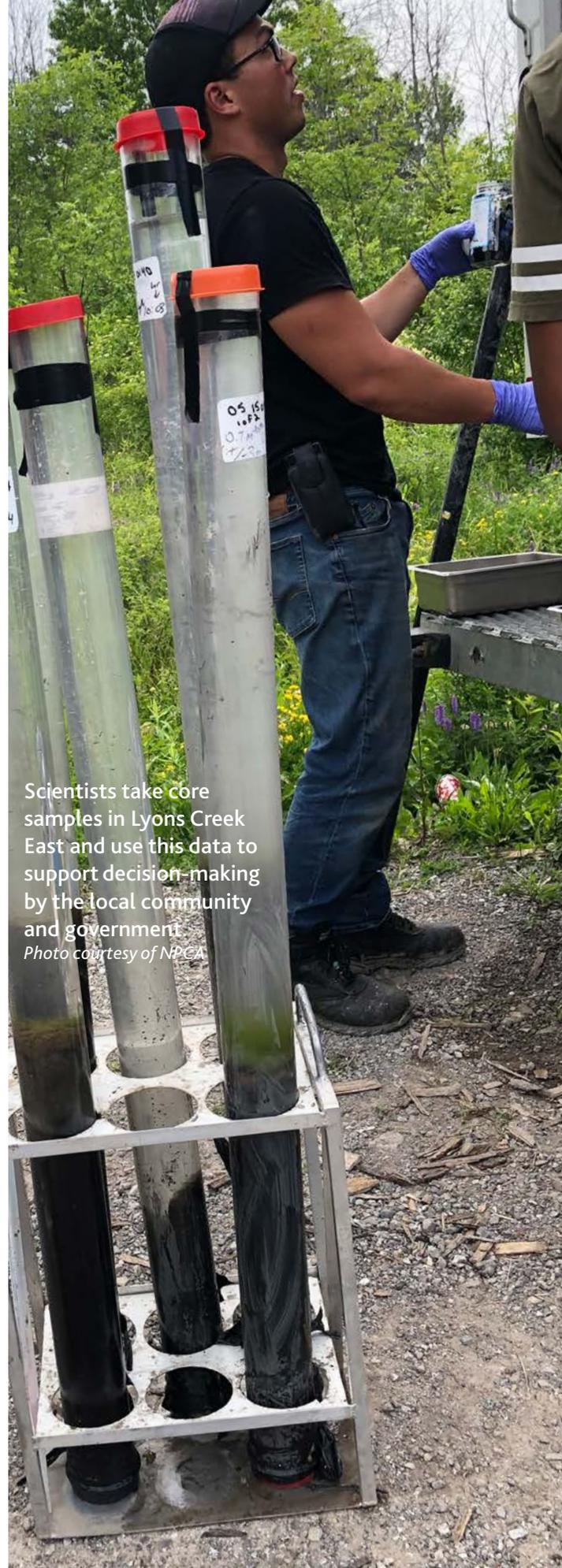
### 5. Flexible and Responsive Institutional Design

Closely aligned with the previous theme, the following discussion highlights how policy is best designed and developed in networked governance approaches. Several researchers find the need for flexible and responsive institutional design. Hartig (1997) stresses the need for responsive policy design that generates learning and understanding. Krantzberg (2008) highlights the need for flexibility and innovation in the governance of the Great Lakes. Hartig (1997) and McLaughlin and Krantzberg (2018) are supportive of RAPs in promoting flexibility and responsive policy development in Great Lakes governance because these plans allow governments, agencies, and communities to focus on the specific problems of the local areas within the Great Lakes water system in a coordinated fashion. This line of research presents a compelling argument for approaching policy design and networked governance in the Great Lakes with the goal of ensuring policy flexibility and responsiveness, along with the promotion of learning and innovation on the local level.

In sum, nearly 30 years of research tells us effective governance of the Great Lakes requires the support and coordination from upper-tier governments, including the provision of financial and technical resources. As such, upper-tier governments have a clear relationship with lower-tiered governments. Such support from the upper tier should ideally facilitate building local expertise, decision-making and sustainable development. It further tells us there is a need to foster networks and connections across fields of expertise and jurisdictions across all levels of government and society. It is through fostering these networks and relationships that one can approach solving complex, 'wicked' problems.

