

# **Assessing the Role of Discourse in Influencing Water Quality Policy in Lake Erie Basin**

by

Bereket Negasi Isaac

A thesis  
presented to the University of Waterloo  
in fulfillment of the  
thesis requirement for the degree of  
Doctor of Philosophy  
in  
Social-ecological Sustainability (Water)

Waterloo, Ontario, Canada, 2020

© Bereket Negasi Isaac 2020

## EXAMINING COMMITTEE MEMBERSHIP

The following members served on the Examining Committee for this thesis.

External Examiner	Dr. Debora VanNijnatten Professor, Department of Political Science Wilfrid Laurier University
Supervisor	Dr. Rob de Loë Professor, School of Environment, Resources and Sustainability University of Waterloo
Internal-external Member	Dr. Sarah Burch Associate Professor, Department of Geography and Environmental Management University of Waterloo
Member	Dr. Derek Armitage Professor, School of Environment, Resources and Sustainability University of Waterloo
Member	Dr. Jennifer Clapp Professor, School of Environment, Resources and Sustainability University of Waterloo

## **AUTHOR'S DECLARATION**

This thesis consists of material all of which I authored or co-authored: see Statement of Contributions included in 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.

## STATEMENT OF CONTRIBUTIONS

In the School of Environment, Resources and Sustainability, two forms of presentation of the doctoral dissertation are permitted: (1) a standard dissertation monograph, and (2) a manuscript option centred on three or four published or publishable learned journal-type manuscripts on related matters, packaged with introductory and concluding chapters that integrate the purposes/research agenda and findings/implications, with the required result forming a conceptual whole. This thesis used the manuscript option. Specific requirements relating to the manuscript option, which have been met, are as follows:

- The manuscript-based dissertation must reflect a consistent overall conceptual foundation and research agenda and the parts must be integrated to form a coherent package. The whole must be related to the overall purposes of the School of Environment, Resources and Sustainability (SERS) doctoral program, and the individual components of the dissertation must originate from the doctoral research.
- The manuscripts must be dominated by the intellectual effort of the student. While members of the advisory committee and others involved in the research may, as appropriate, be listed as secondary authors on individual manuscripts, the manuscripts must be written by the student, and the student must be the first author on each manuscript.
- Where multiple authorship occurs, there must be a preface statement in the thesis outlining the roles of the respective authors, and clarifying the extent and nature of the contribution of the student. Co-authors must sign the statement to indicate that they are in agreement with the evaluation of the roles and contributions of the various authors.
- In no case can a co-author serve as an external examiner for the thesis.

Findings from this dissertation are reported in three co-authored manuscripts (Chapters Two, Three and Four). These chapters have been prepared for submission to refereed journals.

I testify that I am the primary author of the manuscripts in my dissertation, and that the work was dominated by my intellectual efforts.



Bereket Negasi Isaac (Student)

Co-authorship for R.C. de Loë (Advisor) was determined based on meeting the following criteria:

- Substantial contributions to the conception and design of the work, and to interpretation of data;
- Contributing to editing and revising the work critically for important intellectual content;
- Final approval of the versions of the chapters that will be published as refereed journal articles;
- Agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

I testify that Bereket Negasi Isaac is the primary author of the manuscripts in this dissertation, that the work was dominated by his intellectual efforts, and that I have met the four tests outlined above.



**Rob C. de Loë (Advisor)**

**University of Waterloo**

## ABSTRACT

This research examines the usefulness of a discourse approach to better understand freshwater policy and governance, with a specific focus on the involvement of non-state actors in the policy making process. Previous research has shown that these actors greatly differ in their capacities to influence policy. One capacity that has not been the subject of much research in the context of freshwater policy is the discursive capacity of actors. Discourse – the various ways people make sense of their environments and ascribe meaning to social and physical phenomena – has been shown to be an important element in the environmental policy process. However, its exact role and its relationship with actors and the institutional contexts have not been well understood. This thesis contributes to a better understanding of discourse in freshwater policy process and its relationship to the institutional context of resource governance. By adopting an interpretivist approach, I apply a ‘discourse institutional’ perspective to better understand policy process in addressing eutrophication problems in Lake Erie basin. I developed a conceptual framework to guide this research focused on the development of Domestic Action Plans (DAP) in both Ontario and Ohio with the aim of reducing phosphorus runoff to Lake Erie by 40% by 2025 from 2008 levels. I collected and analyzed data gathered through document reviews, news media reports, interviews, and participant observation as well as other relevant sources.

The main findings in this study can be seen in three aspects of the role of discourse in the policy process. The first aspect is seen in how groups of actors are brought together in ‘discourse coalitions’, and how they promote specific narratives or storylines so as to construct a broad issue into a policy ‘problem’ with an identifiable cause-effect relationship. I identified two storylines in each region that provide specific conceptualizations of the eutrophication problem in Lake Erie, promote certain responses as the most appropriate, and assign responsibilities to actors. Other storylines deflect the focus away from any single actor as the main source of the problem and put the blame on a web of complex relationships among biophysical and climatic factors that act externally to the governance system. These storylines offer different accounts of the extent and level of urgency with which policy actors may need to respond to the eutrophication issue. This has been reflected in how they shaped the substantive content of the DAPs in both regions.

The second aspect of discourse examined in this study relates to the specific practices that a single major policy actor engages in while influencing policy discursively. I find that the material, organizational and discursive capacities of some actors complement and support each other in helping them engage in continuous and persistent information exchange activities with key policy actors before and during the policy process. I show this with the case of the Ontario Federation of Agriculture and the Ohio Farm Bureau, two major actors in the eutrophication related policy process. I observe that their multi-faceted efforts have been instrumental in helping these actors maintain legitimacy in the eyes of the public as well as to keep a ‘social license’ to operate. I find that both agricultural organizations made persistent attempts to frame the nutrient reduction policy by attaching it to broadly held ideas, such as the need for continuous and viable food production, and feeding an ever-growing global population. Such framing practices are often complemented with careful management of public images to provide an appearance of environmental stewardship, as well as by efforts to define the concept of sustainability in a way that presumes the harmonious coexistence of food production and environmental protection. This finding directly relates to the level of effectiveness of environmental sustainability policy efforts.

The last aspect of the influence of discourse on policy is seen in how broader and more enduring constitutional and other formal institutional structures in Canada and the United States may have affected the nature of nutrient runoff related discourse in Ontario and Ohio. I provide insights into how discourse coalitions and other major policy actors engaged in discursive practices are either enabled or constrained by the broad institutional contexts within which they act. I find that in Ontario important formal institutional structures that bring together relevant actors at the provincial and federal levels seem to have provided a conducive environment for a more collaborative policymaking style as compared to that of Ohio.

This research makes several significant and original contributions to the academic literature. The first theoretical contribution relates to the conceptual elaboration of storylines and the exercise of discursive influence by actors in the context of policy development for water quality at a basin and regional levels. This study provides key insights into the importance of the process of defining broad issues into specific problems and how this may affect the kind of solutions that are deemed appropriate in light of those definitions. It also highlights how the nature of the problems that modern societies are facing in this age are becoming difficult to define with many 'environmental' issues also having social, political and economic dimensions. The study underscores that the struggle over whose problem definition eventually prevails directly impacts the allocation of responsibilities and resources in addressing those issues.

The second conceptual contribution relates to broadening the scope of institutional approaches, especially the Institutional Analysis and Development framework based approaches, by incorporating the important role of discourse. In particular, this study has illuminated the interactions between actors and their discourses, and the institutional frameworks that act as the context for the policy process. It provides supporting evidence to the argument that discourses and institutions operate in a spiraling, dialectical fashion. Thus, discourses may give rise to new institutional structures that, in turn, may shape the nature of discourse along a temporal scale. This research also points out that in addition to material resources, actors also employ linguistic and other discursive resources that the new institutionalism literature has generally disregarded.

Thirdly, this research provides methodological insights on the use of critical discourse analysis and framing theory to study discourse and its power effects. By combining both approaches, the researcher is able to make explicit links between individual words and phrases in texts of policy documents with their significance in the broader network of social relations. This enables well-rounded analyses and understanding of variety of influences by actors on policy.

Finally, this research provides a new empirical social scientific account of the interaction between discourse and institutions in the case of eutrophication issues in Lake Erie basin, thus providing important insights into similar problems in other parts of the world. This is especially the case with environmental issues where the policy emphasis might have been on further enhancing the scientific basis for decision making at the expense of a thorough appreciation of the highly contentious and value-laden nature of both the issue and any potential solutions.

## ACKNOWLEDGEMENTS

The successful completion of this doctoral dissertation would not have been possible if it were not for the support of many people. I would like to express my deepest gratitude to my advisor, Dr. Rob de Loë, for his patient guidance, for giving me the independence to pursue my research interests, and for his continuous support throughout all stages of this research. I am very lucky and grateful to have had a supervisor who cared about my work and trusted my capacity to accomplish it even when I was not always so confident. I would also like to thank my committee members, Dr. Derek Armitage, Dr. Sarah Burch, and Dr. Jennifer Clapp for their very helpful and constructive feedback on the earlier draft of this dissertation. I am also thankful for all committee members, including my external examiner, Dr. Debora VanNijnatten, for their very thoughtful questions, feedback, and helpful next steps with my research. Thanks also goes to all participants in this study, both in Ontario and Ohio, for their willingness and time to participate in interviews. I also thank my peers and colleagues in the School of Environment, Resources and Sustainability for their encouragement and enjoyable company. I am also very grateful for my family and friends for their constant encouragement, support and patience for the past five years.



## **DEDICATION**

I dedicate this doctoral dissertation to my elder brother, Ermias, who left us too soon. He was an inspiration for me to aim higher. Today, he would have been very proud of his younger brother.

# TABLE OF CONTENTS

EXAMINING COMMITTEE MEMBERSHIP .....	ii
AUTHOR'S DECLARATION .....	iii
STATEMENT OF CONTRIBUTIONS .....	iv
Abstract .....	vi
Acknowledgements .....	viii
Dedication .....	ix
Table of Contents .....	x
List of Tables .....	xiii
List of Figures .....	xiv
1 Chapter 1 Introduction .....	1
1.1 Research Context and Problem Rationale .....	1
1.2 Purpose and Objectives .....	3
1.3 Conceptual Review: Environmental Policy, Discourses, and Institutions .....	4
1.3.1 Environmental Policy .....	5
1.3.2 Environmental Discourses .....	7
1.3.3 Institutions .....	9
1.3.4 Summary .....	12
1.4 Eutrophication and Water Quality Policy in Lake Erie Basin .....	12
1.5 Research Approach and Methods .....	14
1.5.1 Epistemological premises .....	15
1.5.2 Conceptual Framework .....	16
1.5.3 Case Study Method .....	19
1.5.4 Case Descriptions .....	20
1.5.5 Data collection .....	23
1.5.6 Data analysis .....	25
1.6 Organization of thesis .....	26
2 Chapter 2 Eutrophication and Water Quality Policy Discourse in Lake Erie Basin .....	28
2.1 Introduction .....	29
2.2 Discourse in the context of environmental and water policy .....	30
2.3 Nutrient Issues in the Western Lake Erie Basin .....	32

2.4	Methods.....	33
2.4.1	Conceptual approach.....	33
2.4.2	Cases, data collection and analyses.....	34
2.5	Results: Storylines, discourse coalitions and the policy process .....	36
2.5.1	Discourse on Nutrients in Ontario.....	37
2.5.2	Discourse on Nutrients in Ohio.....	41
2.6	Discussion.....	45
2.6.1	Storylines define policy problems and assign responsibilities.....	45
2.6.2	Discourse coalitions reflect broader patterns of societal discourse.....	46
2.6.3	The varying impacts of discourses on the DAPs .....	48
2.7	Conclusion .....	48
3	Chapter 3 Discursive Influence of Actors on Policy: A Case of Agriculture in Lake Erie Basin.....	50
3.1	Introduction.....	51
3.2	Discursive influence in watershed-based policy process .....	52
3.3	Water Quality Policy in Lake Erie basin .....	54
3.4	Conceptual Approach.....	55
3.5	Cases and Methods .....	58
3.5.1	Cases .....	58
3.5.2	Data collection and analyses .....	58
3.6	Results: Discursive practices and the policy process .....	59
3.6.1	The Ontario Federation of Agriculture’s discursive practices .....	60
3.6.2	The Ohio Farm Bureau and the DAP policy process .....	64
3.7	Discussion .....	68
3.7.1	The agricultural industry and the socio-political context.....	68
3.7.2	Agricultural industry and policy framing.....	70
3.8	Conclusion .....	71
4	Chapter 4 Institutional Context and Water Quality Policy Discourse in Lake Erie Basin.....	73
4.1	Introduction.....	74
4.2	How do institutional arrangements influence discourse?.....	75
4.3	The water quality policy context.....	77
4.4	Methods.....	78
4.4.1	Conceptual framework.....	78

4.4.2	Data Collection and Analysis.....	80
4.5	Different institutional contexts and the policy discourse.....	81
4.5.1	Binational institutional structures .....	81
4.5.2	Canadian institutions and interactive discourse.....	82
4.5.3	Ohio’s institutional context and interactive discourses.....	88
4.6	Discussion: How far do institutional contexts affect discourse?.....	92
4.6.1	Institutional factors and interactive discourse.....	92
4.6.2	Non-institutional factors and interactive discourse.....	94
4.7	Conclusion .....	96
5	Chapter 5 Conclusion.....	97
5.1	Purpose and objectives.....	97
5.2	Major findings.....	98
5.3	Contributions.....	101
5.3.1	Theoretical and empirical contributions.....	101
5.3.2	Recommendations for policy practice.....	108
5.3.3	Limitations and ideas for further research .....	109
5.4	Research reflections .....	112
5.4.1	Reflections on case studies .....	112
5.4.2	Reflections on research methodology .....	113
5.4.3	Personal reflections .....	115
6	Appendix.....	117
6.1	Semi-structured Interview Guide .....	117
6.2	List of Documents Reviewed.....	119
7	References Cited .....	124

## LIST OF TABLES

Table 1.1. Summary of interviewees by case.....	24
Table 1.2. List of media sources by case .....	25
Table 2.1. Analytic Scheme for identifying storylines .....	34
Table 4.1. Coordinative and communicative discourse in single-and multi-actor systems .....	77
Table 4.2. Summary of relevant institutional provisions .....	83
Table 5.1. Summary of contributions by chapter.....	106

## LIST OF FIGURES

Figure 1.1. Conceptual framework .....	18
Figure 1.2. Study areas: The Thames and Maumee watersheds in western Lake Erie basin.....	21
Figure 2.1. Case study areas: Thames watershed and Maumee watershed.....	35
Figure 3.1. Modified Critical Discourse Analysis Framework.....	57
Figure 4.1. Conceptual framework: interacting institutions and discourses .....	79

# Chapter 1

## Introduction

### 1.1 Research Context and Problem Rationale

There is a general consensus among natural resource management scholars that institutions provide the critical link between the broad social system and the biophysical system (Berkes, Colding, & Folke, 2003; Ostrom, 1990). Oran Young contends that the “fundamental problems regarding environmental governance have to do with institutional matters” (Young, 2008, p. 28). Institutions are formal and informal social structures that shape how people interact with each other as well as conduct themselves in social settings; they provide the ‘rules of the game’ (North, 1990; Scott, 2014). Thus, institutions constitute an important variable towards a meaningful understanding of resource and environmental governance – the ways social actors organize themselves to decide about what needs to be done and how (Lemos & Agrawal, 2006; Ostrom, 2005).

Institutions are typically stable over time, whether as informal cultural norms and conventions or in terms of formal structures such as national constitutions and other rule making structures. However, particular institutions in specific contexts can also be seen as reflections of the dominant ideas that enabled their emergence and evolution through time (Huitema, 2002; Huitema & Meijerink, 2009; Matthews, Gibson, & Mitchell, 2007; Schmidt, 2008; Streeck & Thelen, 2005). Those ideas, however, do not translate into institutions just by existing; they need to be communicated among members of society through discourses. Discourses enable people to exchange ideas, make sense of their environment in a particular way, and ascribe meaning to it. They are a “shared way of apprehending the world” (Dryzek, 2013, p. 9).

Many scholars have argued that in addition to giving rise to specific institutions (e.g., legislation) dominant discourses also permeate institutional processes and may act as the ‘software’ that support and enable their functioning (Hajer, 1995; Schmidt, 2010). The various policies and institutional structures that societies in western countries put in place during the 1970s to address environmental problems were in part driven by the wave of environmental consciousness that thrived at the time (Dryzek, 1997, 2013; Gibson, Holtz, Tansey, Whitelaw, & Hassan, 2005; Torgerson, 1995). Motivated by the seriousness of environmental degradation as well as the vitality of environmentalism, those newly established institutional structures (e.g., ministries of environment) reflected changing societal attitudes and discourses about society’s relationship to the environment (Sproule-Jones, Johns, & Heinmiller, 2008).

Even though there is an established body of scholarship that addresses environmental issues with the research lens of institutional analysis, only a limited number of studies have attempted to systematically incorporate the role of discourse in their frameworks e.g., Arts and Buizer (2009), Clement (2010), den Besten, Arts, and Verkooijen (2014). Among the three main approaches to the study of institutions – rational choice, historical and sociological – the rational choice approach, with theoretical roots in economics, has been dominant in resource governance contexts, especially at local and regional scales (Imperial, 1999; Lubell, Schneider, Scholz, & Mete, 2002; Sabatier, Focht, et al., 2005). On account of its underlying premises of individual behavior that is rooted in rational choice theory, this dominant institutional approach has not

given serious attention to the role of discourses in influencing the process and outcome of environmental governance (Koelble, 1995; Miller, 1992; Ostrom, 2007).

The need to situate the role of discourse in environmental policy within the context of broader institutional setting stems from the observation that the social system is linked with the ecological system primarily through institutions (Fleischman et al., 2014; Folke, Lowell, Berkes, Colding, & Svedin, 2007). As such, the absence of engagement of rational choice institutionalism with ideas, discourse and their implications for power relations has long been a point of critique (Clement, 2010; Peters, 2012; Phillips, Lawrence, & Hardy, 2004). In these approaches, the influence of ideational and discursive factors through which perceptions and interests may be influenced has been generally disregarded. The effects of ideational and other forms of power have also been hidden, in the words of Epstein et al., “behind a veil of game-theoretic terminology and a pragmatic emphasis on designing institutions” (Epstein, Bennett, Gruby, Acton, & Nenadovic, 2014, p. 129).

Despite some attempts to theorize and build conceptual links between discourse and institutions (Schmidt, 2000, 2002, 2008), significant gaps remain in the literature that situates itself at the intersection of institutional and discourse analyses. This is even more so with approaches related to water policy and governance (Brisbois, Morris, & de Loë, 2018; Clement, 2010, 2012). An early major emphasis on the importance of institutional settings in environmental discourse analyses can be seen in the seminal work of Hajer (1995). Even though he did not provide much conceptual elaboration on how exactly institutional settings may affect the nature of environmental discourse, Hajer cautioned against ignoring the intuitional aspects of policy discourse. He notes that the struggle among competing discourses in environmental policy process “does not take place in a social vacuum but in the context of institutional practices, ... [hence] ... institutional arrangements are seen as the pre-conditions of the process of discourse-formation” (Hajer, 1995, p. 60). We see more focused contributions in this regard at the turn of the century with the works of other scholars such as Huitema (2002), Rydin (2003) and Maguire and Hardy (2009). Additional theory development efforts can also be seen in the field of political economy and international relations in the works of Schmidt and colleagues (Schmidt, 2000, 2002; Schmidt & Radaelli, 2004). The works of Schmidt especially have focused on conceptually developing the field of ‘discursive institutionalism’ as a ‘fourth new institutionalism’ in par with rational choice, historical and sociological institutionalism (Peters, 2012; Schmidt, 2010).

The ‘discursive institutional’ approach, as developed by Schmidt, has a promising potential in complementing the weaknesses of institutional explanations of the policy process from the other three new institutionalisms. However, its applications have largely remained at the levels of the nation state or supranational levels such as the European Union. The very few studies that have applied this lens include the fields of forest policy (Arts & Buizer, 2009), energy transitions (Kern, 2011; A. Smith & Kern, 2009), climate change policy (Hope & Raudla, 2012) and corporate social responsibility policy at the EU level (Fairbrass, 2011). Even though the application of this approach to better understand environmental policy processes in general is still at its early stages, it is even more limited in the field of water governance and policy. In this research, I contribute to the conceptual development of the discursive institutional approach by applying it in an empirical setting in the context of water quality policy development in the Great Lakes basin of North America.