The shift from government to governance (towards horizontal organization using networks, partnership, and the engagement of communities) fosters endorsement of policy and can ideally lead to meaningful action. To support these principles and the building of relationships, there is the need for flexible and responsive institutional design; promoting innovation and accountability over time and as conditions change and learning takes place.

The following section looks at the case of Lyons Creek East (particularly the contaminated sediment area), exploring the role of the NPCA, its relationships across various levels of government, and with the community since The Protocol's development in 2011.



Scientists take core samples in Lyons Creek East and use this data to support decision-making by the local community and government  
*Photo courtesy of NPCA*

## Case Study: Water governance in Lyons Creek East

Significant changes across all levels of government have occurred since the establishment of The Protocol. This includes changes to the *Fisheries Act* (federal), the *Conservation Authorities Act* (provincial), and changes to provincial land-use policies through the *Planning Act* (provincial) and the Provincial Policy Statement, as well as changes on the municipal level. These changes affected the relationship between the NPCA and other governmental agencies and bodies on all levels and have the potential to impact the NPCA's ability to implement The Protocol.

The NPCA is one of 36 conservation authorities in Ontario, created under the *Conservation Authorities Act* to guide local land-use planning, including floodplain management and water-quality protection. Conservation authorities represent unique local jurisdictions that operate on a watershed basis, versus more common social or political jurisdictions. The NPCA covers the geographic area of Niagara, plus parts of Haldimand County and Hamilton. The NPCA's mandate, according to the *Conservation Authorities Act* S. 20(1), is to provide mandatory programs and services required through the CA Act. This includes programs and services related to risk of natural hazards, conservation and management of lands own by the authority, services and programs related to source protection under the *Clean Water Act*, and programs and services related to its functions and responsibilities prescribed by regulations (see mandatory programs and services S.21 and S.2.2).

In the case of The Protocol, the NPCA is recognised as the agency responsible for coordinating the decision-making process to all external and internal development activities in or surrounding Lyons Creek East. This is due to its delegated role in land-use decision-making from the provincial government. Additionally, it has long been a partner of the Niagara River Remedial Action Plan, which includes Lyons Creek East.

Application of the decision-making framework (a key administrative control located in The Protocol) is mainly achieved through a pre-consultation meeting with applicants. In these meetings, the NPCA walks through the site history and The Protocol. It is additionally tasked with confirming the involvement of all other agencies that are a party to The Protocol. Additional roles and responsibilities include the circulation of information through the

network, enforcement of its own Acts and regulations, the communication of information among the appropriate agencies, and record-keeping of reports, and maintaining awareness of the general public.

Changes initiated in 2019 to the *Conservation Authorities Act*, saw the province re-focus the mandate of conservation authorities, through defining core mandatory programs and services, and streamlining land-use reviews and permitting.

Further, the recent changes by the provincial government to the Act gives the municipalities and province additional oversight of conservation authorities.

Mitchell, Shrubsole, and Watson (2021) argue these changes are an attempt by the provincial government to narrow the role and focus of conservation authorities, particularly regarding their role in decision-making surrounding development in flood-prone and environmentally sensitive areas. Further, they predict that, should the current government<sup>4</sup> remain a majority in Ontario, the role for conservation authorities in land-use planning will continue to decline. However, Mitchell, Shrubsole, and Watson (2022) highlight that changes to The Act do not signal an end to conservation authorities in Ontario. Rather, they assert the changes imply the emergence of a different kind of provincial-municipal relationship. They argue that the provincial government is taking a more forceful and directing role, while municipalities and conservation authorities are responsible for delivery, funding, and public accountability.

There have also been changes to horizontal agreements between the NPCA and the federal and regional governments during this time. This includes a change to a formal written agreement with the federal government through the *Fisheries Act* and a change to a Memorandum of Understanding (MOU) with the Niagara Region, indicating further shifting relationships with municipal and federal governments.