The Great Lakes of North America, among the largest freshwater systems in the world, provide an ideal empirical context to understand the role of institutions and discourses in affecting policy processes aimed at mitigating environmental and water problems. Shared by Canada and the United States, this body of freshwater is an important aspect of the cultural, economic, social and political life in the region (Botts & Muldoon, 2008). However, in the last two decades problems of excessive growth of toxic and nuisance algae, especially in Lake Erie, have made the lake a focus for concerned government bodies in both countries through the adoption of relevant policy (International Joint Commission, 2014, 2018). Governments at the federal and provincial/state levels have adopted a policy goal to reduce excessive phosphorous loadings, the source of eutrophication, to Lake Erie by 40% by 2025, from 2008 levels (Environment and Climate Change Canada [ECCC] & Ontario Ministry of the Environment and Climate Change [OMECC], 2018; United States Environmental Protection Agency [USEPA], 2018). In the Province of Ontario and the State of Ohio, the two cases considered in this study, the development of these policies, which are known as ‘Domestic Action Plans’, has involved many organizations and sectors. These include agriculture and municipalities as well as public and private actors including environmental non-governmental organizations (ENGOS) and private citizens.

Most of the focus of the water quality related research in the Great Lakes basin has either been directed at the characterization of the biophysical dimension of the issue or the local impacts of policy intervention without much attention to the actual process of state or province level policy development (Conroy, 2018; Crane, 2012; Hoornbeek, Hansen, Ringquist, & Carlson, 2013). For example, Johns and Teare (2015), in a review of policy research in the Great Lakes over the past 40 years, found a serious dearth of attention to policy issues from the Canadian side as well as that which compares sub-national policy processes with the Great Lake states (Clancy, 2014; Johns, 2017; Renzetti & Dupont, 2017; Sproule-Jones et al., 2008). This is especially so with respect to studies that apply interpretive approaches to policy analysis so as to provide insights into how people create meanings in their engagement with freshwater resources (Herve-Bazin, 2014). Such an approach would also show the nuanced ways that science is contextualized and complemented with other political and ideological factors in addressing water quality problems in the region (Guo, Nisbet, & Martin, 2019). When the policy issue of concern is a shared resource between different jurisdictions, there is a need to study relevant policy interventions from a comparative perspective, as I have done here. Thus, in addition to making conceptual contributions to better approach water governance issues from a discursive institutional perspective, this thesis also contributes to a better understanding of freshwater policy practice in the Great Lakes basin. Insights about the role of discourse would also be useful for better resource governance in similar contexts and other efforts towards sustainability more broadly.

## **1.2 Purpose and Objectives**

The overall purpose of this research is to better understand the role of discourse in the policy process and how it is either enabled or constrained by the broader institutional setting in the context of water quality problems in Lake Erie basin. The emphasis is on understanding the nature and influence of discourses in environmental policy development so as to shed light on why water quality policies in the basin have the content and form that they do. In order to accomplish this I examined the way different groups of actors promote discourse and engage in

framing practices within the bounds of broad institutional contexts in both Ontario and Ohio. Many environmental problems at global and local levels have their roots in institutionally ingrained practices (Ostrom, 1990; Young, 2002b). Thus, this research focused on the discourse aspects of the policy process nested within broader institutional contexts. This comparative research takes place at two geographic scales: (1) the larger geographic context of the Western Lake Erie basin and the Great Lakes, and (2) two watersheds in Ontario and Ohio.

In pursuing this research, I have focused on four objectives:

- a) Develop a discourse-institutional framework to inform the analysis of freshwater policy processes;
- b) Assess how groups of actors and coalitions collectively promote specific discourses in influencing the policy process to develop Domestic Action Plans in two different political jurisdictions: Ontario and Ohio;
- c) Identify and compare the specific discursive practices of individual policy actors in attempting to influence processes and outcomes related to water quality policy by considering the cases of the Ontario Federation of Agriculture and the Ohio Farm Bureau;
- d) Assess the institutional contexts in both Ontario and Ohio and examine how they may affect the content and process of water quality policy discourses differently.

I present the findings in three chapters organized in a ‘dissertation by manuscript’ style. The framework that guided this research, which I developed in an iterative manner during the course of this research, is presented in this chapter (below), thus addressing the first objective. With the second objective, elaborated in chapter 2, I show how groups of actors come together in promoting specific discourses about water quality issues and the extent to which they may have influenced the substantive content of the Domestic Action Plan. The third research objective takes up the question of how an individual actor or organization may use discourse strategically to promote their policy goals either in influencing its substantive content or its process. In chapter 3, I examine the capacity of actors in engaging in discursive practices as well as the power dimension of discourse. The fourth objective, explored in chapter 4, brings together the ideas discussed in the first two empirical chapters and situates policy discourse in its institutional setting. Thus it is focused on how the differing institutional contexts in Canada and the United States, and more specifically in Ontario and Ohio, may have affected the form and process of their respective nutrients and water quality related policy discourse. Finally, in chapter 5 I return to addressing the overall purpose of this research by elaborating and highlighting the main findings in this research and discussing their implications for the discursive institutional scholarship, especially in the context of freshwater policy. Novel contributions from this study to the literature are also presented with some thoughts and reflections on some questions for further research.

### **1.3 Conceptual Review: Environmental Policy, Discourses, and Institutions**

In this study, the focus is on how discursive influence by actors on water quality policy manifests within the constraining or enabling contexts of the broad institutional settings in Ontario and Ohio. Accordingly, below I provide a conceptual review of the relevant literature on

environmental policy, environmental discourses, and institutions with the goal of laying the conceptual foundation and rationale for the empirical work elaborated in the next chapters.

### 1.3.1 Environmental Policy

There are many definitions of ‘public policy’, and similarly many approaches to studying it (Howlett & Ramesh, 1995, 2003). Kraft refers to public policy simply as “a course of government action in response to social problems; it is what governments choose to do about those problems” (Kraft, 2011, p. 13). Even though it is important to situate governments as central actors in any discussion of *public* policy, the role of other actors needs to be acknowledged as well. In general, it is useful to understand policies as tools with which societies, through the leadership of, or significant involvement of their governments, take action or non-action with the goal of maximizing their collective benefit. Policies have been traditionally considered as one of the major instruments governments have at their disposal to bring about politically preferred social and environmental changes (Kooiman, 2003). In the area of resource governance, for example, policies are among the most useful tools governments have to “imbue society with new and more ecologically sound social arrangements” (Glasbergen, 1998, p. 1). With recent developments in the nature of governance that increasingly involve non-state actors, the policy making process has become an arena where a diversity of actors interact through more distributed, polycentric governance arrangements; this phenomenon has made the policy making process increasingly complex (Chhotray & Stoker, 2009). Hence policy outcomes have become a “result of governing processes that are no longer fully controlled by the government, but subject to negotiations between a wide range of public, semi-public and private actors” (Sørensen & Torfing, 2007, p. 3). In understanding this process the policy studies literature in general focuses on three aspects: describing the substantive content of policy; understanding how policies come about and change; and evaluating the effectiveness of policies (Desai, 2002; Howlett & Ramesh, 2003; Sabatier, 2007).

A major preoccupation in the literature on policy analysis is how policy change occurs and the role of, and interplay among, institutions, actors, interests, ideas and discourses. There are various frameworks for analyzing the policy process, and many perspectives on the factors that are considered central in the process of policy change (Petridou, 2014; Schlager & Weible, 2013). The major approaches to policy analyses, and political phenomena more broadly, include public choice, welfare economics, neo-institutionalism, pluralism/corporatism, statism, and Marxism (Howlett & Ramesh, 1995). These approaches generally focus on the examination of three important variables: (1) *interests*, the economic or other benefits that policy actors pursue; (2) *ideas*, including scientific understanding and dominant values; and (3) *institutions*, or the rules and procedures that actors follow during the policy process (Fischer, 2003; Kraft & Furlong, 2007).

Policy analysts focus their attention on different aspects of the complex policy making process. These aspects include agenda setting, policy formulation, decision making and implementation (Hajer & Wagenaar, 2003; Howlett & Ramesh, 2003). Schlager notes that the phrase ‘process’ “connotes temporality, an unfolding of actions, events, and decisions that may culminate in an authoritative decision” (Schlager, 2007, p. 293). In discussing the major approaches used by policy analysts, she observes that explaining policymaking processes requires the analyst to focus on the dynamics of events with attention devoted to the structure and context of the process. She further argues that in as much as particular policy analysis frameworks (e.g.,

Institutional Analysis and Development; Advocacy Coalition Framework) are useful for explaining policy process by directing the analyst to important variables and providing general relationships, they cannot by themselves provide explanations of behaviors and outcomes. Thus, in analyzing the potential outcomes of environmental policy interventions, one needs to complement these frameworks with relevant and suitable social science theory to help provide useful descriptions and explanations.

Even though the study of environmental policy can be considered as a subset of the general study of public policy, an identifiable community of environmental policy scholarship has developed over the last three decades (Desai, 2002). Kraft (2011) shows that among the three general types of policies with their unique policy making patterns (regulatory, distributive, redistributive), the regulatory type has been the one mostly associated with environmental policy. The study of environmental policy has grown significantly since the 1970s in parallel to the increased environmental intervention by countries in the west (Desai, 2002; Sussman, Daynes, & West, 2002). In the North American context, legislative rules such as the Clean Water Act of 1972 in the United States, the Canada Water Act of 1970, as well as other initiatives such as the Great Lakes Water Quality Agreement between the two countries signed in 1972, gave impetus to studies of environmental policy making and implementation (Klyza & Sousa, 2013; Paehlke, 2005). The problem of ozone layer over Antarctica, as well as the call for sustainable development by the World Commission on Environment and Development in the 1980s, further gave energy to the emerging environmental policy analysis literature (Fischer & Black, 1995; Gibson et al., 2005; Hajer, 1995; Litfin, 1994).

These studies noted above, and others, highlighted the intricate nature of many environmental policy processes not only in terms of the complexity of the science to understand the human-environment interaction but also due to the highly political nature of many environmental issues. Environmental policies operate at the intersection of social and ecological systems – both composed of highly complex relationships (Dryzek, 2013). Even though traditional positivist science has provided us with an enhanced body of knowledge to better understand the workings of many biophysical processes, it has only limited capacity to offer policy options acceptable to societal actors with different value systems (Arts & Van Tatenhove, 2006; Beck, 1992; Fischer & Gottweis, 2012; Hajer & Wagenaar, 2003). Approaches that focus on the understanding of the processes involved in creating and establishing meaning within the policy process have increasingly proved themselves as useful alternatives to rationalist “value free” approaches to policy analyses (Kay, 2009). In response to this realization, many policy scholars diverted their attention to the study of environmental issues from a social constructive perspective that concerns itself with the understanding of how people create meaning of their environments in social interactions (Demeritt, 1998, 2002; Hajer, 1995).

It has been more than two decades since the publication of some of the seminal works on the analysis of environmental policy issues from a social constructivist approach (Dryzek, 1997; Hajer, 1995; Litfin, 1994). These authors showed the nuanced nature of the environmental policy process in the age where the policy process has opened up to influence by a diversity of actors with varying powers, interests and values. They especially draw attention to the challenge posed to the traditionally authoritative position of science as the basis for rational policymaking process (Bäckstrand, 2003; Forsyth, 2003; Stone, 2002). However, despite the relevance of such approaches to issues of freshwater governance and policy, the water community has been slow to fully and meaningfully engage with such scholarship and benefit from the many insights it offers

(Brisbois & de Loë, 2015). This is especially true in the North American context and the Great Lakes region in particular where the literature on water policy and governance has generally shied away from such approaches (Kamieniecki & Kraft, 2013; Renzetti & Dupont, 2017; Sproule-Jones et al., 2008; VanNijnatten & Boardman, 2002).

### 1.3.2 Environmental Discourses

In my understanding of the concept of ‘discourse’, I follow Hajer (1995) who demonstrated the usefulness of the concept in applications to environmental politics in his seminal work *The Politics of Environmental Discourse*. Hajer made an important contribution to the growth of discourse approaches in environmental policy studies by operationalizing the concept of discourse and making conceptual correctives to its original elaboration by Foucault (2002). Hajer defines discourse as “an ensemble of notions, ideas, concepts and categorizations through which meaning is ascribed to social and physical phenomena, and that is produced in and reproduces in turn an identifiable set of practices” (Hajer, 2009, p. 60). While Hajer’s definition focuses on an individual’s mental constructions in ascribing meaning to their environment, Dryzek draws attention to the interactive dimension of discourse. He defines discourse as “a shared way of apprehending the world ... [that] enables those who subscribe to it to interpret bits of information and put them together into coherent stories or accounts” (Dryzek, 2013, p. 9). In this sense, discourses help social actors in constructing common meaning, a network of relationships, and to legitimate particular knowledge. I also find the similar understanding of discourse by Fairclough (1992) useful to my work here, while the more rigid and all-encompassing conceptualization of discourse by post-structural scholars such as Laclau and Mouffe (2001) less relevant in view of the research questions addressed in this research. The latter approach would unhelpfully constrain separate analysis of actors and their interests in relation to institutional structures within the water quality policy process (Jørgensen & Phillips, 2002).

The literature shows a wide range of views among scholars on the exact role and the extent of the effects of ideas and discourse on governance processes (Beland & Cox, 2011; Fischer & Gottweis, 2012; Van den Brink & Metze, 2006). Some hold that discourse is structural in nature and beyond the influence of individual actors because it constitutes interests and the social identities of those individuals (Feindt & Oel, 2005; Hay, 2011; Torfing, 2005). Other scholars, however, maintain the view that discourse need not be completely outside the influence of individuals and groups in society. As such, under certain conditions, it can be used strategically as a resource in social interactions (Müller, 2008; Phillips et al., 2004; Rydin, 2003). While it is important to acknowledge the structural nature of discourses to an extent (e.g., the neoliberal paradigm dominant in modern economies), a more useful conception need not consider discourses as immutable (Burr, 1995). In this understanding, some level of agency is restored back to social actors and as such they can draw on discourse consciously or unconsciously in promoting desired goals (Giddens, 1984; Schmidt, 2008).

The concept of discourse and the discourse analysis approach I adopt here differ from other closely related approaches in their suitability to study an empirical problem such as the one considered here. For example, the Narrative Policy Framework uses specific variables to reconstruct ‘policy narratives’ so as to assess the role of a narratives in influencing policy. Policy narratives are understood to be “strategic stories with a plot, villains and good guys, and a moral lesson” (Petridoe 2014, p 24). This requirement for the presence of specific interlinked elements within a policy narrative for undertaking an empirical analysis of a policy issue was unnecessarily

constraining relative to the often diffuse discourses advanced in the situation I examined. Similarly, the advocacy coalition framework's individualist ontology (as opposed to the relational one in discourse coalitions), and its disregard of the constitutive role of language (central to discourse analysis), make it less relevant to the cases considered here. In environmental controversies where the very definition of issues is still far from settled, the possibilities that language offers in brining problems into being should not be overlooked. Thus, for a better understanding of the governance dimension of eutrophication issues in Lake Erie, nested in two different national political settings, the concept of discourse offers more conceptual space to interrogate the construction of issues into definite 'environmental problems' in need of a policy response.

The extent to which discourses have had significant effects on environmental policy processes can be seen in the way issues are problematized and elaborated with specific reference to some discourse (Hajer, 1995). As Dryzek (1997, 2013) shows, large-scale environmental problems do not present themselves to societal actors in neatly labeled boxes. Such actors have to make sense of the physical phenomena around them and determine whether it is a problem for society, based on the dominant discourse to which they subscribe. Moreover, dominant discourses can provide a bias towards a particular conception of an environmental issue and the need for, and appropriateness of, policy responses (Bøgelund, 2007; Clare, Krogman, & Caine, 2013; Dang, Turnhout, & Arts, 2012). The increased institutionalization of the discourse of sustainable development in terms of its translation to national environmental strategies, sustainability assessment procedures, and in university curricula, is an indication of a global discourse influencing 'appropriate' behavior at local levels (Bernstein & Cashore, 2012; Gibson et al., 2005). The diffusion of river basin-based organizations, the widespread adoption of the practice of Integrated Water Resources Management globally, and the increased penetration of privatization in water service delivery in many developing countries are good examples of how global discourses have affected national and local water governance settings (Bakker, 2005; Gupta, 2009; Harris & Roa-García, 2013; Mukhtarov & Gerlak, 2014).

However, even though the perceptions of all policy actors about the nature of the issues they face may be shaped by the dominant discourses in that context (Foucault, 1982), not all actors are equally subject to the constraining effects of discourse (Lukes, 2005). Some actors may have the capacity to take elements of the dominant discourse and weave them into their narrative or story to build a more or less coherent account of the what 'the problem' is and what needs to be done about it (Fischer, 2003). Such actors are then better positioned to shape aspects of the dominant discourse, which gives them more power relative to other actors; I refer to this as 'discursive power'. Put simply, discursive power is the capacity to influence policies and political processes through the shaping of perceptions, attitudes, ideas and norms (Fuchs & Kalfagianni, 2009).

The literature shows the nature and effects of discursive power can be seen along three understandings of the concept (Haugaard, 2012). One conception of discursive power is that forwarded by Lukes (2005); he refers to it as the 'third dimension' of power building on Dahl's (1957) conception of power to affect decisions directly, and Bachrach and Baratz (1962) understanding of power that includes non-decisions and power to set agendas. Discursive power is then the "power to prevent people, to whatever degree from having grievances by shaping their perceptions, cognitions and preferences in such a way that they accept their role in the existing order of things" (Lukes, 2005, p. 28). In this view, the dominance of powerful sectors such as

industry and/or government might be manifested in resource management contexts, for example, over some acquiesced communities who find themselves unable to resist their disadvantaged positions (Caine & Krogman, 2010; Culley & Angelique, 2011; Gaventa, 1980).

The second view on discursive power is identified with the concept of hegemony developed by Gramsci in the early part of the 20th century (Gramsci, 1971). Hegemony refers to the “mechanisms through which dominant groups in society succeed in persuading subordinate groups to accept their own moral, political and cultural values and their institutions through ideological means” (Mayr, 2008, p. 13). As Newell and Levy (2006) illustrate, powerful business actors, for example, may engage in depicting themselves as responsible stewards of the environment and constructing products as ‘green’, thereby giving assurances about the fundamental harmony of economic and environmental interests, and thereby avoid stringent regulations (Beder, 2006; Dauvergne & LeBaron, 2014; Dauvergne & Lister, 2013).

The third view on discursive power is inspired by the works of Foucault (2002). In this view, the production of knowledge (through science or otherwise) and the ability to legitimate certain ideas as representing the ‘truth’ become sources of power (Flyvbjerg, 1998). In policymaking contexts, discourse is considered to determine what is to be included and what is to be excluded from political and policy practices in accordance with the proximity of a certain argument to the prevailing ‘truth’ (Assche, Beunen, Duineveld, & Gruezmacher, 2017; Brock, Cornwall, & Gaventa, 2001; Litfin, 1994).

While scholars who study the nature and effects of discourse have shown the important role that discourse and discursive power play in environmental policy processes, they nevertheless have largely ignored the broad institutional context wherein such effects occur (Schmidt, 2010). This emphasis on discourse by some scholars has led them to ignore institutional contexts or treat them as mere subordinate to discourse, as can be seen in the works of Ernoul and Wardell-Johnson (2015). They “claim that discourses constitute politics, and hence, conceptually, have precedence over interests, institutions and outcomes” (Arts, Appelstrand, Kleinschmit, Pülzl, & Visseren-Hamakers, 2010, p. 57). Such disregard is manifested in the very few attempts to build explicit theoretical relationships or conceptual frameworks to incorporate the study of discourse in institutional settings (Leipold, 2014; Leipold & Winkel, 2017). Apart from few exceptions, most conceptual and empirical research that focuses on environmental discourses has also not been engaging with the more rigid and enduring institutional context (Clement, 2010; A. Smith & Kern, 2009). However, attending to the institutional contexts of the influence of discourse on policy is crucial especially in the context of environmental research as the social system is linked with the ecological system primarily through institutions (Epstein et al., 2015; Folke et al., 2007). As such, there is a clear need for more conceptual and empirical work in this area, a concern I further elaborate below in connection with the discussion on institutions (Buijs, Mattijssen, & Arts, 2014; Dang et al., 2012).

### **1.3.3 Institutions**

There is a broad consensus about the importance and role of institutions in enabling or hindering the sustainability of resource use and the environment at local, regional and global levels (Acheson, 2006; Agrawal, 2001; Epstein et al., 2015; Ostrom, 1990; Young, 2002a). Underscoring the crucial role institutions play in linking the social and ecological systems, the focus on getting institutions ‘right’ was made clear by the World Commission on Environment

and Development back in 1987. Emphasizing the need for transformational change in pursuit of sustainable development, the report noted that “the real world of interlocked economic and ecological systems will not change; the policies and institutions concerned must” (World Commission on Environment and Development, 1987, p. 9).

The broad area of scholarship called ‘neoinstitutionalism’ focuses our attention on the important role that institutions play in affecting our social and political life. The specific mechanism through which such influence occurs, however, differs depending on the theoretical explanation by the particular strand of institutional analysis at hand. Rational choice institutionalism considers institutions to be purposefully designed incentive structures that shape the actions of self-interested rational actors (J. Campbell, 2004; Ostrom, 1990). The implication is that a crucial aspect of governing resources sustainably entails appropriately designing institutions in terms of what actions are permitted, forbidden and compulsory. For historical institutionalists, the stickiness of social processes and resistance to change are important variables that help explain environmental problems (Hall & Taylor, 1996; Streeck & Thelen, 2005). Hence, the workings of institutions such as national constitutions at the highest level or standard operating procedures at a lower level are understood to be path dependent, not amenable to conscious design or rapid ‘re-steering’ (Peters, 2012). Finally, sociological institutionalists emphasize the culturally situated nature of human actions mostly guided by generally accepted norms and the ‘logic of appropriateness’ (Dimaggio & Powell, 1991).

Among these three main approaches to the study of institutions noted above, the rational choice approach, with theoretical roots in economics, has been dominant in resource governance scholarship, especially at local scales (Agrawal, 2001; Imperial, 1999; Sabatier, Leach, Lubell, & Pelkey, 2005). This literature on institutions has been significantly influenced by the works of Ostrom (1990, 2005), North (1990), and Williamson (1998). The literature inspired by Ostrom that adopted the Institutional Analysis and Development (IAD) framework in resource governance research is especially notable for its wide-ranging applications (Blomquist & deLeon, 2011). The IAD, first articulated by Kiser and Ostrom (1982), has attracted widespread application in diverse areas ranging from policy studies to local resource governance. It helps researchers in understanding how different institutional arrangements enable actors to solve collective action problems by providing diagnostic and prescriptive capabilities (Ostrom, 2008b, 2011).

The IAD is premised upon the enabling role of language as an instrument to communicate, reason, understand and make commitments among actors in institutional contexts (Ostrom, 2011). Collective efforts to design institutions are treated in this framework to be facilitated through language. However, despite its reliance on language and communication, the IAD accords a rather limited role to different effects of language use. The characterization of institutions as “potentially linguistic entities” (Ostrom & Cox, 2010, p. 454) unavoidably “brings with it a necessary focus on the problem of language and ideas” (Aligica & Boettke, 2009, p. 80). Until recently, this issue those who engage with that research framework have not taken up this approach (Clement, 2010; Whaley, 2018). Rydin had long considered this weakness in the IAD to be “a substantial lacuna in institutional analysis” and believes that it could be addressed by paying more attention to discourse in institutional contexts (Rydin, 2003, p. 49). Such weaknesses in the treatment of the role of language are also manifested in the uncritical view of power relations or the ‘bloodless’ treatment of social interactions that ignore “a clash of power among actors with competing interests” (Hall & Taylor, 1996, p. 954).



The focus on language and ideas, and their power dimensions, is a major preoccupation of discourse approaches to environmental policy studies (Fischer, 2003). Recently, some researchers have begun ‘taking ideas and discourses seriously’ in institutional analysis (Peters, 2012; Schmidt, 2010). As such, there are some meaningful attempts underway to treat discourses and institutions as conceptually distinct entities, but at the same time, situate the effects of discourses in institutional contexts in a coherent framework (Arts & Buizer, 2009; Clement, 2010; den Besten et al., 2014; Schmidt, 2000). Vivien Schmidt is among the few scholars in the field of political science who have made significant efforts to systematically analyze the discourse institutional interaction (Fischer & Gottweis, 2012; Schmidt, 2000, 2002; Schmidt & Radaelli, 2004). She has embarked upon conceptually developing the perspective of ‘discursive institutionalism’ as a ‘fourth new institutionalism’ on par with rational choice, historical and sociological institutionalism (Schmidt, 2010). The appeal of this approach is that it enables researchers to theorize how and when some ideas and actors in discursive interactions may be enabled by the institutional context while others may be constrained (Fairbrass, 2011). In addition to its emphasis on ideas embedded within discourse, this approach also engages directly with the interactive dimension of discourse focusing on the ‘coordinative’ aspect of policy making as well as the ‘communicative’ aspect of policy legitimacy. This focus helps us understand how, when, where and why certain discourses succeed in gaining acceptance or become dominant and other discourses fail or are marginalized in the context of power asymmetries (Hope & Raudla, 2012; Lauber & Schenner, 2011).

This relatively new perspective – ‘discursive institutionalism’ – is gaining the interest of a growing number of scholars, especially due to its emphasis in explaining policy change and the role of ideas and discourse in that process (Fischer & Gottweis, 2012; Lowndes & Roberts, 2013). The appeal of adopting a discursive institutional (DI) perspective is that it helps us emphasize the interactive dimension of discourse within institutional contexts. In this respect, the DI approach can be understood as a complementary perspective to the other three new institutionalisms because it is a position being promoted by a community of new institutionalism scholars, “who use ideas and discourse to explain political change (and continuity) in institutional context” (Schmidt 2010, p. 2). This complementarity is especially important in view of the weaknesses in the other three schools in situating the role of actors’ discourse in policy change. Rational choice institutionalism largely fails to explain how actors’ interests are themselves formulated, expressed in discourse, and perceived within institutional contexts. Sociological institutionalism, with its focus on cultural norms, tends to overlook the role of agents’ ideas and language in reproducing, reinterpreting and changing institutional practices. Similarly, the focus on path dependency limits historical institutionalism’s power to explain how, during periods of punctuations, actors’ ideas and discourses may play a crucial role in policy change. Hence, by focusing on actors’ ideas (cognitive and normative) and the interactive dimension of discourse – coordinative discourse in policy formulation, and communicative discourse in policy legitimation – discursive institutionalism provides us with a richer vocabulary with which to understand and explain the role of discourse in policy change within institutional contexts.

Consequently, the role of discourse in institutional analysis is gaining the interest of some scholars even within the rational choice school of institutionalism. Within the vast literature on natural resource governance that employs the IAD as the guiding framework for example, there are some recent contributions that demonstrate engagement with discourse and discursive forms of power in institutional analyses (Brisbois et al., 2018; Clement, 2010, 2012; Huitema, 2002).

However, as a relatively new theoretical perspective, the discursive institutional approach is in need of much conceptual and empirical work to elaborate the links among the main concepts constituting this approach: language use, ideas, discourse and discursive power in the context of institutional settings. As such, this thesis aims to contribute to emerging debates in this field as well as to provide helpful insights to push this scholarship forward.

#### **1.3.4 Summary**

From global issues relating to the ozone layer and climate change, to local issues of toxic waste siting and water contamination, environmental policy studies over the last three decades have exposed the intricate nature of many environmental problems. They have shown that this is partly due to the complexity of the natural system itself and its interaction with the social system from the planetary level to the local level (Rockström et al., 2009). However, the intricacies of environmental policy issues have also to do with the highly political nature of many problems that are sometimes interwoven with differing, often incompatible normative values held by societal actors. The doubly complex nature of environmental policies, which operate at the intersection of the social and the ecological systems, has encouraged alternative approaches to policy analysis to complement early positivist approaches that aimed to ‘objectively’ uncover the ‘truth’ about society’s relationship with its environment. Hence, there is increased attention to the study of environmental issues from social constructive perspectives that concern themselves with the understanding of how people interpret and make meaning of their environments. These approaches accord attention to the myriad ways environmental issues are linked to people’s values, perceptions, interests and identities as a way to better understand the policy process.

Examining the various ways societal actors interact among themselves and with their environment is seen in these approaches as partly mediated by power relationships. One strand of scholarship informed with a social constructivist research paradigm is the discursive approach to policy studies. However, it is clear from surveying the literature that these discursive approaches need to place more emphasis on the overarching institutional context wherein policy interactions occur at multiple scales. Consequently, a relatively new neoinstitutional perspective – discursive institutionalism – is gaining the interest of scholars, especially due to its emphasis on explaining policy change and the role of ideas and discourse in that process. This perspective informs this research, which aimed to better understand water quality policy processes in Lake Erie basin.

### **1.4 Eutrophication and Water Quality Policy in Lake Erie Basin**

The Great Lakes in North America, consisting of Lake Superior, Lake Michigan, Lake Huron, Lake Ontario, and Lake Erie, along with their connecting channels, make up one of the largest freshwater systems in the world (Botts & Muldoon, 2008). Located between Canada and the United States they hold about 20% of the world’s freshwater supply. The Great Lakes basin is home to about 40 million people, supporting a GDP of more than \$5 trillion in 2010 (Johns, 2017). Consisting of 84% of North America’s surface freshwater resources, the Great Lakes basin also supports nearly 25% of Canadian and 7% of American agricultural production as well as providing home to about 10% of the U.S. population and more than 30% of the Canadian population (United States Environmental Protection Agency, 2019). As such the Great Lakes are an important aspect to the economic, social, political and cultural life in both countries (M. Campbell, Cooper, Friedman, & Anderson, 2015)

Lake Erie is the warmest, shallowest and the most productive of the five lakes in terms of the growth of biological matter (Burns, 1985). Its basin supports a significant portion of the regional economy in Ontario, Michigan, Ohio, Pennsylvania and New York as well as a population of 10 million people on the U.S. side and 1.6 million on the Canadian side (Lake Erie LaMP Work Group [LAMP], 2011). Lake Erie, however, is also the most susceptible to pollution and degradation to its water quality. Since the time of industrial growth in the area in late 19<sup>th</sup> and early 20<sup>th</sup> century the waters of Lake Erie have always been vulnerable to pollution (Conley, 2006). By mid-20<sup>th</sup> century the pollution levels had reached excessively high levels that one of the rivers that drain into the lake, the Cuyahoga River, caught fire and many pronounce the lake as 'dead' (Burns, 1985). One of the major causes of water quality degradation in the lake in the 1960s was cultural eutrophication of the lake, whereby the lake became overly enriched with nutrients due to runoffs from the landscape. This was accompanied by excessive growth of algae often depriving large portions of the lake of necessary oxygen for aquatic ecosystem and followed by many instances of dying fish (Han, Allan, & Bosch, 2012; International Joint Commission, 2014).

One of the major sources of such eutrophication in Lake Erie in the 1960s was the excessive runoff of nutrients especially phosphorus, from the watersheds on both sides of the lake. In order to address this problem, the governments of Canada and United States signed the Great Lakes Water Quality Agreement (GLWQA) in 1972 (Botts & Muldoon, 2008). A major stipulation of the agreement was to establish a numeric target to limit phosphorus loads to the lake. After significant efforts that focused on limiting phosphorus discharge mainly from point sources, total phosphorus loads resulting largely from sewage treatment plants were reduced substantially accompanied by reduction of phosphates in laundry soaps and detergents (LAMP, 2011). By the late 1980s, significant progress was made and the reduction of phosphorus loadings and subsequent ecosystem recovery was encouraging some to call it a 'success story' (Makarewicz & Bertram, 1991). Annual loadings from municipalities and industry were reduced from a high of 28,000 tonnes per year in 1968 to 11,180 tonnes per year in 1985 (Colborn et al., 1990, p. 95). This successful collaborative approach to a transboundary water quality problem was upheld as a good example in international cooperation over a shared freshwater system (Linton & Hall, 2013).

Despite those early successes, however, algal blooms started to appear again since the mid-1990s especially in the western basin of Lake Erie (LAMP, 2011). In 2011, nutrient loadings into Lake Erie, in combination with other biophysical and weather factors, resulted in a record mass of algae that extended more than 5,000 km<sup>2</sup>, which was three times larger in size than any bloom previously recorded (International Joint Commission, 2014). Such occurrences have heightened public concern about the impact of harmful algal blooms and their potential to produce toxins that may end up in drinking water systems sourced from the lake -- as happened in Toledo in 2014 and Carroll Township in 2013; toxic algae blooms forced both communities to shut off water supply from their plants (Hoornbeek, Filla, & Yalamanchili, 2017). Even though there are many sources of phosphorus runoff in Lake Erie, such as municipal waste water systems, septic tanks and fertilizer use in homes and golf courses, the largest single contributor has been phosphorus runoffs from agricultural fields linked to manure and commercial fertilizer applications (Michalak et al., 2013; D. Smith, King, & Williams, 2015).

As phosphorus has been the main culprit for the eutrophication problem the immediate and "single most important solution for the restoration of Lake Erie water quality is the reduction of

phosphorus inputs” (International Joint Commission, 2014, p. 26). Recognizing the importance of phosphorus to the problem of eutrophication, the Premier of Ontario, and the Governors of Ohio and Michigan have, in June 2015, signed an agreement to reduce phosphorus loadings especially from the waters entering the most vulnerable western Lake Erie basin by 40% by 2025, with an interim target of 20% reduction by 2020 from 2008 levels. Following commitments made in the revised GLWQA in 2012, these targets were also adopted by the two national governments at the federal level in 2016 (Objectives and Targets Task Team, 2015). These commitments are being implemented through documents called the ‘Domestic Action Plan’ (DAP) prepared at both regional (provincial/state) and national levels (Environment and Climate Change Canada [ECCC] & Ontario Ministry of the Environment and Climate Change [OMECC], 2018; Ohio Lake Erie Commission [OLEC], 2018).

The policy process to prepare the DAPs occurs principally at the provincial and state levels. These multi-stakeholder processes involve interaction among governments at various levels as well as members of the farming community, environmental non-government organizations (ENGOs), municipalities, watershed organizations and other actors in such forums as consultation and engagement sessions, workshops, meetings and other interactions. On the Canadian side, Ontario and Canada adopted a single integrated plan outlined in a February 2018 document that outlined how they intend to achieve the policy target. On the U.S. side, the states prepared their own plans while the overall national U.S. DAP is an integration of those individual plans prepared by Ohio, Michigan, Indiana, Pennsylvania and New York (U.S. EPA-GLNPO, 2017). In this research the focus is on the DAP policy process in Ontario and Ohio with emphasis on how the different discourses portray the problem in the policy process as well promote the best solutions within the confines of the different institutional contexts in the two countries. To date, most of the focus of research to address nutrient-related problems in the Great Lakes basin has been directed at the characterization of the biophysical sources of problems, related processes, and possible solutions (McLaughlin & Krantzberg, 2012; D. Smith et al., 2015). Johns and Teare (2015), in their review of policy research in the Great Lakes over the past 40 years point to a serious dearth of attention to policy issues, especially comparative research at sub-national levels. This research aims to contribute to such body of scholarship.

## **1.5 Research Approach and Methods**

In this section, I describe the methodology I employed in this research including epistemological premises I adopted, the conceptual framework that informed this study, description of data collection and analyses. According to Verschuren and Doorewaard (2010), it is important to decide on the type of information that is relevant in answering a research question and reflect on the epistemological position to be adopted by the researcher before a detailed methodological approach can be charted. In this research, I adopt an interpretivist approach based on a social constructivist research paradigm as I consider it the most relevant perspective in achieving the research objectives (Guba & Lincoln, 1994; Jones, 2002). Adopting this approach entails that “it is the role of social scientists to grasp the subjective meaning of people’s actions” (Bryman, Teevan, & Bell, 2009, p. 8). However, the aim of the researcher is not to simply lay bare how people interpret the world around them, but also to situate those interpretations into some theoretical perspective or other social scientific framework (Bryman et al., 2009). The choice of a theoretical perspective to better inform and interpret data in research also follows from the underlying epistemological premises the researcher makes.

### 1.5.1 Epistemological premises

Epistemology in the social sciences refers to the possible ways that social scientists are able to acquire knowledge about the world and the relationship between the researcher and their object of study (Guba & Lincoln, 2005). In qualitative social science research the kinds of questions asked generally focus on either the analysis of social structures, people's individual experiences or some combination of the two (Winchester, 2000). Scholars who study discourse also reflect such range on the structure-agency continuum within the broader social science debates on their approaches to research (Giddens, 1984). Some of them focus on structure as in post-structural discourse analysis in the tradition of Foucault (1982), while others focus on individual discursive events as in approaches in discursive psychology (Jørgensen & Phillips, 2002), while still others focus on combination of both, as in the Critical Discourse Analysis of Fairclough (1992).

The unifying aspect of all approaches to discourse analysis is their critical stance to the study of social life and their position in arguing that taken-for-granted ideas and language use may be reflections of, and instruments of broader societal relations of power (Bryman et al., 2009). Thus, discourse analysis as an approach to research is situated within the broad school of thought referred to as social constructionism (Fairclough, 1992; Mills, 1997; Wodak & Meyer, 2001). Constructionist approaches recognize that humans understand their surroundings in accordance with the negotiated meanings they ascribe to the objects of their observations (Burr, 1995). Moreover, this approach is critical of claims to knowledge characterized by certain, universal and "objective" truths devoid of interests of those proclaiming it (Baronov, 2012). The role of language in constructing this social reality is central in describing and ascribing meaning to the 'objective reality out there'. Hence, "our ways of talking do not neutrally reflect our world, identities and social relations but, rather, play an active role in creating and changing them" (Jørgensen & Phillips, 2002, p. 1). This is not to deny the existence of any material reality or a natural world outside of language; it is to say that natural objects and environmental processes acquire meaning only as a result of social interaction through language and discourse. As Giddens put it:

The difference between the social and natural world is that the latter does not constitute itself as 'meaningful': the meanings it has are produced by men in the course of their practical life, and as a consequence of their endeavours to understand or explain it for themselves (Giddens, 1976, p. 79).

As such, I understand environmental processes to have real effects on humans and their biophysical environment. What those effects mean and the extent of their seriousness, however, is an outcome of negotiations among social actors mediated with their interactions with their environment and with each other. This position has been termed as 'soft constructionism'—the notion that some aspects of environmental change may be more prone to be socially constructed than others (Jones, 2002). This is a 'middle-position' ontological basis for research as opposed to other social constructionist traditions where discourse is accorded an all-encompassing nature where nothing could be understood outside of discourse (Forsyth, 2003; Laclau & Mouffe, 2001). The adoption of a moderate position enables researchers to acknowledge that there may be an objective environmental reality, but as Bryman et al. (2009) note "*many* of our ideas do not reflect that reality at all, but instead are constructed to justify or rationalize various forms of domination".

In environmental research that has the explicit or implicit aim of ultimately contributing to the sustainability of natural resources, an ontological position that acknowledges the independent

existence of environmental change but accepts the socially negotiated nature of knowledge about that change is important (Clement, 2010). This critical realist position provides an ontological perspective that distinguishes what exists in the environment from what we know about its existence and change (O'Mahoney, 2011). Hence,

By adopting an ontologically realist yet epistemologically relativist position, the naivety of 'pure' realism is avoided and the impracticality and absurdity of 'pure' relativism averted. This paves the way for the negotiation and reconciliation of environmental problems exhibiting a high degree of constructedness (Jones, 2002, p. 250).

### **1.5.2 Conceptual Framework**

The overall conceptual framework that I use to inform this research combines elements of discourse analyses and institutional frameworks and situates discourses within a broader institutional context. As noted in the conceptual review in section 1.3 above, the Institutional Analysis and Development framework (IAD) has been a useful framework for many scholars trying to understand natural resource and environmental policy processes (Imperial & Yandle, 2005; Sabatier, 2007; Whaley & Weatherhead, 2014b). The IAD framework is a multi-tier conceptual map to identify the major types of structural variables present in many institutional arrangements (Ostrom, 2011). For researchers interested in understanding how different institutional arrangements enable actors to solve collective problems, the IAD framework provides diagnostic capabilities by offering and highlighting key variables that may likely play a role in the successes of those collective actions. One appeal of the IAD as a tool for guiding research is that it enables nested analysis of environment-related policy processes at multiple scales. This multilevel nature of its structure (constitutional, collective choice and operational) enables one to make explicit and clear links between governance processes at various administrative and spatial levels (Ostrom, 2011). This flexibility is especially useful in analyzing water quality policy that spans local, watershed, provincial/state, federal, and international levels.