The NPCA and the Department of Fisheries Canada (DFO) entered into a Level II agreement that allowed the NPCA to review projects under section 35 (1) of the *Fisheries Act* of 1985. The NPCA would assess, screen, and process all proposals under its jurisdiction to determine if Harmful Alteration or Destruction of [fish] Habitat (HADD) would occur. However, this was discontinued following revisions to the Act, and the NPCA now directs proponents of development to the DFO.

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<sup>4</sup> The Progressive Conservative Party of Ontario currently forms a majority government in the Province of Ontario, with its leader, Doug Ford, as premier. As of writing, the next provincial election is scheduled for 2026.

The MOU was an agreement with the Niagara Region that allowed the NPCA to provide technical review on planning applications. Through this agreement, the NPCA became a commenting agency on stormwater management reports, environmental impact studies, hydrogeological studies, and geotechnical studies within the Niagara Region.

However, the chair of the Board of Directors (who was also a regional councillor in September 2017) directed NPCA staff out of the MOU, which was subsequently discontinued in 2018.<sup>5</sup> Some interviewees said they felt that particular Board of Directors viewed the conservation authority as a barrier to development. The Board cancelled the agreement, removing the NPCA from its commenting role on development applications. It was through stormwater review that NPCA planners had the opportunity to include The Protocol's decision-making framework within their comments.

Essentially, these agreements had previously provided a more central role for the NPCA surrounding the oversight of development in and around Lyons Creek East. This was made possible through delegating federal or municipal legislative authority to the NPCA. As such, they had an additional role in applying The Protocol through reviewing and commenting on behalf of the Region or the DFO. Through discontinuing these agreements, this responsibility rests with the respective governments.

Additionally, research finds significant fluctuations in the networks of actors surrounding Lyons Creek East following its development in 2011. First, there was the complete turnover of members on the core government team. Meanwhile, the community representatives who were engaged in advising government action slowly disengaged and participation waned. Recently, public advisory committees have been revived and restructured by the core government team. This has been achieved through merging the original two advisory committees (the RAP Implementation Committee and the Public Advisory Committee) into one "council". This has contributed to part of the revival of the network. Additionally, membership has expanded to include Indigenous and First Nations representatives.<sup>6</sup>

When discussing network fluctuations, it is also important to note that there was a tumultuous political period when the NPCA Board of Directors sought to restrict finances and staffing of the NPCA. The 2014 municipal election ushered in a new Board that took over in early 2015 and that led to a complex relationship between the NPCA and the Region. Some Board members viewed the conservation authority as an obstruction to development. This led to significant cutbacks to the NPCA and restructuring of its staff. That Board (a majority of which are municipal councillors) faced a large upheaval after the 2018 municipal election, leading to, not only a turnover of Board members in early 2019, but also NPCA staff. Since 2018, the NPCA has been working to rebuild its image and has a Board of Directors that supports its land-use activities.

In sum, what you see are changes from at least three directions: changes in government actors, changes in community representation, and changes in NPCA staff and board members. These changes have an important element in common. They each indicate significant changes to the relationships held between the conservation authority, governmental partners and the broader public.

Adding to the changes listed above, the scientific data gathered over several years has definitively shown that "monitored natural recovery" for sediment remediation is inefficient in the most contaminated areas of the creek. Monitored natural recovery is a method of sediment remediation that allows for the development of a natural cap to accumulate on top of contaminated sediment. A natural cap is achieved when clean sediment from upstream is suspended in the moving water and eventually settles on top of the toxic sediment downstream. Through this process the contaminated sediment is slowly buried and isolated. As such, fish and wildlife are no longer exposed to toxic chemicals. Several pieces of data indicate a natural cap is not forming as anticipated in Lyons Creek East. Therefore, the data suggests the need to consider different approaches to responding to the contamination.<sup>7</sup>

To summarize, since 2011 in the case of Lyons Creek East, there have been changes to the relationship between the NPCA and various levels of government and the broader

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<sup>5</sup> As specified in the Conservation Authorities Act, conservation authority boards are appointed every four years by municipal council. It is required under The Act that 70 per cent of its appointees are selected from among the members of the municipal council unless otherwise agreed upon by the municipal council. Generally, appointment takes place in the months following a Fall municipal election. In the case of the NPCA, a new board is appointed early in the new year following a municipal election.

<sup>6</sup> This research does not establish a direct relationship between administrative restructuring, public engagement, and implementation of The Protocol.

<sup>7</sup> Plans are currently underway to determine the most appropriate sediment management options for the Lyons Creek East contaminated sediment site. For more information visit <https://getinvolved.npca.ca/lyons-creek-east>

public, as well as changes in the scientific understanding underpinning remedial action. As such, there is an opportunity to explore how these changes have impacted the NPCA's ability to implement The Protocol. The following discussion seeks to address this question using the five earlier-discussed components of the Multi-Level Governance (MLG) framework.

## Findings

### *Sanctioning and Coordinating Authority*

Under MLG, power is shared across actors, and a coordinating authority encourages local innovation and the engagement of multiple actors beyond traditional top-down command and control government (Homsy, Liu, and Warner 2019). Yet under MLG, there is still the need to have a strong centre to uphold the law and coordinate the network of actors to meet the policy goals (Homsy, Liu, and Warner 2019).

In the case of Lyons Creek East, The Protocol is seen as a mechanism or tool established to limit disruption of sediment that would prevent the recovery of the creek. The NPCA was given the care and coordination of The Protocol based on its delegated role from the province in land-use planning and permitting. Having the NPCA at the centre

of The Protocol ideally allows for a one-window approach, where the NPCA receives applications under The Protocol and then helps coordinate applications across various signatory agencies. The Protocol allows for coordinated efforts ensuring multiple agencies are not operating in silos and that communication occurs among agencies with legislative or regulatory jurisdiction. It also ensures alignment of requirements between the conservation authority and municipalities.

We found that the NPCA may not have had the right tools from the outset when applying the decision-making framework and that over time the NPCA had increasingly fewer policy tools (such as the Level II agreement, the MOU with the Region) available to implement some of the administrative controls defined in The Protocol. The interviewees, who have provided critical insight to this research, stressed that the ability to implement The Protocol comes from representatives having the legislative and regulatory authority to share comments and recommendations on permit applications regarding development, and that authority accorded to the NPCA had eroded. Without the MOU and Level II agreement in place, the respective government actors now each have the responsibility of implementing The Protocol when reviewing applications according to their jurisdiction.



Here, it is important to stress the role of the NPCA through the lens of governance and the lessons located in Great Lakes governance literature. The Protocol envisions the role of the NPCA as a network coordinator, particularly during the pre-consultation meetings. It is through this role that the NPCA helps ensure the agencies and actors involved are working in unison and according to the agreed processes laid out in The Protocol. The NPCA helps direct the applicant to The Protocol, the required permits, and appropriate agencies, which can include itself or other agencies listed in The Protocol.

The shift way from the MOU/ Level II agreement does not hinder the NPCA's ability to take on the role of network coordinator but limits its ability to implement the decision-making framework found in The Protocol. This has placed greater importance on the network as it requires increased horizontal cooperation and collaboration with government actors.

#### *Provision of Capacity*

To address policy problems, governments need to mobilize technical, professional, and financial resources (Homsy, Liu, and Warner, 2019). In the case of Lyons Creek East, federal and provincial ministries provide technical, professional, and financial resources to the NPCA (which represents the local jurisdiction). This is done within the context of the Canadian Constitution and the Great Lakes water governance policy.