In addition, the IAD framework is compatible with and accommodates a range of theoretical perspectives that are suitable to address a specific research question. Polski and Ostrom (1999) indicate that this framework is especially helpful as a systematic method for organizing the study of a policy domain in a way that is compatible with "a wide variety of more specialized analytic techniques". However, until recently the IAD-inspired literature had largely ignored the role of discourse and discursive forms of power in institutional contexts (Clement, 2010; Epstein et al., 2014; Huitema, 2002). The IAD is premised upon the enabling role of language as an instrument to communicate, reason, understand and make commitments among actors in institutional contexts. Consistent with theoretical conceptions of individual behavior, collective efforts by actors to design institutions in this framework is treated as being facilitated through language. Despite its focus on language and communication, however, the IAD accords a rather limited role to different effects of language use (Ostrom, 2011; Rydin, 2003). Even though institutions have been defined as "potentially linguistic entities" (Ostrom & Cox, 2010) the "necessary focus on the problem of language and ideas" (Aligica & Boettke, 2009, p. 80) is not given any serious consideration.

Many scholars have pointed to the significant constitutive effects of language and discourse in social interactions (Fairclough, 1992; Jørgensen & Phillips, 2002; Torfing, 2005). The uncertain nature of many environmental issues means that there will be a large number of plausible perspectives on it (Dryzek, 2013). People often interpret and make sense of those issues

in line with their preconceived notions of how the world needs to be organized and problems dealt with. They articulate such interpretations in interactions aimed at designing rules to help solve commons problems. Ostrom notes that rules are described with “words [that] are always simpler than the phenomenon to which they refer” (Ostrom, 2008a, p. 832). This means that the assumption built in the framework that individuals engage in communicative interaction “to design new rules to solve CPR [common pool resource] problems” (Ostrom, 1990, p. 211) brings with it the need to address the constitutive effects of language. Ostrom seems to think that the linguistic representations of the world, and the consequent multiplicity of interpretations that actors arrive at, to be only problems affecting “any language-based phenomenon” (Ostrom, 2011, p. 19). This is a significant issue to overlook. Rydin considers this weakness to be “a substantial lacuna in institutional analysis” and believes that it could be addressed by paying more attention to discourse in institutional contexts (Rydin, 2003, p. 49).

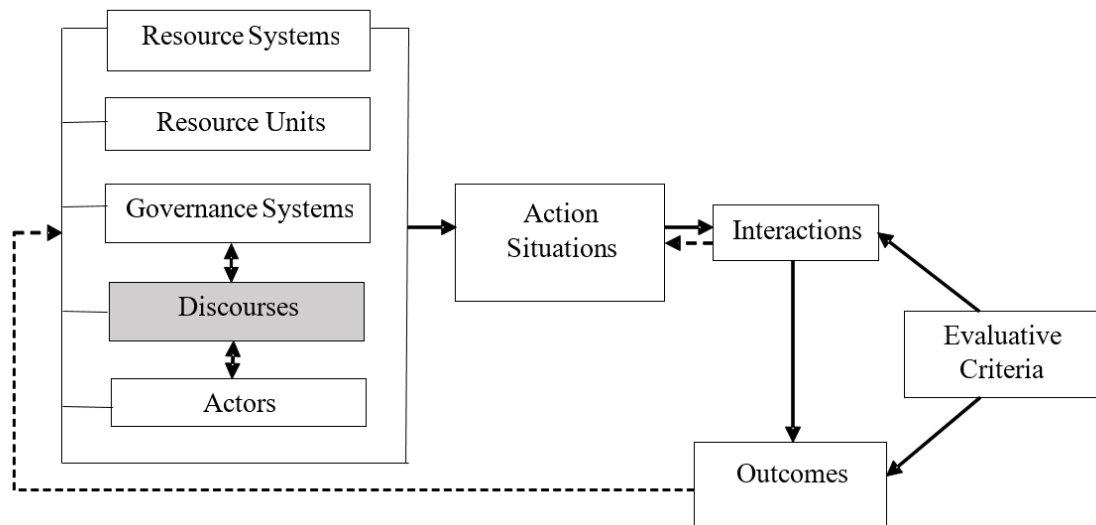
For a framework such as IAD that explains collective action through heavy reliance on the enabling capacity of communication through language, the implications of glossing over the role of language to affect collective action in other ways are significant. Such disregard suggests a rather limited appreciation of the role that language plays in opening up specific interpretations of physical phenomena while closing down other interpretations. Adopting a particular interpretation, in turn, affects the kinds of rules and institutions that are collectively designed in the name of ‘neutral’ representation of the environment. However, the political nature of such processes is bound to privilege certain interpretations at the expense of others (Schlager & Blomquist, 2008). Moreover, the implication of following those rules -- that resulted from a supposedly ‘democratic’ process (Ostrom, 2011) -- by less privileged actors, whose voices and interpretations were marginalized is significant (Rydin & Ockwell, 2010). After all, “any and all institutions have the capacity to privilege some groups, at the expense of others” (Epstein et al., 2014, p. 122). As such, there is a clear need in the IAD literature to better account for influences that are mainly linguistic and discursive in nature through approaches such as discourse analysis, “the study of language-in-use” (Hajer & Versteeg, 2005, p. 176).

Another major drawback of the IAD is that due to its focus on the social system, it accorded insufficient attention to the biophysical dimension of resource governance (Ostrom, 2011). This subsequently led to the development of the social-ecological systems framework (SES), by Ostrom and colleagues, which provided a more balanced tool for analysis of social-ecological systems (Ostrom, 2009). Built on the conceptual foundations of the IAD, the SES framework highlights the interaction of four core variables (resource systems, resource units, governance systems, and actors) that also have linkages with the broader ‘external’ ecological, social, economic and political settings (Ostrom, 2009). In this framework, a specific governance arena is represented by an ‘action situation’ wherein complex interactions occur among individual and organizational actors in pursuit of their goals within the constraints provided by the institutional structure (denoted as ‘governance system’). However, despite enabling a more nuanced analysis of biophysical systems (Nagendra & Ostrom, 2014; Partelow, 2018) the SES framework along with the broader SES literature still have largely maintained an uncritical view of language, power and discourse and have thus been subject of criticism (Boonstra, 2016; Clement, 2012; Kashwan, 2016).

Recently, some scholars have attempted to build on those weaknesses of IAD and SES frameworks. As both of them are slowly opening up conceptually to accommodate critical theoretical perspectives (McGinnis & Ostrom, 2014) this has further added to their suitability and

appeal in the context of this research. Clement (2010) made important conceptual contribution in integrating the concept of discourse into the IAD and encouraging scholars to make similar contributions to the SES framework (Clement, 2012). Others have combined both the IAD and the SES into a single framework so as to benefit from the dynamic analysis that the IAD enables, and the explicit engagement of the SES with the biophysical system, calling it the Combined IAD-SES or *CIS* (Cole, Epstein, & McGinnis, 2019). McCord, Dell'Angelo, Baldwin, and Evans (2017) have empirically tested the usefulness of this combined framework, the CIS, in a water governance context. Others scholars are also starting to adopt this framework (Garrick, Schlager, Stefano, & Villamayor-Tomas, 2018). In this research I further build on the CIS (see fig. 1 below) to incorporate discourse as an important factor that acts as a mediating variable among actors in their interactions with each other as well as in their relationship with the governance system (Brisbois et al., 2018; Clement, 2010, 2012; Whaley & Weatherhead, 2014b).

**Figure 1.1. Conceptual framework**



In using the modified CIS in this research I benefit from the capabilities it has in offering researchers a menu of the most important factors that could be considered in environmental policy processes (Partelow, 2018; Whaley, 2018). With my use of the modified CIS, I have focused on the following factors that affect the policy process: actors, discourses, and the governance system all interacting in an action situation. The ‘actors’ category represents the socioeconomic characteristics, interests, and capacities of the main stakeholders that are involved in the policy process to develop the Domestic Action Plans in both Ontario and Ohio as well as other actors from outside those watersheds and regions. The ‘discourse’ category represents the views, perceptions, arguments, stories, and narratives of actors in relation to nutrients problems and water quality in Lake Erie basin. The governance system represents the institutional structures and process that shape the discourse and policy process under consideration. The ‘action situation’ represents the overall policy space as well as processes involved in developing the Domestic Action Plans. This approach is consistent with Ostrom (2011) who emphasized the need for researchers to use the IAD as a framework to organize their research and complement it with some specific theoretical perspective in making explanations or making sense of research



data. Accordingly, while the modified CIS has guided the overall research direction, I have also adopted specific theoretical perspectives to analyze data and make inferences in each chapter. These perspectives are detailed in the methods sections in each of the three empirical chapters. While the focus in this research is on the ‘social’ or policy component of the eutrophication issue I have also paid attention to describe the biophysical system directly related to the policy process at a fairly high level without delving into the detailed science that explains the process of eutrophication in Lake Erie.

### **1.5.3 Case Study Method**

In this research, I adopt a multilevel case study design to help me understand the contextual nature of the water quality related policy discourse in Lake Erie basin. The adoption of case study method helps to facilitate an in-depth understanding of the interaction between discourse and the institutional context and how this interaction may affect the effectiveness of achieving the nutrient runoff reduction targets. Case study design is especially useful when ‘how’ or ‘why’ questions are being asked about a phenomenon and the investigator has little control over events (Yin, 2009). More specifically, this research is based on a comparative analysis of two case study areas: The Thames River watershed in Ontario and the Maumee River Watershed in Ohio (see fig. 1 below). These two watersheds in the western basin of Lake Erie have been identified as contributing excessive amounts of phosphorus to Lake Erie waters and as such the target of the Domestic Action Plans, which adopt a watershed perspective in evaluating potential actions and impacts (ECCC & OMECC, 2018). As the policy processes in the watersheds are also nested within, and closely linked to the processes within their respective regions, these watersheds are mainly seen from the policy process in Ontario for the Thames watershed and in Ohio for the Maumee Watershed.

Generally, with case study design, what is sought with findings and results is analytical generalization, in contrast to statistical generalization. With analytical generalization “a previously developed theory is used as a template with which to compare the empirical results of the case study” (Yin, 2009, p. 38). In this sense, replication may be claimed when two or more cases are consistent with the predictions or explanations of the same theory or model, and the subsequent insights gleaned could make contributions to general theory (Yin, 2009). The primary reason for adopting a comparative case study design is that the body of freshwater resource considered in this study is shared by two national jurisdictions. The two federal governments in Canada and the U.S., as well as the provincial government in Ontario and the state government in Ohio, have adopted a common water quality policy target with the ultimate goal of restoring and maintaining the ecological health of Lake Erie. Yet, the two regions have their own political culture and governance systems that shape their policy processes which in turn may affect achieving set targets within the timeline they have adopted. In a case study approach the role of the researcher is to gain “a profound and full insight into one or several objects or processes that are confined in time and space” (Verschuren & Doorewaard, 2010, p. 178).

Another distinctive feature of the case study approach is that “a strategic sample is taken instead of a random sample” (Verschuren & Doorewaard, 2010, p. 179). When selecting samples strategically, the researcher is primarily guided by the conceptual design of the research or the information needs for answering the research questions (Verschuren & Doorewaard, 2010). The two cases selected for empirical examination in this research represent the two watersheds with the largest contributions of phosphorus runoff on either side of the western Lake Erie basin,

which have also been identified at the binational level as priority watersheds for the nutrient reduction policy targets. The research thus proceeds following the hierarchical method for comparative case study suggested by Verschuren and Doorewaard (2010) wherein the two cases are initially studied independently from each other but using a common research perspective and data collection techniques. Later I undertake a comparative analysis to determine, and find explanations for, similarities and differences between the cases from the data and results obtained in the first stage.

#### **1.5.4 Case Descriptions**

For almost two decades, the western basin of Lake Erie has been subject to significant pollution from nutrient runoff, especially phosphorus, from the watersheds on both the Canadian side (Ontario) and US side (Ohio, Michigan, and Indiana) (International Joint Commission, 2014). The western basin of Lake Erie receives on average 61% of the total Lake Erie phosphorus loads (5,492 tonnes total phosphorus annually) with Canada contributing 647 tonnes (12%) and the United States contributing 4,407 tonnes (80%) while sources from atmospheric deposition and Lake Huron making up the remainder (ECCC & OMECC, 2018). The major river systems that contribute phosphorus loads to western Lake Erie basin are the Thames River in Ontario and the Maumee River in Ohio. The case studies considered in this research involve the policy processes to address such nutrient pollution by Ontario and Ohio, with a focus on these two watersheds. The rationale for focusing on the two watersheds is because they have been formally identified as the main sources of nutrient runoffs and as such they have been targeted for nutrient reduction policy intervention as ‘priority watersheds’ (Ohio Environmental Protection Agency, 2018). While the two river systems are similar in their length and the dominant land use in both is agriculture, the Maumee watershed, however, covers almost three times larger area than the Thames watershed (16,500 km<sup>2</sup> and 5,300 km<sup>2</sup> respectively) (International Joint Commission, 2018)

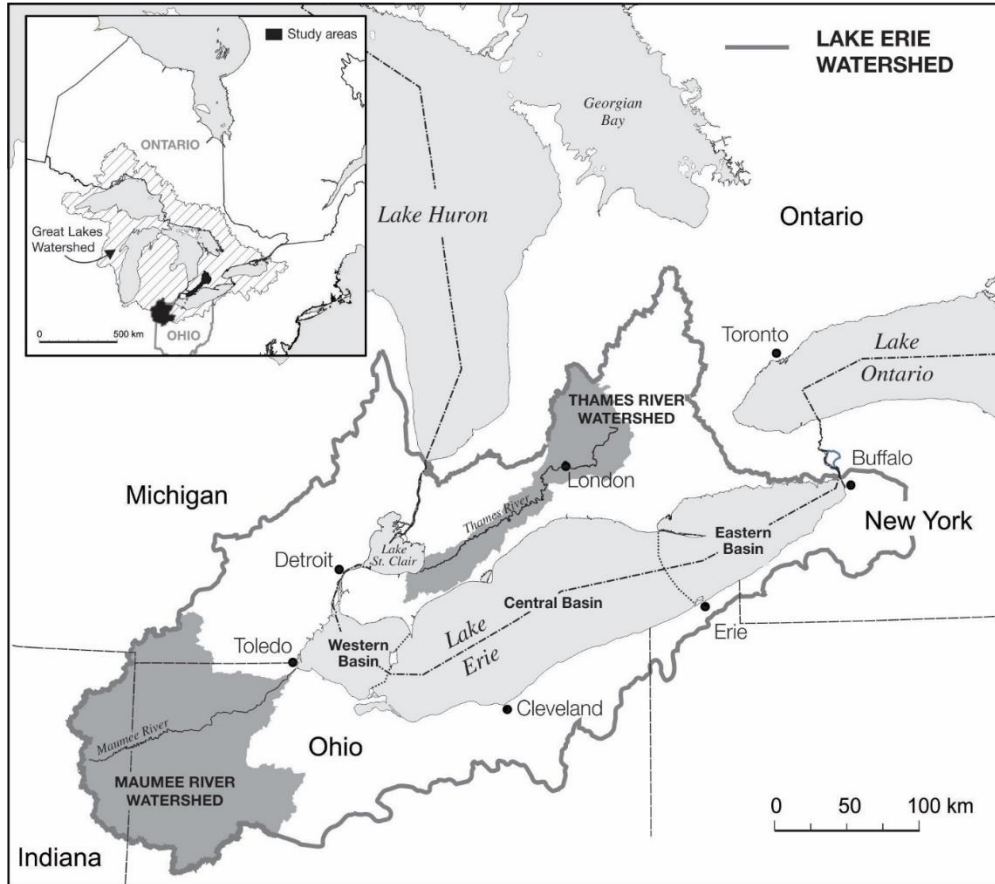
##### **The Thames Watershed**

The Canadian side of the Lake Erie basin accounts for about one-third of the basin’s land area and supports 2.68 million people, with 53% of them in eight urban areas with populations over 50,000 and the rest live in smaller towns and rural areas (Environment and Climate Change Canada [ECCC] & Ontario Ministry of the Environment and Climate Change [OMECC], 2018). In the period 2003 to 2013, the proportion of non-point sources for phosphorus loads to Lake Erie from Canadian sources averaged 71% percent for soluble reactive phosphorus and 78% for total phosphorus (ECCC & OMECC, 2018). On the other hand, the relative contribution from urban point sources that include municipal wastewater treatment plants, combined sewer overflows (CSOs) and industrial direct discharges is in the range of 10 to 15% for total phosphorus load across the Lake Erie basin (ECCC & OMECC, 2018).

Located in southwestern Ontario, the Thames River is a significant source of nutrient loads to the western basin of Lake Erie through Lake St. Clair (Lake Erie LaMP Work Group, 2011). The watershed extends from the Thames’ headwaters in the area north of the city of Stratford, and the river flows about 280 km southwest draining into Lake St. Clair. With a population of about 600,000, the Thames watershed covers an area of about 5,692 km<sup>2</sup> with land use characterized by agriculture (80%), urban areas (7.8%), deciduous tree cover (5.1%) and wetlands (4.6%) (K. Maaskant, 2015; Nürnberg & LaZerte, 2015). The watershed also includes many townships and municipalities with 30 wastewater treatment plants (UTCA, 2018), the major urban center being

the city of London with a population of more than 380,000 (Statistics Canada, 2018). According to LAMP (2011, p. 10), even though there is less information about phosphorus loading from the Ontario tributaries that drain into Lake Erie, total phosphorus concentrations in most of them exceed the Provincial Water Quality Objective of 30 micrograms per litre.

**Figure 1.2. Study areas: The Thames and Maumee watersheds in western Lake Erie basin**



Stammler, Taylor, and Mohamed (2017) indicate that there has been a general trend of reduction in total phosphorus load in southern Ontario watersheds during growing seasons over the period 1979 to 2011. For the Thames, the annual phosphorus loads in the period 1986-2012 amounted to 342 t/yr of total phosphorus and 187 t/yr dissolved phosphorus for an annual flow of 2,030 106 m<sup>3</sup> (Nürnberg & LaZerte, 2015). As such the Thames watershed has been identified as a priority for phosphorus reduction efforts due to its contribution to cyanobacteria blooms in Lake St. Clair and hypoxia in the central basin (ECCC & OMECC, 2018). From Canadian sources that drain into the western basin, more than 99 percent of the load is discharged to the Huron-Erie corridor, mostly through the Thames (ECCC & OMECC, 2018). As the main land-use activity in the watershed is agriculture loads from this sector comprise a significant portion from the total sources. Building on the works of Nürnberg and LaZerte (2015) one study estimates that in the Thames watershed agriculture may contribute 18-51% of the dissolved reactive phosphorus load, and 66-74% of the total phosphorus load from nonpoint sources (BluMetric Environmental Inc, 2017).

## **The Maumee Watershed**

The Maumee watershed in northeast Ohio is the single largest source of dissolved reactive phosphorus that generates harmful algal blooms in the western basin of Lake Erie (IJC, 2014). As such the majority of the phosphorus loads from the U.S. (60%) are discharged directly to the western basin of Lake Erie and 22% percent to the Huron-Erie corridor (ECCC & OMECC, 2018). The Ohio Task Force, first established in 2007 to study phosphorus runoffs to Lake Erie, and then reconvened again in 2010 concluded that agriculture was the leading source of phosphorus runoffs due to the majority of the land use in agriculture in the Maumee River watershed (~80%) (Ohio Lake Erie Phosphorus Task Force, 2013). The dominant land use (79%) in most of the watershed upstream of the Toledo metropolitan area is agricultural production dominated by corn-soybean rotations (IJC, 2014). The 2018 Ohio Mass Balance study provides the most recent estimates of phosphorus (P) runoffs from the Maumee. It estimates that the watershed generated the highest annual total P load when averaged for the five water years in the study (2013-2017) – an average of 2,200 metric tons per annum (Ohio Environmental Protection Agency, 2018). This load can be broken down by level of contribution from different sources into non-point source (88%), National Pollutant Discharge Elimination System permit holders (8%) and Household Sewage Treatment Systems (4%).