To break it down, the federal government mobilizes resources to support the commitments and goals made through the GLWQA and other policies surrounding the Great Lakes. However, the federal government does not have jurisdiction over land-use planning by provincial and municipal governments. Therefore, it is the provincial government that facilitates the provision of scientific, technical, professional, and financial resources *in partnership* with the federal government, recognizing the provincial commitments made under intergovernmental policies and agreements surrounding the Great Lakes. The NPCA relies on provincial and federal government funding to undertake special programs and projects specific to Lyons Creek East. In turn, the NPCA supports federal and provincial scientists by providing local-level monitoring and sampling. It also provides project management and community-engagement services.<sup>8</sup>

Significantly, we found that the financial and scientific capacities surrounding Lyons Creek East have remained strong over time. However, maintaining technical and professional capacity internally at the NPCA, and externally between the NPCA and other levels of government, has proven to be challenging. Internally, over the past 10-plus years, the NPCA has faced periods of instability due to significant changes on the Board of Directors as a result of municipal politics. These changes impacted its organizational and administrative capacity as it faced significant reorganization of staff, lay-offs, and cutbacks, leaving key positions unfulfilled. Today, its funding, staffing and mandate have stabilized.

Additionally, the intergovernmental network of actors representing the core team directing action in Lyons Creek East in 2011 has been completely replaced by new staff. There has also been restructuring of the committees and partnerships guiding governmental action. It is clear the network has faced a decline in its capacity to function since 2011. However, it is important to note that, currently, the network is growing through the restructuring of the core government team and community participation, as well as through the expansion of First Nations and Indigenous partnerships. This has been made possible, in part, through the restructuring of the RAP.

To summarize, the above evidence speaks to the relationships between the NPCA and various actors. The evidence indicates the federal and provincial governments are facilitating local action through partnership with the NPCA. This action has facilitated local scientific data and knowledge collection which is informing policy decision-making. This action is well supported by research surrounding Great Lakes governance.

However, it is also clear in the above evidence that the network faced significant challenges. This is particularly evident in the relationship between the NPCA and the Region between 2014-2018. The breakdown of this relationship resulted in administrative changes that impacted the NPCA's ability to remain accountable to The Protocol. Great Lakes governance research highlights the importance of municipal partnership and its role supporting and facilitating local networks.

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<sup>8</sup> In addition to the NPCA undertaking local-level monitoring for Lyons Creek East, provincial and federal agencies also scientifically monitor the creek according to their expertise.

## *Knowledge Co-Creation*

The MLG framework assigns immense value to the inclusion of local knowledge into the discourse of centralized policymakers and technical analysts. In the case of Lyons Creek East, there are three significant findings.

1. Local-level scientific research and discovery is being produced and has been central to policy action since 2011. Scientific monitoring and data collection over the past 15 years continue to guide public engagement and policy review around Lyons Creek East today. Local scientific decisions and local community understanding continue to be produced and integrated into policy decisions. The NPCA plays a significant role in assisting federal and provincial governments in scientific monitoring and data collection in Lyons Creek East, along with facilitating community engagement sessions that allow community members to decide on options surrounding remedial action.
2. Our findings indicate the anticipation of changes underpinning the science guiding The Protocol, and changes to the legislative and regulatory frameworks, may have postponed official review or updates to The Protocol. With legislative and regulatory changes occurring from the top down, there is a need to interpret and determine the impacts of these changes across and between organizations. Such changes should ideally trigger a review of The Protocol by the agencies involved. It is important that changes be integrated into The Protocol to avoid delays, gaps, or uncertainty.
3. The findings suggest a key gap in policy development and implementation at the local level. There was concern that the original drafting and decision-making surrounding The Protocol did not consider how The Protocol would be implemented by the NPCA. Additionally, some expressed difficulties accessing information and training resources that specified how The Protocol is best implemented and understood, particularly as time passed and new staff were introduced to The Protocol.

As local knowledge is held in high regard, it is important the NPCA is involved and can shape policy at the outset, and that it has a strong understanding of the policy so that it may engage with discussions and decisions with ease. The fact that local implementors felt there may have not been enough participation surrounding the development of The Protocol, and that there was a lack of resources available surrounding policy implementation, left a key knowledge gap in the local understanding of how best to implement The Protocol following its adoption in 2011.

Together, these three findings indicate mixed findings regarding knowledge co-creation. First, it appears to be working effectively in the integration of local scientific understanding. Great Lakes governance literature celebrates the use of intergovernmental frameworks, informal networks, and science-informed decision-making. However, it appears knowledge co-creation is experiencing a tension in relation to flexible institutional design as there has been no official consideration about the impact of top-down changes since 2011.