## **The Domestic Action Plan (DAP) process**

Built on the foundations laid by the *Boundary Waters Treaty* signed in 1909 between Canada and the United States, the primary institutional mechanism that governs binational efforts to protect the waters and ecosystem of the Great Lakes has been the Great Lakes Water Quality Agreement (GLWQA) first signed in 1972, and revised in 2012 (Government of Canada & Government of the United States of America, 2012). An important provision of the 2012 agreement was the recognition of the return of eutrophication problems in Lake Erie and committing the governments of Canada and United States to setting targets for phosphorus load reductions by 2016. It also provided for such targets to be developed, and implementation mechanisms identified domestically in each country in a process called the development of Domestic Action Plans. Hence the two governments represented by Environment and Climate Change Canada and the United States Environmental Protection Agency embarked on adopting and developing a phosphorus reduction target and implementation plan which they officially announced in 2016.

In a parallel move, the Premier of the Province of Ontario, and the Governors of the states of Ohio and Michigan also signed a collaborative agreement in June 2015 adopting similar targets as those of the national governments. They agreed to reduce phosphorous loadings especially from the waters entering the most vulnerable western Lake Erie basin by 40% by 2025, with an interim target of 20% reduction by 2020 from 2008 levels. These commitments by the national and subnational governments are being materialized through the development of the Domestic Action Plans (DAPs) prepared at both regional (provincial/state) and national levels (Environment and Climate Change Canada [ECCC] & Ontario Ministry of the Environment and Climate Change [OMECC], 2018; United States Environmental Protection Agency [USEPA], 2018). In both Ontario and Ohio, this policy process to prepare the DAPs involved many rounds of consultation and engagement with various policy actors including governments at different levels, watershed organizations, the farming sector, environmental non-governmental organizations (ENGOS), other civic groups as well as citizens. The media has also been an important actor in the policy process through its reporting on the issue.

The Boundary Waters Treaty that gave rise to the Great Lakes Water Quality Agreement also brought into existence the binational body called the International Joint Commission (IJC). Represented by equal number of commissioners from both countries, the main responsibilities of this body are to advise both parties with regard to the state of their shared waters and necessary policy options available in addressing issues. This body has been playing a role in helping and guiding the two governments in their efforts in meeting the provisions of the GLWQA agreement. In its advisory role, the IJC also conducts scientific studies, prepares progress reports and assessments, and holds consultation and engagement sessions with stakeholders and citizens of both countries interested in Great Lakes issues.

While the role of binational structures and institutions is important to understand Great Lakes issues, the focus in this study is on the comparative assessment of the policy process to develop domestic action plans. Although they emanate from the binational GLWQA agreement, the domestic action plans are prepared within the confines of national and subnational policymaking contexts. Hence, the binational institutional architecture (such as the IJC) is considered in this study primarily in view of its interaction with the policy process to develop the DAPs. Thus emphasis is put here on the national (and subnational) DAP policy process as it evolved and developed at the provincial and state levels, and locally in Ontario's Thames watershed and in Ohio's Maumee watershed, while also addressing the relevant roles of the federal governments.

### **1.5.5 Data collection**

The modified IAD-SES framework informed the choice of the organizations, sectors and other actors whose data proved useful for the purposes in this research, as noted for example by McGinnis and Ostrom (2014). Data in various forms were collected from actors in governments at different levels, environmental non-governmental organizations (ENGOS), the farming community including agribusinesses, municipalities, conservation authorities (in Ontario), Soil and Water Conservation Districts (in Ohio). The modified framework informed choice for the sources of data, with emphasis on the following categories as they occur at national, provincial/state and watershed scales: 'Actors'; 'Governance system'; 'Discourses', and 'Action Situation'. In identifying stakeholders as sources of data collection I followed the suggestion of McGinnis and Ostrom (2014) in categorizing 'rule making organizations' which, in the context of phosphorus reduction policy in the western basin of lake Erie provided the following stakeholder categories:

- Public sector organizations (government agencies, etc.) – e.g., Environment Canada, Ontario Ministry of Agriculture, Food and Rural Affairs, Ohio Environmental Protection Agency, Ohio Department of Agriculture, the International Joint Commission, Municipalities...etc.
- Private sector organizations (for profit) – e.g., Farm organizations, agri-businesses and individual farms.
- Nongovernmental, non-profit organizations – Farmer associations, environmental non-governmental organizations (ENGOS), other organizations and partnerships such as the River Thames Restoration Partnership and Lake Erie Water Keepers.

- Community-based organizations – grassroots organization e.g., Wellington Water Watchers, local Rotary Clubs... etc.
- Hybrid organizations: some organizations may combine aspects of public, private and community organizations

Data were collected from the organizations noted above in the form of interviews, documentary sources, personal observations as well as media sources. A set of research questions in a semi-structured format was designed and administered to a total of 55 respondents (see Table 1 below). While potential interviewees from relevant offices at the federal level were not available for interviews, they did direct me to (in their view) more relevant provincial- and state-level offices and people who were more closely working with the DAP process. Consequently, I interviewed those relevant provincial and state level authorities. Moreover, documentary sources were collected from various sources, including formal written comments and responses to policy proposals during the development of the Domestic Action Plans in both Ontario and Ohio as well as documents publicly available mostly from websites of government bodies and other stakeholders. Documentary sources also included a comprehensive catalog of projects related to nutrient runoff in the Canadian Lake Erie basin that was prepared by the Upper Thames River Conservation Authority in partnership with the Environment and Climate Change Canada. Further complementing these data sources was a systematic search for relevant media data and information (see Table 1.2 below).

**Table 1.1. Summary of interviewees by case**

<b>Interviewee affiliation</b>	<b>Total interview requests</b>	<b>Ontario Case interviews</b>	<b>Ohio Case interviews</b>
Federal government	3	-	-
Provincial/State government	10	4	4
Municipalities	5	1	4
Conservation Authorities / Soil and Water Conservation District	15	5	5
Farming Sector	29	7	10
ENGOS	11	2	6
Academics/researchers	7	3	4
<b>Total</b>	<b>80</b>	<b>22</b>	<b>33</b>

Media sources from regional and local papers were used from the database *LexisNexis Academic* database for *Canadian Broadcasting Corporation (CBC) News*; *Globe and Mail*; and *Toronto Star* for the case of Ontario. In Ohio, relevant systematic search was made in the subscription-based databases of the *Toledo Blade* and *Columbus Dispatch* while *The New York Times* was accessed from *LexisNexis Academic Database*. For the period January 2011- February 2018, out of 126 total, 88 relevant articles from the *Toronto Star* (45 articles), *Globe and Mail* (25 articles) as well as *CBC* (18) were analyzed. In Ohio, I collected news items from the *New York*

Times (73), Columbus Dispatch (71) and Toledo Blade (108); out of the total 252 identified, 200 relevant articles were analyzed. The choice for which media outlets to include in the analysis was motivated primarily by the extent of circulation in Lake Erie basin, the broader Great Lakes basin and at the national level. Finally, personal observations during meetings, public forums, workshops, webinars and other gatherings provided much needed context as well as data to complement the other sources noted above.

**Table 1.2. List of media sources by case**

<b>News outlet</b>	<b>Date range</b>	<b>Database</b>	<b># of articles*</b>	<b>Relevant articles</b>
CBC News	Jan 2011 – Feb 2018	LexisNexis Academic	27	18
Toronto Star	Jan 2011 – Feb 2018	LexisNexis Academic	67	45
Globe and mail	Jan 2011 – Feb 2018	LexisNexis Academic	32	25
<b><i>Ontario Total</i></b>			<b>126</b>	<b>88</b>
Toledo Blade	Jan 2010 – Feb 2018	Toledo Blade’s database	108	96
Columbus Dispatch	Jan 2010 -Feb 2018	Dispatch’s database	71	66
New York Times	Jan 2010 - Feb 2018	LexisNexis Academic	73	38
<b><i>Ohio Total</i></b>			<b>252</b>	<b>200</b>
*Search terms included: phosphorus; nutrients; algae; "algal bloom"; "great lakes"; "lake erie"; "lake st. clair"				

### 1.5.6 Data analysis

The literature offers a number of ways to study discourse depending on disciplinary orientations as well as the specific research questions under consideration (Bosomworth, 2018; Coffey & Marston, 2013; Mattheis, 2017; Metze & Dodge, 2016). From the more narrow to more broad ways of conceiving discourses, we can differentiate four approaches to analyzing discourse as ‘communication’, discourse as ‘text’, discourse as ‘frame’, and discourse as ‘social practice’ (Arts & Buizer, 2009). Discourse as ‘text’ and ‘communication’ focus on the narrow linguistic aspects of discourse while discourse as frame of reference separates language from practice, and aims to establish distinct linkages in the use of language in influencing social practice. Discourse as ‘social practice’ encompasses both language and social interaction as it favors structure over agency (Van den Brink & Metze, 2006). Typically, texts, defined very broadly, constitute the directly observable elements of discourse. Texts could include written documents, verbal reports, artwork, spoken words, pictures, video items, symbols and other artifacts (Phillips et al., 2004). Hence, discourse analysis that explores the relationship between discourse and social practices involves the systematic study of texts – including the contexts and patterns of their production, dissemination, and consumption (Phillips et al., 2004). In many empirical studies discourse analysis is often complemented with other compatible and relevant methods such as institutional analysis; quantitative content analysis of document and media coverage (Mendes, 2007; Sonnett, Morehouse, Finger, Garfin, & Rattray, 2006); participant observations; and other qualitative or quantitative methods (Runhaar, van Laerhoven, Driessen, & Arts, 2013).

In this research, I have relied on qualitative analysis of discourse with the help of the qualitative data analysis software *QSRNVivo* at three levels of analysis: the broad social practice level; the policy discourse level; and the textual level. In coding documentary sources, interviews and other texts, I used ‘simultaneous coding’ for the first round of coding for data that were relevant and applicable to one or three of the empirical chapters. Simultaneous coding is the application of two or more different codes to a single data item or the partially overlapped application of two or more codes sequentially to data (Saldaña, 2009). This approach is “appropriate when the data’s content suggests multiple meanings that necessitate and justify more than one code” (Saldaña, 2009, p. 62). In the subsequent rounds of coding I used both deductive and inductive coding strategies (Saldaña, 2013). Deductive coding was guided by both the overall conceptual framework for this research as well as by the more specific analytic frameworks applicable to each empirical chapter. With inductive coding, I paid attention to emerging patterns, ideas and other insights from data, which were then integrated into the coding scheme in an iterative way. Saldaña (2013) advises that while a list of codes could be determined beforehand in line with the study’s conceptual framework or research goals, he also notes that it is important to be open to emergent, data-driven, inductive, coding choices. A more detailed description of the data analysis process pertinent to each empirical chapter is provided in the relevant sections.

## **1.6 Organization of thesis**

This dissertation is organized in a ‘manuscript’ style structure with an introductory chapter, three major empirical chapters, and a concluding chapter. This introductory chapter lays out the conceptual problem that this thesis attempts to address as well as introduces the empirical contexts within which the conceptual questions are to be assessed. It also provides the purpose of this research and the main research objectives along with the epistemological and methodological approach underpinning this research project. After a review of the relevant literature materials used as sources for empirical analysis as well as the methods for data analysis are introduced in the first chapter. In addition, a conceptual framework that served as an overarching guide and which has been evolving over the course of this research is presented. As the empirical chapters are structured to be standalone manuscripts there is some repetition in the kind of materials used for data collection and analysis.

The first objective of this research is elaborated in Chapter Two, and is concerned with understanding the nature of the policy process related to water quality in Lake Erie basin by focusing on how different groups and stakeholders in the basin have framed the eutrophication problem. This chapter specifically highlights how various groups have come into discourse coalitions and advanced different storylines of the nature of the problem to highlight the main causes, the solutions to the problem, as well as the main actors that need to act in order for the policy to be effective. The extent to which these varying framings of the problem have found expression in the language in the Domestic Action Plan is also assessed, thus achieving the second objective of this research.

While Chapter 2 focuses on different groups of actors and their discourse coalitions, Chapter 3 emphasizes the specific discursive practices by one major actor in those coalitions and closely examines its attempts to influence policy in discursive ways. This chapter, addressing objective number three of this dissertation, takes the case of the Federation of Agriculture in the case of Ontario and the Farm Bureau Federation in the case of Ohio and examines the various



practices these two organizations engage in with the aim of influencing policy at various scales. This chapter shows that both organizations attempt to influence not only the content and process of nutrients related policy but also the broader policy context itself.

While the conceptual focus of the first two empirical chapters is on the capacities and activities of actors to influence policy through discourse the last empirical chapter situates such discursive interactions with the overall structure of the multilevel institutional settings in both cases. The focus of Chapter 4 is thus on the federal and provincial/state level institutional structures and processes in both countries as well as the constitutional and regulatory frameworks within which the nutrient runoff reduction policy process is being conducted. This chapter also addresses a recurring conceptual pursuit in this dissertation by addressing the discourse-institutional relationship. I show how the different institutional structures and processes in Canada and United States may have affected the nature of the policy discourse surrounding water quality.

The main conceptual threads of the first four chapters are brought together in a concluding Chapter 5. The main findings from the empirical chapters are summarized in this chapter and a unified, global contribution of this study is presented. The value of a discursive-institutional perspective to better understand water quality issues is discussed and reflections offered. The main theoretical and policy relevant contributions from this thesis are also highlighted. Finally, some of the limitations of this study are outlined and the chapter ends with a reflection on some questions that arose over the course of this study that could be pursued in the future, thus concluding the dissertation.

## Chapter 2

# Eutrophication and Water Quality Policy Discourse in Lake Erie Basin

This paper comprises a manuscript for a refereed journal article that will be submitted to *Water Alternatives*

### Abstract

Watershed based approaches to address water quality issues often involve a diverse set of actors working to develop policy in a collaborative fashion. Such an approach is currently underway in the western Lake Erie basin, where the Province of Ontario and the State of Ohio have embarked on a 40% phosphorus runoff reduction target by 2025 from 2008 levels, in order to address eutrophication problems in the lake. By focusing on the Thames and Maumee watersheds respectively both governments conducted formal solicitation of comments on draft policies, consultation and engagement with representatives of municipalities, the farming sector, ENGOs, conservation authorities and other stakeholders as a way to consider the views and concerns of a diversity of actors. However, the literature has shown that there are cases where such approaches may not create an even playing field for stakeholders with unequal capacities to influence policy development, especially through less visible forms of influence such as creating the information, ideas and stories that ultimately shape policy.

In this study, we adopt the concept of discourse (specific ways of apprehending and talking about the world) to inform our understanding of the collaborative process in developing “domestic action plans” (DAPs) to guide implementation of the 40% target. Using data from documentary sources, interviews, media sources and personal observations we found that in both cases there were distinct groups of actors who shared a particular narrative or ‘storyline’ of what the causes of nutrient pollution in Lake Erie are, and the best solutions moving forward. These storylines provide varying accounts of the science and policy aspects of the eutrophication problem as well as the attribution of responsibility to specific actors within the policy process. By comparing the three drafts of the DAPs in each case, we further illustrate the different capacities for influence by the stakeholders promoting those storylines. We conclude with a discussion of the policy implications of such unequal capacities for influence in the context of governance for water quality.

## 2.1 Introduction

The last few decades have seen a shift from traditionally government-dominated governance towards modes of governing that emphasize networks, policy learning, argumentation, and inclusion of non-state actors in decision making (Chhotray & Stoker, 2009; Sørensen & Torfing, 2007). This increasing trend in the inclusion of non-state actors has also meant that policy making processes have become arenas in which a diversity of private and public actors interact, deliberate and negotiate among themselves in addressing environmental issues (Bäckstrand, 2003; Glasbergen, 1998). The policy process in Western democracies is thus no longer the sole purview of, or fully controlled by, governments but now involves many new actors (Hajer & Wagenaar, 2003). The literature on environmental policy process shows the many forms that the involvement of non-governmental actors can take (Kraft & Kamieniecki, 2007; Schlager, 2007). Some actors are involved in the policy process because they share more or less deeply held shared beliefs about various aspects of policy, as is the case with advocacy coalitions (Sabatier, 1988), while others are brought together in a network due to their shared knowledge in the case of epistemic communities (Haas, 1992).

While such approaches to understand the ways in which actors influence the policy process are helpful in their emphasis on how ‘rational’ actors pursue their interests, they have generally overlooked important relationships among other key variables. These include the socially constructed nature of knowledge as well as the constitutive role of language and discourse through which actors make sense of the world (Hajer, 1995; Litfin, 1994, 1995). Many environmental and water policy processes involve actors whose identities are tied to social interactions and networks bound together by stories or narratives that provide a cohesive cement and give meaning to their actions (Blatter & Ingram, 2001; Lejano, Ingram, & Ingram, 2013). Such actors can be drawn together into the policy process not only because they share interests but also because they subscribe to aspects of a narrative story and other metaphors about a policy issue. Hajer (1995) calls such a network of actors ‘discourse coalitions’.

Despite the many insights that can be gained from the study of discourse coalitions and the storylines they promote to understand the process and outcome of policy, this perspective has been a less researched area in the water policy domain (Assche et al., 2017; Hajer & Versteeg, 2005; Huitema & Meijerink, 2010). Consequently, our understanding of the exact nature and influences of discourse coalitions in various environmental contexts, including water policy processes, is limited. In this paper, we explore the role of storylines and coalitions of actors promoting them within the context of policy development for water quality in the Lake Erie basin. Nutrient runoffs, especially phosphorus from watersheds in the basin that have been causing algal blooms and eutrophication in Lake Erie, have increasingly become a concern for water quality for more than a decade now (Ohio Lake Erie Commission, 2008). In response, governments in Canada and the United States at the federal, provincial/state and local levels have set nutrient runoff reduction targets of 40% by 2025 and are working within policy settings framed by Domestic Action Plans (DAP) (Environment and Climate Change Canada [ECCC] & Ontario Ministry of the Environment and Climate Change [OMECC], 2018; Ohio Lake Erie Commission [OLEC], 2018). By taking the processes to develop those Domestic Action Plans in Ontario and Ohio as comparative cases, we identify the main storylines and discourse coalitions and their influences on the water quality policy process. Using data collected through interviews, documentary sources and the media we analyze the differing views, values and interests

manifested as various actors promote different discourses in addressing the problem of eutrophication in Lake Erie. The findings show that the main storylines promoted by actors in the two regions have both commonalities and differences in how issues are constructed and promoted in the policy process as well as differing influences on the policy process. As the overall goal for policy intervention in both cases is to safeguard the environmental quality of a shared water body by achieving a commonly agreed target, those differences in policy discourses may have important implications for the comparative effectiveness of those interventions that would affect outcomes in both jurisdictions.

## **2.2 Discourse in the context of environmental and water policy**

The complexity of many environmental issues leaves ample room for diverse, yet plausible, interpretations of events and processes that can be constructed by actors promoting a preferred policy approach (Dryzek, 2013). Nonetheless, actors often condense complex environmental processes into simple storylines and metaphors as shorthand for intricate cause-effect relationships. In the media and other public arenas, complex research findings and arguments are often reduced to ‘eye-catching’ visual representations or simple and memorable ‘one-liners’ (Scrase & Ockwell, 2010). This entails significant loss of meaning but, at the same time, it enables actors to reconstruct meanings in support of their visions and offers them opportunities to promote their ideas and build alliances (Fischer, 2003). They can build coalitions by recruiting people with only marginally overlapping views around an appealing version of discourses or concepts (Bisaro, 2007; Rydin, 1999).

Discourse in this paper refers to “an ensemble of notions, ideas, concepts and categorizations through which meaning is ascribed to social and physical phenomena” (Hajer, 2009, p. 60). It is “a shared way of apprehending the world ... [that] enables those who subscribe to it to interpret bits of information and put them together into coherent stories or accounts” (Dryzek, 2013, p. 9). These narrative stories or ‘storylines’ (Lejano et al., 2013) allow actors to draw upon various representations and categories to give meaning to specific physical or social phenomena. Their key function is that “they suggest unity in the bewildering variety of separate discursive component parts of a problem” (Hajer, 1995, p. 56). These storylines bring various groups together in a network of actors who promote particular policy narratives in what Hajer calls ‘discourse coalitions’. These storylines typically have an internal logic that draws on specific perceptions of reality by certain groups that makes them appealing to members.

Thus, discourse coalitions form when diverse groups of actors subscribing to more or less similar stories about what the main issues in the policy domain are, the cause-effect relationships, and preferred solutions promote similar messages. A discourse coalition is thus a loose network of actors that may have different, or at best overlapping, perceptions and understandings about the specifics of the policy issue without even belonging in the same policy domain. What unifies them is the shared way they define a certain issue (e.g., the nature and causes of climate change) and the overlapping narratives that they utter (e.g., the role of wind energy in mitigating climate change) (Jessup, 2010). These narrative stories or storylines help coordinate the actions of large numbers of people and organizations that may not be able to interact in the same geographic location (Dryzek, 2013; Metze & Dodge, 2016). Different coalitions may compete for problem ‘closure’ – the dominant understanding of the policy problem and whether, and how to go about addressing it (Forsyth, 2003). This closure essentially excludes other alternative conceptions of

the problem along with alternative approaches to addressing it. As such, the understanding of discourse coalitions promoting specific storylines in the policy process provides an important insight into the process and outcome of environmental policymaking (Bäckstrand & Lövbrand, 2006; Bocking, 2005; Bøgelund, 2007).

Rantala and Gregorio (2014) illustrate the usefulness of the concepts of discourse coalitions and storylines to help us understand the nuances of the interactions involved in the process of environmental policy. They also show the specific strategies that discourse coalitions engage in to influence policy in the context of forest governance in Tanzania. In this case, civil society organizations were able to influence the final outcome of the REDD+ policy through various activities that included issuing public statements highlighting the dangers of specific approaches, submission of persuasive comments on the draft strategy, organizing public debates and public protest events. In contrast, remaining vague and ambiguous about specific issues during the policy development period were among tactics employed by the opposing discourse coalitions led by government actors who aimed to avoid scrutiny regarding the management of the REDD+ financial benefits to communities.

Other studies have demonstrated that dominant discourse coalitions can create a bias towards a particular conception of an environmental issue in the broader policy domain and the need for, and appropriateness of, policy responses (Bøgelund, 2007; Clare et al., 2013; Dang et al., 2012). Clare et al. (2013) show how a discourse coalition between industry and key government decision makers favored a business-as-usual approach to wetland management that entailed minimal regulation complemented with market-based instruments in Alberta. The authors suggest that industry was able to tilt the meaning of the ‘balance’ discourse in a way to mean wetlands conservation that does not hinder activities by industry. The influence of discourse coalitions on the policy process is never certain, however. Nor is it a straightforward process. Metze and Dodge (2016) analyze anti-fracking and pro-fracking discourses in New York State and the Netherlands and show the highly contextual nature of discourse coalitions within the context of potential regulatory policy to protect water quality and avoid other negative effects. They show how the pro-fracking coalition of government and industry emphasized the ‘economic opportunity’ storyline, which promotes the vast expertise of companies to contain risks, as well as rejects critical reports as not necessarily reflective of local conditions. This also included challenging the scientific basis of the causal pathway between fracking and negative impacts such as water contamination. Metze and Dodge (2016) also show the fragility of discourse formation and the contextual and provisional nature of consensus among various coalition members, thus highlighting the nuances of the role of actors in influencing policy across policy domains.

Despite the significant role of discourse in the policy process (Wesselink, Buchanan, Georgiadou, & Turnhout, 2013), many prevailing approaches by researchers to understanding water issues have been criticized for ignoring the discursive aspect of water policy and governance (Ingram, 2013). For example, Blatter and Ingram (2001) noted that with its emphasis on rationality and the search for certainty and control, most research on water issues has privileged “predictability, parsimony, and simplicity”. In much of the more recent water governance literature the influence of discursive factors through which meanings are constructed and perceptions and interests of individuals may be influenced, have been largely disregarded (Brisbois & de Loë, 2015; Clement, 2010; Epstein et al., 2014). Even less explored is the way through which actors form coalitions in pursuit of their preferred policy positions and promote narratives to impose those positions on others. This paper contributes to this conversation by

contributing insights from the study of the role of storylines and discourse coalitions in influencing freshwater policy processes (Sherren, Beckley, Greenland-Smith, & Comeau, 2017). Such insights have implications to resource policy and governance as well as to the broader goal of sustainability by highlighting the main actors and the various forms that their influence can take.

## **2.3 Nutrient Issues in the Western Lake Erie Basin**

Lake Erie is one of the five Great Lakes of North America which together hold about 20% of the world's surface freshwater supply (Botts & Muldoon, 2008). Lake Erie is the warmest, shallowest and biologically most productive of the Great Lakes and together with its basin supports a significant portion of the regional economy in Ontario, Michigan, Ohio, Pennsylvania and New York (M. Campbell et al., 2015). The Lake Erie basin is also home to about one third of the total population of the Great Lakes basin, including 17 metropolitan areas that have a population of 50,000 or more while providing drinking water to about 11 million people amounting to 10 million people on the U.S. side and 1.6 million on the Canadian side (Lake Erie LaMP Work Group, 2011).

In the last decade algal blooms on the western part of Lake Erie have increasingly become a concern for the ecological health of the lake as well as for the health of the public that depends for its livelihood on the lake (International Joint Commission, 2014). In the 1960s and 1970s, the lake had also experienced similar deterioration in water quality due to excessive algal growth (Burns, 1985). This problem was largely addressed through the leadership of the governments of Canada and the United States under the Great Lakes Water Quality Agreement (GLWQA), a binational commitment signed in 1972. After seemingly successful efforts at dealing with nutrient related pollution in the 1980s and early 1990s, however, the problem of algae blooms has resurfaced in Lake Erie since at least the early 2000s (Baker et al., 2014; Kane, Conroy, Richards, Baker, & Culver, 2014). This is mainly caused by nonpoint source runoff of phosphorus, especially the bioavailable dissolved reactive phosphorus (DRP), to the western Lake Erie basin (WLEB) (Maccoux, Dove, Backus, & Dolan, 2016). Even though the sources of this phosphorus runoff include municipal Waste Water Treatment plants, combined sewer overflows, septic tank systems, and other sectors that use fertilizer, such as golf courses, and even residential lawns, the single largest source of DRP in the WLEB is agricultural runoff from farm fields (Michalak et al., 2013; D. Smith et al., 2015). This includes phosphorus from both commercial fertilizer and manure from farm animals. On the US side, the Maumee River watershed is the largest contributor of phosphorus loadings to the lake while on the Canadian side the Thames River is the main contributor through its contribution to Lake St. Clair.

Due to heavy floods in the spring of 2011 that washed large amounts of phosphorus into Lake Erie, and the warm temperature that followed that summer, the western basin experienced a record algal bloom three times the size of the largest bloom recorded previously (International Joint Commission, 2014). Later, in August 2014, the City of Toledo in Ohio had to shut down drinking water supply to half a million people due to the presence of toxic microcystins coming from harmful algal blooms near the intake pipes of the water treatment plant on Lake Erie (Wines, 2014). On the Canadian side, similar problems occurred, albeit to a smaller scale. These include problems in Pelee Island where a two week-long no swim advisory was issued in summer of 2015 and more common localized blooms occurring in the Chatham-Kent area (S. Hill, 2018).

Recognizing the growing threats from eutrophication and excessive algal blooms the latest revision of the Great Lakes Water Quality Agreement (2012) stipulated that the governments of Canada and United States develop a target to reduce harmful algal blooms in Lake Erie (Objectives and Targets Task Team, 2015). Through a binational collaborative process, Canada and the United States adopted a target of a 40 percent reduction (from 2008 levels) in spring loads of total phosphorus and soluble reactive phosphorus for the western and central basins and nearshore priority areas (EPA, 2017). At the sub-national level, the Province of Ontario, the State of Ohio and the State of Michigan also signed a memorandum of understanding in June 2015, to work collaboratively to reduce phosphorus runoff by a similar target but adding an intermediate target of 20% reduction by 2020 from 2008 levels. Since then, the province and the states have been working to develop Domestic Action Plans (DAPs) designed to meet these commitments (ECCC & OMECC, 2018; OLEC, 2018). The focus in this study is on the policy development processes within the Province of Ontario and the State of Ohio because both regions represent the most significant sources of nutrient runoff to Lake Erie in each country.

A broad array of actors with diverse views, interests, and capacities is involved in developing the DAPs and the same actors are expected to take actions in order to achieve the set target. However, not all actors have the same views on what constitutes the core issues with respect to Lake Erie's eutrophication and what can be and needs to be done. In both regions, defining the nature and scope of the problem has been a highly debated issue and developing specific solutions has been even more contentious. As the Environmental Commissioner of Ontario put it, even when actors agree that some level of control might be needed "there remains debate on exactly how and where to apply further controls" (Environmental Commissioner of Ontario, 2017, p. 149).

## **2.4 Methods**

### **2.4.1 Conceptual approach**

In this paper, the conceptual framework that guides data gathering and analysis builds on the works of Hajer (1995) and (Dryzek, 2005, 2013). The focus is primarily on the role of discourse within the policy process 'action situation' (McGinnis & Ostrom, 2014). Following in the steps of other researchers including Rydin and Ockwell (2010); Takahashi and Meisner (2012a); Whaley and Weatherhead (2014a), we have relied on Hajer's concept of storylines and discourse coalitions to explore the policy process. This is complemented with an analytic scheme developed by Dryzek (2013) to categorize generic discourses on nutrients into distinct storylines. Both Hajer and Dryzek put emphasis on storylines as the main components of generic discourse around an issue as well as their importance in bringing actors together by way of a shared way of apprehending 'how the world works' (Lejano et al., 2013; Rydin & Ockwell, 2010). Storylines are narratives that allow actors to draw upon various representations and categories to create and assign meaning to complex and often less understood physical or social phenomena. Their key function is that they help in providing a unified perception of the complex component parts of an environmental issue (Hajer, 1995). Storylines create 'communicative networks' among diverse groups of actors with different or at best overlapping perceptions because these storylines "condense large amounts of factual information intermixed with the normative assumptions and value orientations that assign meaning to them" (Fischer, 2003, p. 87). In this way, storylines may emphasize some aspects of an event and conceal or downplay others thereby helping to define

issues as ‘policy problems’ by assigning blame, responsibility and sense of urgency (Clement, Suhardiman, & Bharati, 2017; Scrase & Ockwell, 2010).

A diverse group of actors with differing interests could come into a coalition by merely subscribing to, or promoting a shared storyline in a given policy domain, forming what Hajer (1995) calls a ‘discourse coalition’. Members of a discourse coalition do not need to be in the same geographic location or in the same sector (Zelli, Nielsen, & Dubber, 2019). What unifies them is the shared way they define a certain issue as a problem, those responsible for it and the solutions to address those problems. It is storylines that “coordinate the actions of large numbers of people and organizations who do not otherwise need to interact” (Dryzek, 2013, p. 10). In the context of Lake Erie eutrophication problem the discourse around the source of nutrient runoff, their specific paths from the tributary watersheds into the lake, as well as their specific roles and interactions with other biogeochemical factors in the lake, has been contested among actors. Actors are divided into camps that share and promote some explanation while others hold other views. Thus, the concepts of storyline and discourse coalitions are helpful to have an enhanced and nuanced understanding of the DAP policy development. Accordingly, the following scheme (Table 2.1) adapted from Dryzek (2005) is used to guide data analysis and identify distinct storylines from the broader eutrophication related discourse in Lake Erie basin.

**Table 2.1. Analytic Scheme for identifying storylines**

Elements of a storyline	Description
Basic entities recognized or constructed	The main variables that the discourse emphasizes being at play and influencing the progression of events. For instance, in the nutrient runoff and eutrophication discourse some actors may not acknowledge the role of climate change while others assign a prominent role to it.
Assumptions about natural relationships	The most defining feature of how entities and actors in the storyline relate to each other. It relates to how various public and private actors relate to each other in demanding, developing or implementing actions to address Lake Erie problems (e.g., collaborative or competitive ways).
Agents and their subject positions	Human or non-human agents that are assuming and performing different roles. Actors in the context of the nutrients discourse refers to government, farming sector, ENGOs and others. The key non-human agent in this context is Lake Erie.
Key metaphors and other rhetorical devices	Metaphors and other linguistic expressions used to emphasize, persuade, legitimize or raise sense of urgency (or the reverse) in relation to Lake Erie problems.

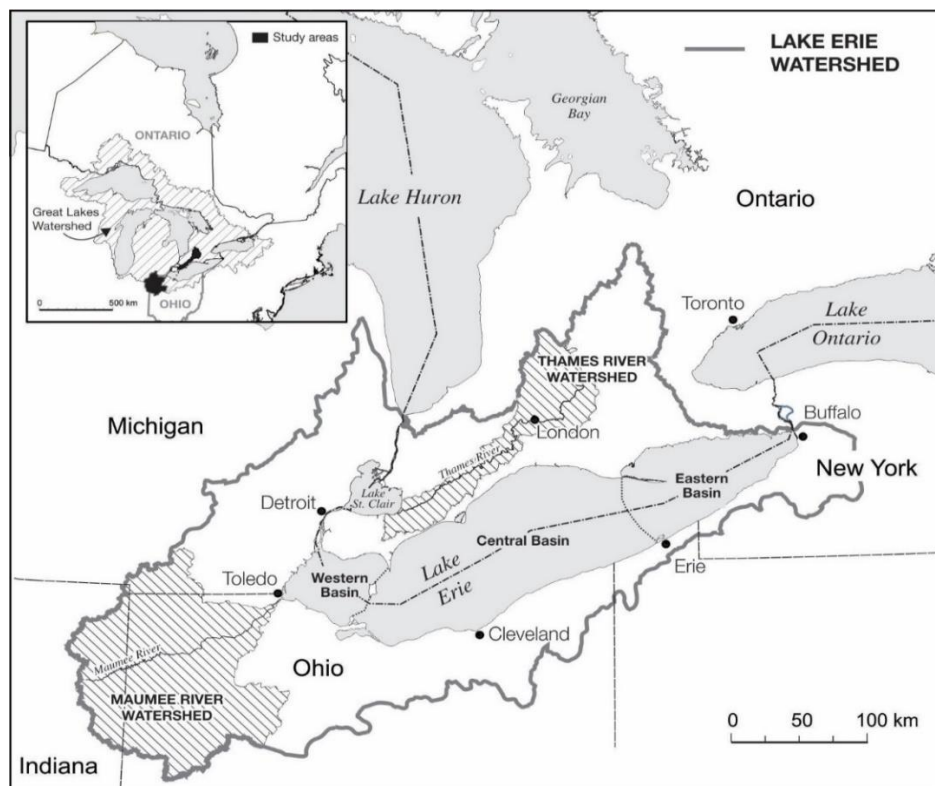
#### **2.4.2 Cases, data collection and analyses**

The case studies considered in this paper are the Thames watershed in Ontario and the Maumee watershed in Ohio. We have adopted a hierarchical method for comparative case study where we initially studied the two cases independently from each other but using a common research



perspective and data collection techniques. In the second stage, comparative analysis is done to determine, and find explanations for, similarities and differences between the cases from the data and results obtained in the first stage (Verschuren & Doorewaard, 2010). The rationale for focusing on the two watersheds is because they have been identified as the largest contributors of nutrients and as such they have been targeted for nutrient reduction intervention as ‘priority watersheds’ (Objectives and Targets Task Team, 2015). The Maumee watershed in northwest Ohio is the single largest source of dissolved reactive phosphorus that generates harmful algal blooms in the western basin of Lake Erie on the American side (Ohio Environmental Protection Agency, 2018). Located in southwestern Ontario, Canada, the Thames is also a significant source of nutrient loads to the western basin via Lake St. Clair (Nürnberg & LaZerte, 2015). The two river systems are similar in length but the Maumee watershed covers almost three times larger area than the Thames watershed (16,500 km<sup>2</sup> and 5,300 km<sup>2</sup> respectively). Agriculture is the dominant land use activity in both watersheds (IJC, 2014). The governments in each region have developed Domestic Action Plans in order to address the deterioration of water quality in Lake Erie basin with a binational common targets of 40% reduction in phosphorus runoff by 2025 from 2008 levels (Environment and Climate Change Canada [ECCC] & Ontario Ministry of the Environment and Climate Change [OMECC], 2018; Ohio Lake Erie Commission [OLEC], 2018).

**Figure 2.1. Case study areas: Thames watershed and Maumee watershed**



In keeping with applying the same theoretical perspective and methods, we employed a similar data collection strategy in both cases. The choice of the actor groups from which data were collected was informed by McGinnis and Ostrom (2014), which we found helpful in

identifying the main groups of actors that are involved in the policy process. It included actors in government, ENGOs, farming community including agribusinesses, municipalities, Conservation Authorities, Soil and Water Conservation Districts, academic institutions, and others who thought to have insight into the matter. The sources of data include 55 semi-structured interviews (with members of the groups of actors noted above, identified as having the relevant knowledge and expertise by others in snowball sampling fashion (22 in Ontario and 33 in Ohio). Other sources of data include documentary sources, including news media (88 relevant articles in Ontario and 200 in Ohio), direct observation (through participation in meetings, workshops, forums, on-field demonstration projects and webinars), as well as websites and social media posts of relevant organizations. Another significant documentary source was the compiled submissions of comments made by various stakeholders in two rounds during the DAP process received by the Ontario Ministry of Energy and Climate Change (OMECC) in Ontario and by the Ohio Lake Erie Commission (OLEC) in Ohio.

Data was analyzed using QSRNvivo version 10. The analyses for each case proceeded with the preparation of a coding guide based on the analytic scheme discussed above. An initial reading of interview transcripts and documentary sources revealed some recurring themes. These emergent themes were made part of the coding guide. This guide then informed the first round of open coding on interview materials and documentary sources. This step defined the initial terrain where the debates around eutrophication and nutrients runoff lay and thus offered the initial dividing line between the major storylines. A second round of pattern coding then followed this identification of storylines and a separate identification of actors associated with those storylines. Finally, with thematic coding the relatively distinct storylines were linked to specific actors promoting them within discourse coalitions. A careful study of the news media provided a complementary source to triangulate and assess the prevalence of the various storylines initially identified in the interviews and documentary sources. The three iterative drafts of the Domestic Action Plan document in Ontario and the four drafts in Ohio were also compared with each other (with the help of Adobe's *Compare Files* tool) to carefully track changes in each successive draft so as to observe changes in language and content. The changes were compared with relevant texts from interviewees as well as with comments and other written submissions made by stakeholders during the formal consultation and engagement sessions.

## **2.5 Results: Storylines, discourse coalitions and the policy process**

Discourses among actors in the Lake Erie basin in relation to nutrient runoffs and eutrophication in Lake Erie reflect the major points of contention and debate among actors in relation to defining the nature of the problem, the assignment of responsibility as well as the best courses of action that need to be taken to achieve the reduction target. This is manifested in various public forums, town hall meetings, press releases and websites of organizations, workshops, webinars, comments and documents submitted by stakeholders during consultation and engagement sessions as well as in reports by the media. Data from interviewees also shed light on those divisions in actors' views on the nutrients issue. In each region (Ontario and Ohio), the emergent themes through open coding of data show these debates falling into two storylines which actors invoke as shorthand for the complex process that causes eutrophication and the solutions needed to address it. As Fischer (2003) notes, storylines often gloss over crucial facts and condense large amounts of factual information into one-liners while positioning actors in the policy domain. The storylines that signify the problem of eutrophication have also shown such characteristics, as they are promoted

by different discourse coalitions, in their attempts to influence the outcome of the nutrient reduction policy.

### **2.5.1 Discourse on Nutrients in Ontario**

In debates about the issue of eutrophication in Lake Erie basin two storylines have been prevalent in the discourse around nutrient problems in Ontario, reflecting a divide among how different actors have defined and characterized the nature of the problem, its causes, possible solutions as well as the main actors that are, or need to be held responsible. Highlighting this divide, in its 2017 report, the Environmental Commissioner of Ontario indicates that even though more controls are now needed to address the problem than in the 1970s, “there remains debate on exactly how and where to apply further controls” (Environmental Commissioner of Ontario, 2017, p. 149). As an interviewee from the municipal sector (CI-14) put it “you find an opposing view between a lot of the stakeholders in different sectors that are in the watershed and they basically can be grouped into two main sectors: urban sector and rural sectors.” Another interviewee from the agricultural sector (CI-09) describes these divisions among actors as ‘camps’, with one camp having one idea of what the problem is and what the solution is, while others have a different perspective on what the issues are. We provide the details of these two conceptualizations of the problem as they are signified by two storylines that actors invoke in their debates.