More importantly, these changes are occurring outside of the policy network. This highlights the challenges of crafting responsive and flexible policy. Policy needs to respond to change occurring across various levels of government. Policy that does not respond in this way is at the risk of becoming outdated, creating timely delays, and at its worst impacting accountability. There is a clear need to respond to this finding through the design and implementation of an effective process for amending The Protocol in the face of major change.

Further, local actors involved in implementing The Protocol may have not had the opportunity to help shape or learn about how to best implement The Protocol. Great Lakes governance literature stresses the importance of partnership with local experts for two key reasons. First, local experts have key understandings that help design effective policy. Second, local partnerships help to facilitate the acceptance of policy.

### *Framing of Co-Benefits*

Local governments may undertake environmental actions where those actions produce more than one benefit for the community (Homsy, Liu, and Warner, 2019). Through MLG, reframing of co-benefits can counter negative political attitudes toward common problems and build consensus by stimulating locals to view policy action as important to them (Homsy, Liu, and Warner, 2019).

Over time, the science underpinning joint decision-making (between local communities and governments) has challenged the original remedial action decisions and the co-benefits defined by public-sector and non-state actors in The Protocol. The changing understanding of remedial action in Lyons Creek East has impacted the co-benefits of monitored natural recovery as time has shown the physical limits of this remedial approach.

Today, actors are working together to re-imagine remedial action in the upstream portion of the creek considering the emerging scientific data. The need to consider alternative approaches to remedial action are not the result of

changing legislative, regulatory, or administrative changes. Rather, this change is the result of several years of scientific monitoring and data collection which indicates monitored natural recovery is insufficient for the most contaminated sediment in Lyons Creek East. Additionally, one should note that if a decision is made to adopt a different remedial strategy for Lyons Creek East in the future, the need for an administrative controls protocol strongly remains.

### *Engagement of Civil Society*

The MLG framework recognizes that citizens' voices can motivate government action and at the same time encourage public acceptance of policy (Homsy, Liu, and Warner, 2019). The community was engaged in the initial development of remedial action in Lyons Creek East, and The Protocol is intended to help ensure protection for the decision to adopt natural monitored recovery. However, findings indicate the initial RAP Implementation Committee and the Public Advisory Committee faced participation challenges. More recently, through administrative restructuring, the two committees have been merged into one RAP Council. This development re-establishes an important community forum.

Additionally, community engagement surrounding Lyons Creek East has included partnerships with local Indigenous and First Nation communities and broad community open houses bringing in members from the public. Future decision-making surrounding remedial action in upper Lyons Creek East will benefit from the continued and expanded engagement as a result of these changes.

Regardless, findings indicate some interviewees feel the need to continue to improve community engagement surrounding public awareness of The Protocol. This includes highlighting The Protocol on the NPCA website and engaging with the portion of public who access the site, educating them on the impacts of activities that may disturb the sediment, such as riding ATVs through the creek or letting dogs wade in the creek. It is important to know that, as an individual, you can make a positive impact on the environment. However, one needs access to the knowledge and resources to help make informed decisions. Great Lakes governance literature argues that increased public engagement of The Protocol may have additional benefits promoting the endorsement of the policy from the community and generate meaningful action at the local level.

**Scientists at Environment and Climate Change Canada (ECCC) collect samples of benthic invertebrates from the creek in 2019. Photo courtesy ECCC**



## Discussion

So, how do we best govern the environment? How do decision-makers, scientists, and practitioners build best practices and define practical and meaningful approaches to responding to complex or 'wicked' problems in planning and policy development, maximizing the public good and maintaining accountability to people and planet? This policy brief explores these questions through the case study of Lyons Creek East and the Lyons Creek East Administrative Controls Protocol (The Protocol). This case study provides the opportunity to explore complex intersectional and intergovernmental cooperation between the NPCA, governments at the federal, provincial, and municipal levels, and civil society. This policy brief summarizes the best practices found in 30 years of Great Lakes governance research. Further, it directly aims to seek an answer to how legislative, regulatory, and administrative changes have impacted the NPCA's ability to implement The Protocol.