#### **The ‘external factors’ Storyline**

This storyline is characterized by its depiction of the eutrophication problem whose causes and drivers primarily lie outside of the decisions of actors and the current governance system. It is mainly promoted by actors in the farming community and associated agribusiness. It promotes the idea that the issue of Lake Erie eutrophication is overly complex, involves interaction among multiple drivers, poorly understood and as such, there is no clear and major action that can be taken to directly address it (Fertilizer Canada, 2017; Kelly, 2017). It also shifts the focus from nutrient runoffs from agricultural fields as the main cause of the problem to a broader issue of the ecological health of the lake linked to climate change, the accompanying extreme weather events, as well as changes in the lake’s internal biophysical dynamics. This storyline ascribes the eutrophication issue with a sense of mysterious quality, as a CBC article titled ‘*Toxic algae blooms: What you should know about the enigmatic phenomena*’ notes. The article further indicates that due to the complexity of linkages among many contributing factors “no one really knows” about the exact cause-effect relationships leading to algal blooms (Powers, 2015).

This framing of the problem as a poorly understood and complex process is linked to the recent changes in the temperature and ecology of Lake Erie that is conducive to the growth of algae, further worsened by the activities of invasive species such as quagga and zebra mussels (International Joint Commission, 2018; Strayer, 2009). These invasive species are thought to have facilitated nutrient recycling within the lake as they feed on phytoplankton while in turn releasing back phosphorus into the system, thus further increasing the frequency of blue-green algal blooms (Pagnucco et al., 2015). In the years 2011-2015, 19% of the articles in Toronto Star, for example, emphasized the connection between invasive species and algae blooms in Lake Erie and other parts of North America. In addition, recent changes in phosphorus pathways, which may be connected to legacy phosphorus in the soil, have also made it possible for the dissolved reactive

phosphorus (DRP) to move to the lake in increasing amounts despite total phosphorus runoffs showing declines over the past two decades (Nürnberg & LaZerte, 2015; Stammer et al., 2017). Some actors in the farming community promoting this storyline point out that despite meeting the nutrient reduction targets set under GLWQA in the 1970s, the lake is still deteriorating and they ask why “some phosphorus loading level that was completely okay 10 or 20 years ago is now leading us to such a catastrophe in the Lake” (CI-22). They view the eutrophication problem as just one component of a larger problem with the lake due to a multiplicity of drivers, including “various pollutants, and they are kind of working in an interrelated, perhaps synergistic ways” (CI-09).

The ‘external drivers’ storyline also emphasizes the effect of climate change in terms of more frequent extreme events that lead to significant runoffs from the agricultural landscape during storm events (Michalak et al., 2013). Actors point to the potential ineffectiveness of best management practices (BMPs) in the face of storm events (Bosch, Evans, Scavia, & Allan, 2014) and estimations that as much as 90% of the total phosphorus load to rivers draining into Lake Erie could be delivered during such storm events (ECCC & OMECC, 2018; Grow Ontario Together, 2018). As such, the issue is even sometimes likened with climate change in its nature, complexity and the current capacity of the governance system to address it, as a member of a local, watershed-based Conservation Authority, CI-13 indicates:

so we are better off rather than resisting it, it’s a little bit like climate change you know we can still have that argument that human activities aren’t actually responsible for it but we would be a lot smarter to get on with the effects of it because while we are doing that we are probably going to actually improve our economy and our innovation (CI-13).

Even though the groups of actors promoting this storyline include a diverse array of actors in many sectors, many of them represent agricultural organizations and their coalitions (Bowman, 2017; Fertilizer Canada, 2017; Kelly, 2017). One such coalition is the Grow Ontario Together (GOT) coalition, which is a collaboration of major agricultural producers, including the Beef Farmers of Ontario, Grain Farmers of Ontario and the Ontario Federation of Agriculture – the largest farmers’ association in the province (Grow Ontario Together, 2017). Another coalition of actors in the agri-food sector promoting the ‘external drivers’ storyline is Ontario Food and Farm Care, which indicates that,

The issues with Lake Erie are complicated by nature as they involve complex interactions between nutrients and the biological environment they encounter. There are several forms of phosphorus which change as chemical pathways interact on the soil surface, inside of the soil and in the lake itself, along with some new invasive species (Dreissenid and Zebra mussels). It is suspected that these invasive species, about which we know little, have the capacity to affect these pathways (Kelly, 2017).

The sense of mystery ascribed to Lake Erie eutrophication by actors promoting the ‘external drivers’ storyline, based on some scientific understanding of the components of the problem, is often complemented with metaphors used in headlines of reports or news items that further add a sense of obscurity to the issue, as illustrated in these sample of headlines (emphasis added):

- “Algae bloom predicted to *blanket* Lake Erie this summer”
- “*Soupy* algae blooms threatening Great Lakes”
- “The return of the blue-green *slime*”
- “The *slimy* truth: the problem of algal blooms in the Great Lakes”

Given the framing of the issue as a problem whose exact cause-effect relationship is less understood (e.g., the exact contribution of phosphorus from a specific size of farm fields), the ‘appropriate’ solutions are couched in terms of incremental, voluntary, and incentive based ‘business-as-usual’ actions (Bowman, 2017; Fertilizer Canada, 2017). As the problem in this storyline is defined not only as nutrient runoff from farms but also broad in scope and complexity, the solution advocated is also inclusive of all stakeholders irrespective of the contributions to nutrient runoffs (Currie, 2017; McCabe, 2016). As the Christian Farmers Federation of Ontario put it “all citizens in Ontario need to work towards a solution to this complex problem” (Nywening, 2017). Similarly, the Grow Ontario Together coalition proposes that all sectors continue to do their parts:

the ecological health of the Great Lakes and its watershed can be protected and restored through continued stewardship efforts, targeted research, new and innovative technology for wastewater and storm water management, and a commitment to managing the watershed and its resources in a sustainable manner (Grow Ontario Together, 2016).

Some actors promoting the ‘external drivers’ storyline push back against legislative intervention that may be taken ‘in the name of urgent response’ to Lake Erie problems. As CI-22, representing the farming community notes, “we think that the sense of urgency to do something is leading to decisions that could be based on convenience as opposed to actual science or actual potential for improving anything” (CI-22). Similarly, in its written comments to the DAP coordinating office, the Beef Farmers of Ontario indicates that “the consideration of further regulatory restrictions on the application of manure in the non-growing season is out of proportion with the facts and scientific reality” (Bowman, 2017, p. 4). This dominant frame to approaching non-point agricultural runoff in a voluntary approach in this storyline (CI-18; CI-16; CI-17) is also in line with the manner the province’s agricultural ministry defines best management practice (BMP) as “a practical, affordable approach to conserving a farm's soil and water resources without sacrificing productivity” (Ontario Ministry of Agriculture Food and Rural Affairs [OMAFRA], 2017).

The extent to which the actors promoting this storyline succeeded in getting their preferred framings of issues in the final policy document is gleaned from a comparison of the language of the four successive drafts of the DAPs. This includes the period from the initial announcement of the policy and call for public input (EBR: 012-8760) in October 2016 through February 2018 when the final document was released. We observe many instances in which the DAP final policy document changed in language from one where it was declared in the initial policy announcement that “a new approach is warranted” with “ambitious and aggressive actions” to reach the 20% interim reduction target by 2020 (EBR, 2016), to a more subdued language that also eliminates the interim target. With respect to application of nutrients, for example, the statement “Ontario will consider further restrictions” was modified to “Ontario will engage with key sectors as it considers further restrictions” with qualifications that further narrows the scope of those restrictions (ECCC, 2018, p.50). This provides indications of the extent to which actors who presented ‘external factors’ as the main sources of the problem achieved their views reflected in policy in terms of diminished urgency for action.

### **The ‘Weak Governance’ storyline**

This storyline promotes the notion that the problem with the degradation in water quality in Lake Erie has primarily to do with weak or insufficient policies, lack of proper regulatory framework

and enforcement mechanisms, and uncoordinated efforts. It is promoted mainly by the environmental NGO community and some municipal actors whose activities are closely linked to water quality issues in the basin. These actors view weaknesses in governance structures and processes at the provincial and federal levels as the primary factors that led to Lake Erie problems. They point out that due to insufficient coordination, policies that deal with water quality issues sometimes work against each other. Specifically, “there has been inconsistent strategies, regulations and data collecting in various locations across the lake on both sides of the border, making efforts inconsistent” (Battagello, 2018). In addition, this storyline holds that the problems with Lake Erie have resulted in part due to government’s reluctance to mandate agriculture to do its part in addressing nutrient runoffs, making achieving phosphorus reduction targets difficult. As a group of five ENGOs active in Lake Erie eutrophication issues note, “Agricultural actions are mostly status quo and largely inadequate for achieving what will be needed to meet the targets” (Freshwater Future, 2017, p. 3). Actors in the municipal sector, including the city of Windsor, the city of London as well as the Great Lakes and St. Lawrence Cities Initiative argue that governance weaknesses have resulted in a double standard by the province where municipalities are disproportionately assuming the bulk of the responsibility to reduce nutrient runoff operating under a heavily regulated operating regime (CI-14). This storyline further highlights that either mandatory pressures have not been demanded by the province, accepting voluntary actions from the agricultural sector, or there has been very little enforcement of existing regulatory frameworks such as the *Nutrient Management Act* (Province of Ontario, 2002). In an example of this view, the Environmental Commissioner of Ontario notes that “the Government of Ontario’s preference so far for addressing phosphorus in run-off has been through voluntary and unevaluated programs, with questionable effectiveness” (Environmental Commissioner of Ontario, 2017, p. 149).

The actor coalitions promoting this storyline are led by ENGOs such as *Freshwater Future*, *Environmental Defense*, *Canadian Freshwater Alliance*, often working in collaboration with other ENGOs based out in the United States. This linkage with those in the US (e.g. *Michigan League of Conservation Voters* and *Ohio Environmental Council*) is made possible by the shared nutrients related discourse they were promoting on both sides of the lake (Freshwater Future, 2016). This includes activities such as preparing expectation documents, letter writings to the premier as well as organizing webinars to relevant stakeholders. In July 2016, these organizations prepared a detailed 22 page document outlining their expectations for the kinds of issues that the Domestic Action Plan needs to address in relation to their interpretation of the provisions of the GLWQA (2012) and the GLPA (2015) ahead of the official announcement of the DAP policy target in October 2016 (Freshwater Future, 2016). The Great Lakes Protection Act Alliance, which is a coalition of actors with the explicit goal of helping achieve the purposes of the Act by holding government accountable, worked in collaboration with a number of other ENGOs in demanding a stronger response by the province to Lake Erie problems within the framework of the Domestic Action Plan (Great Lakes Protection Act Alliance, 2016). This coalition of actors, collaborating with other ENGOs, also organized a letter-writing campaign that brought hundreds of submissions in response to the call for comments on the Ontario DAP in October 2016 (Agriculture and Agri-Food Canada, 2017). In these submissions and the news media, the ‘weak governance’ storyline is tied with metaphors used by actors in their texts such as “Lake Erie is the ‘poster child’ for eutrophication”; “Lake Erie’s algae *explosion* blamed on farmers” in describing

the problem, and “*Invest* in the environment”; “Looking for *leadership* on water” in highlighting what they see as the core issue.

In terms of policy response, the ‘weak governance’ storyline emphasizes a sense of urgency and the need for immediate action with a strong regulatory framework and legislative action. Actors prompting this storyline oppose the province of Ontario’s approach to agricultural runoffs that is seen as “overly reliant on voluntary adoption of agricultural best management practices” (Great Lakes Protection Act Alliance, 2016). As CI-07 indicates “we don’t need to postpone implementation with more studies first, or at least studies and implementation can happen at the same time”. Such sentiments are also reflected in the news media such as Toronto Star’s editorial titled “Take firm steps to cut phosphorus in Lake Erie” (Toronto Star, 2016), often building on information gathered through interviews with members of the IJC. Similarly, the Ontario Federation of Anglers and Hunters, an organization representing about 100,000 members, calls on the province to prioritize its actions including further restrictions on the application of nutrients (Sucee, 2017). These actors note that “It’s time to ‘get the house in order’” (ON-11) and call for stringent controls on agriculture, requesting the province to embark on an overall strategic framework to manage its nutrient including the adoption of “land use policy reforms to reverse the continuing loss of wetlands in southern Ontario” (Environmental Commissioner of Ontario, 2017).

In examining the extent to which the ideas that this storyline was promoting found expression in the final DAP policy document we only see limited indications that they were. While there are references to the need for a ‘strong’ governance structure to make the plan a reality, what form this structure would take is unclear and mostly relies on existing coordination channels such as the COA (2014). The ‘actions’ section of the final DAP contains sections on ‘ensure effective policies, programs and legislation’, ‘improve the knowledge base’, ‘educate and build awareness’, and ‘strengthen leadership and coordination’. However, looking into their contents these seem to be either continuation of existing programs that are already underway or references to provisions allowed by already existing legislative framework, without any indication so far of a dedicated regulatory framework for the specific purpose of addressing Lake Erie problems.

## **2.5.2 Discourse on Nutrients in Ohio**

In addition to its involvement with Lake Erie eutrophication, Ohio has a relatively long history of problems with nutrient runoffs and algal blooms due to its contributions to hypoxia in the Gulf of Mexico through its Ohio River, as well as nutrient problems in the St. Marys-Grand Lakes watershed (Han et al., 2012; Ohio Environmental Protection Agency, 2018). As such, the issue of algae related problems has been salient for about a decade and especially since 2010, “awareness of nutrient issues has grown dramatically among stakeholder groups” (Ohio Lake Erie Phosphorus Task Force, 2013, p. 3). The Toledo water crisis in 2014 that left half a million people without drinking water due to toxic algae (Wines, 2014) further revealed the seriousness of the issue adding vigor to the debates on the issue and served as “a wake-up call ... a paradigm shift” (CI-36) in the nutrients discourse. A distinct feature of the discourse in Ohio is that, at least since the release of the Ohio Phosphorus Task Force II report in 2013, it has been established among the key policy actors that agriculture as a sector was a significant contributor to the problem (Ohio Lake Erie Phosphorus Task Force, 2010, 2013). This understanding is illustrated for example in the move by Governor Kasich in establishing the ‘Directors’ Agricultural

Nutrients and Water Quality Working Group' in 2011 to study the agricultural source of the problem and possible solutions (Zehringer, Nally, & Daniels, N.D.).

Interview data, various documents and relevant news articles from Toledo Blade, Columbus Dispatch and New York Times provide two distinct but overlapping accounts of the nature of the eutrophication issue and ways of addressing it. They highlight the major contribution by agriculture to the problem and the alleged farmers' reluctance to act, while also emphasizing the uncoordinated and seemingly random approach by the state of Ohio in addressing the nutrients issue.

### **'Farmers are shirking responsibility' storyline**

This storyline holds that despite significant scientific research that found agriculture as the single major contributor to the problem (Ohio Lake Erie Phosphorus Task Force, 2013), the farming community is not doing what is required to address the issue and thus is shirking responsibility. Instead of acting, the members of the discourse coalition advancing this storyline argue that farmers are pointing fingers at other actors. An example of this view was advanced by an interviewee from the municipal sector, who stated, "when you talk with agriculture they point to manicured lawns and septic systems and combined sewers" (CI-34). In the wake of the Toledo crisis, a New York Times article highlights how Lake Erie had been 'long-troubled' and that "some efforts to control pollution have found powerful opponents in agriculture and the fertilizer industry" (Wines, 2014). Even before the Toledo crisis, initiatives were being taken to address agricultural source nutrient issues, but as a senior official in charge of coastal management indicated:

The state of Ohio moved forward with a proposed legislation, rules and things of this sort to mandate certain types of actions and we received very strong push back from the agricultural side, agri-business and their lobbying (CI-36).

The discourse coalition promoting this storyline is led by members of the environmental NGO community such as the Ohio Environmental Council, the Alliance for the Great Lakes and the Environmental Law and Policy Center (Meyer, Davis, & Fleisher, 2017). Other members of this coalition include downstream municipal actors such as the City of Toledo, Lucas County, Lake Erie Chartered Captains Association as well as other ENGOS such as the National Wildlife Federation, Lake Erie Foundation and Advocates for Clean Lake Erie (National Wildlife Federation, 2015; Szollosi et al., 2015). In addition to blaming the farming community, proponents of this storyline also accuse the Ohio Department of Agriculture (ODA) and the Kasich administration for failing to mandate farmers to take action, as illustrated in the news media (Henry, 2014b; National Wildlife Federation, 2015). They point out that even though the main goal of the *Ohio Directors' Agricultural Working Group Report* was to address the increasing severity of nutrient pollution coming from agricultural sources, the report still upheld that "it was imperative that agricultural production in Ohio be maintained" (Zehringer et al., N.D.). Many in the ENGO community noted that the "main theme, unfortunately, for ODA is its continued reliance on voluntary action to solve the problem" (Meyer et al., 2017). Similarly, the downstream municipal actors maintained that

The agricultural community has a long way to go in both accepting that there is a problem, accepting that agriculture is playing a significant role towards that problem and then turning the corner to change practices in a way that will positively affect the Lake (CI-51).



Furthermore, these actors point out that Ohio's approach to addressing Lake Erie problem puts strict requirements on wastewater plants even though the municipal sector has a far smaller contribution to the problem (Tuholske & Kilbert, 2015). They also accuse the state of Ohio of siding with farmers in only calling for incentive-based voluntary actions in the agricultural sector even though there has not been evidence that voluntary actions have helped to curb harmful algae (Hoornbeek, Filla, Venkata, Kalla, & Chiyaka, 2016). As such, these actors argue that in the end, the solutions might "come down to how much longer Ohio's powerful agricultural industry can fend off efforts to impose stricter regulations on it" (Henry, 2014b). The farming sector is sometimes depicted in this storyline as a 'sacred cow' that cannot be challenged. For example, Paul Krugman, writing in the *New York Times*, describes the Toledo incident as resulting from the pursuit of economic interests in the name of the ideal of unfettered 'freedom' (Krugman, 2014).

In terms of a policy response to the problem, the 'farmers are shirking responsibility' storyline emphasizes immediate call for action that includes scaling up of BMPs to unprecedented levels, mandatory regulatory intervention, enforcing or enacting stronger regulations on the agricultural industry as well as stricter control on manure and fertilizer management (Meyer et al., 2017). As a member of the Soil and Water Conservation District (SWCD) notes, this push would need to become part of a larger and more effective movement to "counter those who will say, well, we are doing the best ... whereas the larger voice can say we need to do more" (CI-28). Actors with close physical connection to the lake either as part of their daily lives or because of the way they make a living emphasize this need for strong action: "we can't screw it up any more than we already have" (CI-36). The focus of this call for action by the agricultural sector has also been directed at the state government as well because "until you enact provincial or state laws to govern or restrain, you can't do much against agriculture" (CI-61). The Board of Lucas County Commissioners similarly argued that achieving Ohio's goal of nutrient reduction was best achieved through a Western Lake Erie basin Total Maximum Daily Load procedures under the Clean Water Act further commissioning two legal scholars to study possible *Legal Solutions to Lake Erie's Harmful Algal Blooms*" (Tuholske & Kilbert, 2015; Wozniak, Gerken, & Contrada, 2016).

When the final Ohio DAP document was released in early 2018, it did not provide any provisions to mandate the farming sector to act towards reducing nutrient runoffs as both the federal DAP and Ohio DAP stayed clear of any regulatory provisions. It states that the Ohio DAP "does not establish any new legislation, rule, or enforceable standard. Rather, the actions listed in the DAP propose or describe recommended changes..." (OLEC, 2018, 7). However, an important provision related to this storyline's push for regulatory approach was the provisions made to develop a method for assessing the open waters of Lake Erie so as to determine whether the required data exist to determine whether the lake qualifies for 'impaired' designation. This is reflected in the following excerpt from the DAP:

Ohio EPA will develop, in cooperation with USEPA and scientific researchers, a method for assessing the open waters of Lake Erie. This will include evaluating what data is available, what threshold(s) should be met for listing as impaired as well as de-listing, and which beneficial use assessments can be supported (OLEC, 2018 p. 23).

### **The 'Random Acts of Restoration' Storyline**

This storyline promotes the notion that the problem with eutrophication in Lake Erie is not so much that nothing is being done by concerned authorities and other stakeholders to address it, but

rather the main issue is that efforts have been fragmented, random and inefficient: a problem of coordination. The actors promoting this storyline point to multiple state and local expenditures in addition to the annual \$300 million that was allocated federally through the Great Lakes Restoration Initiatives that have still not solved Lake Erie problems (McCarthy, 2015). They argue that the large sums of money already expended in Lake Erie basin for the purposes of nutrient reduction and drinking water treatments, which the Ohio Lake Erie Commission estimates at more than \$3 billion in the period 2010-2016, was proof of the lack of coordination mechanisms (OLEC, 2017). When a working group jointly commissioned by the directors of Agriculture, Natural Resources, and Ohio EPA to address agricultural runoff issued its report in 2012, three out of the five major issues it identified directly relate to the issue of coordination: “State and federal resources are not fully aligned”; “Education and communication have been lacking”, and “Research is fragmented” (Zehringer et al., N.D.). The report further highlighted that the working group came across many instances of “fragmented government and nongovernment resources and programs”. In essence, some actors argue, even though there is a large number of projects and programs undertaken with the leadership of federal, state and local governments as well by watershed groups and other ENGOs there was no clear direction to which these efforts contribute (CI-36). A former official with the Ohio EPA (CI-30) indicates that “some people have their pet programs that they want to advocate for” and this lack of coordination “reflects a potential deficiency in current organizational arrangements for nutrient control” (Hoornbeek et al., 2016, p. 35).