If there is one single takeaway from the above discussion, it is this: there is a strong opportunity for collaborative and participatory governance to work towards improving our environment. This requires open cooperation from all stakeholders and all levels of government. This policy brief identifies that this process is not straightforward, nor is it necessarily easy.

The presence of a central coordinating authority, provisions of capacity (such as financial resources and expertise), knowledge co-creation (particularly the inclusion of local knowledge), and public engagement are key factors contributing to the success of the policy surrounding Lyons Creek East.

Regarding the central coordinating authority, there has been a diffusion of the NPCA's central role since 2011.

This has occurred through the loss of the MOU and Level II agreements between the NPCA and respective governmental agencies. This has not impacted the ability of the NPCA to act as the central coordinating authority, however, it impacts its ability to implement the decision-making framework located in The Protocol through commenting on regulatory approvals and permitting, and/or environmental assessments and planning. As a result, this places the responsibility on respective federal or Regional actors, although it is important to highlight that

the NPCA still retains its responsibility to implement the decision-making process in relation to its own legal and regulatory jurisdiction. Now more than ever it is important that the agencies involved collaborate and coordinate horizontally through The Protocol.

This policy brief has additionally highlighted the strong examples of knowledge-sharing and co-creation of scientific understandings guiding Lyons Creek East policy. However, we found a knowledge gap in identifying and acknowledging the impacts of legislative, administrative, and regulatory change. The extant literature on the Great Lakes highlights the need to foster adaptive and responsive capacity to generate learning, understanding, innovation and improvement. Without it, the policy is at risk of being dated or difficult to implement, resulting in time-consuming delays.

Our findings indicate that the anticipation of changes underpinning the scientific understanding that guides The Protocol, as well as changes to the legislative and regulatory frameworks, has led to the delay of its official review. While this delay has provided experts time to fully understand the changing social and scientific conditions impacting The Protocol, it has the potential to limit its execution among the NPCA and partner agencies. This brings into question its accountability to people and the environment.

Furthermore, findings indicate that sustaining relationships across government and the general public over time has been difficult. Great Lakes governance literature highlights the vital role of the federal and provincial governments in supporting and coordinating local action. In Ontario, there is a significant role for the provincial government to support land-use policy in Lyons Creek East that protects water quality in the region and in the Great Lakes. Further, there is also a role for municipal levels of government to facilitate horizontal partnerships. This includes the continued leadership and support of the local conservation authority, but also the partnership between the NPCA and municipal planners. Evidence indicates that relationships are currently being strengthened.

Lastly, the engagement of the public is particularly important when examining policy development. This includes improving community awareness of The Protocol to improve individual decision-making and encourage the endorsement of the policy among the community.

## Recommendations

In response to these challenges, the following recommendations are proposed.

1. Develop methods for internally assessing and reporting any changes impacting the role of an agency and its ability to fulfill its responsibilities as outlined in The Protocol. Changes that impact an agency's role or responsibilities should also be communicated outward to relevant agencies and partners.
2. Relevant agencies and partners should develop methods for agencies to internally monitor, assess, and annually review the implementation of the administrative controls located in The Protocol. Methods developed should promote the collection of qualitative and quantitative data surrounding implementation, including outcomes. Data should be appropriately shared and made available to relevant actors for review and be utilized to improve upon future practices and processes.
3. Maintain the relevance of The Protocol by defining an amendment process that allows for The Protocol to respond to changes. The amendment process should promote flexibility and adaptability in response to change.
4. Promote the dissemination of legislative, regulatory, and administrative changes impacting The Protocol among networks through facilitating conversations, meetings, and other methods of communication that cross organizational and institutional silos.
5. Develop and share resources that can be used to assist in the training of incoming staff from across the various agencies involved in The Protocol.
6. Address gaps in policy implementation through expanding participation with appropriate stakeholders and partners to assist in defining and articulating how The Protocol is best understood and implemented.
7. Future public engagement should occur early in the process and be sustained throughout the policy life-cycle. Agencies should consider any additional gaps in public engagement, develop best practices for addressing them, and ensure engagement is meaningful.

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