Actors who promote this storyline further point out that not only were relevant projects and programs not well coordinated by the concerned agencies but, as a researcher with Ohio State University (CI-33) indicates, the advice given by ‘experts’ to farmers on what BMPs to adopt may also have been fragmented or even conflicting. Research on improving best management practices was found to be “fragmented among various universities, and even across multiple departments within the same university” (Zehringer et al., N.D., p. 3). Moreover, actors promoting this storyline argue that there is some level of ‘silo mentality’ among agencies working in the whole nutrients issue: “we call them random acts of restoration” (CI-36). Furthermore, some policies, such as the 2005 US biofuels policy are viewed as giving farmers the wrong incentives to produce more, farm even marginal lands that require significant amounts of phosphorus, and displace other less nutrient demanding crops with corn, which requires relatively more amounts (Jack Faucett Associates, 2017). In addition, crop protection programs that guarantee payments to farmers are seen as encouraging the farming of marginal lands that are vulnerable to erosion that delivers phosphorus to the lake. US Congresswoman from the Toledo area, Rep. Marcy Kaptur laments that “there’s a state responsibility here that is very haphazard, very hit-or-miss” (Henry, 2016).

The policy response that the ‘random acts of restoration’ storyline calls for is a focus on increasing coordination, efficiency and transparency of effort, including efforts to cooperate with the farming community as well. The actors advocating for this response include the Ohio Lake Erie Commission, the Ohio Department of Agriculture as well as various agricultural groups such as Ohio Soybean Council and Ohio Agribusiness Association (Ohio Farm Bureau Federation, 2017). The Ohio Lake Erie Commission acting as the main coordinating entity works in collaboration with the various state agencies, federal agencies, and other partners, a long list that includes 17 agencies that are actively and directly involved in with specific tasks on nutrients issues in Ohio (Hoornbeek et al., 2017). However, many actors see it as lacking the required

authority to act as a true coordinating body that can also provide leadership enough to save Lake Erie, leading some groups to call for

a Lake Erie Tsar... one person, where all the information from all the different factors, all the different universities go to and all the government agencies go to, to coordinate and to identify and to act on those (CI-61).

In addition to improving the coordination of individual efforts, this storyline calls for bringing in a basin-wide organizing framework through the Clean Water Act's (1972) Watershed Impairment Designation. Such calls build on the IJC's (2014) calls for similar actions. In 2015, a group of ENGOs including the National Wildlife Federation, Alliance for the Great Lake, Ohio Environmental Council and Lake Erie Water keepers called upon the EPA to designate the WLEB as 'impaired', and subject it to procedures under Clean Water Act's 303(d) list. They noted that in by postponing the declaration of western Lake Erie basin as 'Impaired' due to nutrients, "EPA has failed in its duty to protect Lake Erie and the people and wildlife which depend upon it" (Szollosi et al., 2015, p. 1).

This storyline seems to have been accommodated in the final DAP policy document to a significant extent. This can be seen in the emphasis on term 'coordination' and the need for projects and programs to be continuously directed towards addressing coordinated or stated priority issues (Ohio Lake Erie Commission [OLEC], 2018). The term and its derivatives (e.g., coordinate, coordinated) appears 34 times within the 29 pages in the DAP main document (Ohio Lake Erie Commission [OLEC], 2018). Furthermore, the emphasis on the need for coordination was clear:

Being able to track the expenditure of public and private dollars going toward nutrient reduction is critical to determining the effectiveness and efficiency of those expenditures. Improved coordination of where dollars go and improved accountability for results observed will be a high priority of the DAP (OLEC, 2018, p.21).

Another significant provision of the final DAP that is in line with establishing an overarching coordinating framework that this storyline promoted could be seen in the provisions made in the final DAP document for potential designation of WLEB as impaired.

## **2.6 Discussion**

### **2.6.1 Storylines define policy problems and assign responsibilities**

The case studies detailed above shed light on how storylines help to construct issues into different policy problems that require different approaches in addressing them. They also provide insights into the formation and evolution of discourse coalitions as well as the activities they engage in to influence policy. The two cases show some similarities and differences in the way the storylines constructed eutrophication issue into a more defined 'problem' that specifies the source of the problem, the culprits for the problem, as well as the best courses of action. The 'weak governance' storyline in Ontario and the 'random acts of restoration' in Ohio are similar in their conceptualization of the problem as well as the desired solutions; both consider the governance structures and processes in the two regions largely to blame for the algal bloom issue. They do this differently, however. The 'weak governance' storyline relies on the argument that for a long time, the water governance system in Ontario has been fragmented due to lack of institutional coordinative mechanisms among federal and provincial mandates and among provincial ministries dealing with water (C. Cook, 2014). Until the *Great Lakes Protection Act* came into

effect in 2015 – the same year that the province signed a collaborative agreement with Ohio to reduce runoffs by 40% – there was no province-wide regulatory framework targeted at reducing nutrient runoffs to Lake Erie. This storyline overlooks the importance of the Canada-Ontario Agreement as an institutional coordinative mechanism that brings together up to ten federal and provincial ministries that have a stake in the Great Lakes. Proponents of this storyline argued that the federal government had essentially downloaded its responsibilities to the province, which happens to have limited financial and human resources to undertake monitoring, enforcement and research activities necessary to keep the health of the lake (Heinmiller, 2017).

While the ‘weak’ governance storyline in Ontario emphasized the limited commitment by provincial and federal governments, the ‘random actors of restoration’ storyline in Ohio emphasized the lack of coordination among state agencies themselves and with federal departments in effectively administering the significant amounts of financial resources being allocated annually by both levels of government (Sracic & Binning, 2016; Zehringer et al., N.D.). This lack of effectiveness, despite up to \$3 billion expended in the period 2011-2017 in Ohio’s Lake Erie basin to address nutrient reduction and drinking water treatment, is also linked to the government providing the agricultural sector with incentives to act without requiring them to address nutrient runoff in a mandatory fashion. This position, also articulated in the ‘farmers shirking responsibility’ storyline, emphasizes that the institutional and regulatory framework has been especially weak when it comes to demanding action from the agricultural sector. In this storyline, the farming community is assigned blame for failing to act responsibly on a shared resource, while the government is blamed for not taking bold actions to establish mechanisms where delinquent actors could be held responsible. As such, both the ‘farmers shirking responsibility’ and the ‘random acts of restoration’ invoke the same notion of lack of leadership from governmental actors in protecting the environment (Metze & Dodge, 2016).

Unlike the other storylines whose proponents have a specific actor that bear the bulk of the blame, with the ‘external factors’ storyline, there is no single actor that is held responsible as the main culprit to the problems in Lake Erie. This storyline deflects focus and blame away from any single actor and puts it in complex interrelationships among biophysical and climatic factors which act externally to the governance system. Proponents call for a gradual adaptation of the governance system, including the agricultural sector to the effects of climate change and other factors, such as invasive species which may take many years. Thus, we can see the significant role of storylines in supplying the policy process with a more or less coherent account of a policy issue from the broad and generic discourse around nutrients. They do this by emphasizing some aspects of the problem while ignoring or overlooking other aspects in attributing cause, responsibly and the most appropriate response. In this way, they construct relationships among social and ecological agents so as to attribute causes and responsibilities, often with the help of metaphors that condense and simplify large amounts of information. Such analyses of storylines provides us with insights into, and a more nuanced understanding of the policy process related to eutrophication issues and water quality.

## **2.6.2 Discourse coalitions reflect broader patterns of societal discourse**

One identifying feature of discourse coalitions is that to some extent, they are not bound by geographic proximity and as such policy influence from discourse coalitions in a given national or subnational context can come from outside that specific policy setting. In the case of the DAP policy in Ontario, we observe many instances of the ENGO community based in the United States

working in alliance with other ENGOs in Ontario through activities such as preparing expectation documents, letter writings to the premier as well as organizing webinars to relevant stakeholders. They also pushed for the provincial government to respect and adhere to the stipulations of the GLWQA in drafting its DAP. Hence, in as much as the views and the discourses pushed by the ENGO community in Ontario played a role in shaping the final policy output those influences also came from across the border (Murdoch, 2004). Moreover, even though it is not an ENGO, the IJC has provided crucial vocabulary and language, which the ENGOs pushing for more stringent approaches benefited from. Unlike government scientists or other officials in Ohio and Ontario, the IJC staff seem to not have the fear of the potential politicization of their statements by the media or worry about the ‘tone’ of their comments as other politicians might have. This benefit is seen in their statements describing the seriousness of the eutrophication problem, impacts for the environment or the level of commitment needed to adequately address the issue (e.g., impaired designation for Ohio’s WLEB). Such bolder calls provided actors with seemingly legitimate ideas and terms for argument in their demand for more action. In this regard, this binational advisory body seems to have influenced the discourse around the policy process and constituted an important constituent of those discourse coalitions demanding more action and thus may have played an important role in shaping the nature of the nutrients discourse in both regions (Metze & Dodge, 2016).

The literature on discourse coalitions emphasizes the key role that ideas and metaphors play in organizing and holding discourse coalitions together (Mander, 2008; Metze & Dodge, 2016; Rantala & Gregorio, 2014). In these accounts, the role of interests is either mostly sidelined or discourse itself is understood to dictate interests (Hay, 2011; Kern, 2011). In our results, even though we saw a commonly held perception of the issues bringing actors together it is difficult to attribute only to the ideas promoted by those actors. The role of interests also seems to have played a role in bringing some of the members of the coalitions together. In the case of the ‘externals factors’ storyline in Ontario and ‘random acts of restoration’ storyline in Ohio, it seems that it was the interests of the farming community in avoiding regulations to have been the principal reason for them in promoting those storylines (Huitema, 2002; Kern, 2011). Moreover, governments in both Ohio and Ontario seem to have prioritized protecting agricultural production and the economy in general in their approaches to environmental protection. Thus in our cases, we see an interplay of ideas and interests in bringing actors together in promoting a preferred policy response.

An important finding in this study is that even though we can observe various ideas at play within the broad eutrophication related discourse, almost all of them share common elements of the broader ‘meta-discourse’ of liberal environmentalism that predicates “environmental protection on the promotion and maintenance of a liberal economic order” (Bernstein, 2002, p. 1). This is based on the observation that even those actors who are considered strong advocates of nature and the environment still seemed to have used similar terms in their argumentation in the policy process as other mainstream economic sectors (Bingham, Sinha, & Lupi, 2015). Even though there were some actors who frame their preferred approaches in terms of ‘deep ecology’, expansion of wetlands, whole farm system transitions, and ecological farming, their positions nevertheless seem to be only peripheral. Most of the debate seems to revolve around what the ‘right mix’ of voluntary, incentive-based and regulatory instruments need to be adopted for improved ‘efficiency’. This may be because those with positions at odds with the prevailing discourse often find it necessary to engage in self-censure and reformulation of their message in

order to “squeeze in, to gain entry and a measure of legitimacy” (Torgerson, 2005, p. 114). References in the Domestic Action Plans to environmental protection efforts as ‘investments’ as well as measuring them in terms of future monetary returns in dollar amounts also indicate the influence of the neoliberal paradigm. Thus, the influence of the globally dominant liberal environmentalism that promotes the harmony and mutual coexistence of continued economic growth and environmental protection seems to have found expression within the water quality related discourse in the Great Lakes basin as well.

### **2.6.3 The varying impacts of discourses on the DAPs**

The four major storylines identified and discussed above have had differing impacts on the language and the substantive content of the Domestic Action Plans in the two jurisdictions considered. The change in language has been mostly in the way phrases and expressions were modified and edited in successive iterations of the draft documents of the DAPs so as to convey a more subdued and less ambitious policy commitment from the perspective of ensuring the ecological integrity of Lake Erie ecosystem. In both cases, the DAPs especially steered away from putting the onus on the one major source of nutrients runoffs: agriculture. There were many indications of the extent to which actors who promoted the ‘external factors’ and the ‘random acts of restoration’ storylines became successful in achieving their conceptualizations of the issues reflected in the final versions of the DAPs. This largely meant the continuation of the current pace of actions in a mostly voluntary approach thus diminishing the urgency for action. We see that the proponents of these storylines have largely been members of the agricultural community and the respective governmental departments in charge of the development of this sector. Instead of singling out the agricultural industry for intervention, as the science shows this sector to be the primary source for nutrient pollution, in both Ontario and Ohio emphasis was put on “partnering” and “coordination”. The Ohio DAP noted that improved coordination was going to be of “a high priority” while at the same time spelling out that the DAP was not meant to establish any rule or enforceable standard. Thus, we see differing influences of storylines in the two jurisdictions on the policy commitment that had the ultimate goal of ensuring the ecological integrity of the shared body of water, Lake Erie. The storylines thus may have impacts on the very effectiveness to achieve such goals with how they may have influenced the content of the DAP itself.

## **2.7 Conclusion**

This paper shows the significant influence that discourse plays in the policy process. It provides insights into how storylines can construct a broad issue into a ‘problem’ with identifiable cause-effect relationship and assign responsibilities to actors. This study also shows how specific conceptualizations of problems make certain responses look more appropriate than others. A storyline can also deflect focus and blame away from any single actor and put it in a web of complex interrelationships among biophysical and climatic factors which act externally to the governance system. Such conceptualizations have important implications to the extent and level of urgency with which policy actors may respond to environmental issues. As such, we can see the significant role that storylines have in supplying the policy process with a more or less coherent account of what is at stake and what needs to be done. This provides us with a nuanced understanding and a richer appreciation of the argumentative nature of many environmental policy processes.

This study also provides important insights in relation to how discourse coalitions form and their impacts on the policy process. We observe that even though ideas, narratives and metaphors play an important role in holding discourse coalitions together the role of interests also needs to be given due attention. The observation that geographic proximity may not deter policy actors from influencing the policy process from afar is also something that the policy studies community, as well as decision makers in specific jurisdictions, need to pay attention as well (Zelli et al., 2019). This concern is especially significant because governments typically work to further the interests of their constituents within political boundaries or other geographically delineated jurisdictions. The potential for policy influence from other jurisdictions raises important questions on who gets to have a voice enough to be considered in the policy process. The manifestation of the ‘meta-discourse’ of liberal environmentalism brings with it conceptual issues on the extent to which actors can influence discourse around specific environmental issues, invoking agency-structure debate in the broader social sciences. This study thus provides important insights that support the usefulness of the concept of discourse to a better understanding of freshwater policy and governance. It also contributes to illuminate the challenges associated with policy efforts towards sustainable resource use and sustainability in general.

## Chapter 3

### Discursive Influence of Actors on Policy: A Case of Agriculture in Lake Erie Basin

This paper comprises a manuscript for a refereed journal article that will be submitted to *Journal of Rural Studies*.

#### Abstract

Policy processes traditionally dominated by government are opening up to participation and influence by non-governmental actors. Thus, concerns may arise regarding whether the potential for such actors' undue influences are appropriately recognized within the democratic process. In response, approaches to understanding environmental policy increasingly focus on the roles played by non-state actors by examining their various capacities for influence and the potential for exclusion or domination of some parties. While the literature has emphasized the instrumental and structural powers that actors may have in influencing environmental policy processes, we lack a clear understanding of the role of discursive forms of influence. This weakness is especially the case in freshwater governance contexts. We use insights from critical discourse analysis and framing theory to assess the discursive capacity of two policy actors and how they exert influence within the policy process to develop domestic action plans (DAPs): the Ontario Federation of Agriculture and the Ohio Farm Bureau. We assess the two cases in an empirical policy setting to address nutrient runoffs that cause eutrophication problems in Lake Erie, an important freshwater resource shared by Canada and the United States. We complement the focus on the discursive influence of these actors with a study of their material and organizational capacities to achieve a more complete picture of their influences. Results from analyses of relevant documents, interviews, news media, and other sources suggest that the agricultural industry's discursive influence on the policy output was supported and enabled by its material and organizational capacities. Such capacities were also enabled by the structural advantage that such actors held in the sociopolitical and economic systems in their respective regions. This study provides insights into the different forms that actors' influences may take in a policy process that brings together a diverse set of stakeholders. It also shows how the two organizations may have influenced the final content of the domestic action plans in Ontario and Ohio.



### 3.1 Introduction

One of the tools modern governments employ in their efforts to avoid or remedy environmental pollution is the development and implementation of policy (Desai, 2002; Fischer & Black, 1995; Glasbergen, 1998). Traditionally, governments have had a dominant, if not the exclusive, purview of policy processes (Howlett & Ramesh, 1995). However, in the last several decades, and especially with the advent of environmentalism in the 1970s, the policy process has increasingly opened up to significant influence by non-governmental actors (Arts et al., 2010; Dryzek, 1997). Hence, approaches to understanding environmental policy have also been increasingly focusing on the roles played by non-state actors (Hajer & Wagenaar, 2003; Innes & Booher, 2003). This growing involvement of a diversity of actors raises concerns not only about the relative power of participants in such processes but also about “the potential for exclusion or domination of some parties” (Purdy, 2012, p. 409). This is because in addition to having varying capacities for influencing outcomes there are also various forms that such actors’ powers can take which the policy process may not adequately account for.

An important strand of research analyzes the influence of these actors in terms of their powers as manifested in three dimensions: instrumental, structural and discursive (Lukes, 2005; Morrison et al., 2019). The instrumental dimension focuses on visible forms of power such as having the financial capacity to influence decision making through lobbying efforts (Dahl, 1957). The structural dimension draws our attention to the ability of some actors for agenda-setting, for example, due to the dependence of policymakers on private-sector for investments and job creation (Bachrach & Baratz, 1962). The literature on the power and influence of actors, especially in environmental policy and governance has traditionally focused on the first two dimensions noted above (Fuchs, 2007; Levy & Newell, 2002; MacDonald, 2007). Such approaches, despite their usefulness in highlighting why certain courses of action are undertaken by policy makers and why certain issues never appear on the agenda, mainly focus on observable conflicts of interest and material structures as the basis for influence. The third dimension, on the other hand, draws our attention to the ways that discourse, as a dominant frame of meaning, can structure the context, norms, and accepted ways of doing policy within which decisions and non-decisions happen.

Discursive influence of actors in environmental policy is often manifested both during the process of policy formulation as well as the implementation of contentious policy programs (Jacobs, Kemeny, & Manzi, 2003; Murdoch, 2004; Van den Brink & Metze, 2006). In arguing for the understanding of policy change as a discursive problem, Zittoun (2009) contends that the production of the discourse of change and its justification is one of the main tasks for those actors trying to influence other actors and transform public policies. Hajer refers to these attempts by actors to bring in their ideas and preferred meanings of the elements of a problem to the policy process as ‘discursive struggles’ (Hajer, 1995; Runhaar et al., 2013; Stevenson, 2009). This struggle is not only about the rigor and relevance of competing ideas to the policy process. The resolution of this struggle often “is related more to the abilities and resources of competing actors than to the elegance or purity of the ideas they hold” (Howlett & Ramesh, 2003, p. 121). However, the question of how the material capacity and the structural advantages actors have support their strategic use of discourse in environmental policy contexts has not been the focus of much scholarly research in the environmental policy literature (Carstensen & Schmidt, 2016; Feindt & Oel, 2005; Wesselink et al., 2013). A systematic review of the literature by Brisbois and

de Loë (2015) for example, shows the dearth of research addressing discursive power in collaborative water governance contexts. Others have also pointed out the need for more research in order to further clarify the concept of discursive power as well as empirically examine how it is exercised in real-world environmental policy and governance contexts (J. Cook, 2015; Kashwan, 2016).

In this paper, we use insights from Critical Discourse Analysis (CDA) and framing theory to assess the discursive capacity of actors and how they exercise it in a policymaking context (Donoghue, 2018; Mattheis, 2017). The aim is to better understand the concept of discursive power through the study of actors' material capacities and strategic use of language to frame issues in pursuit of their goals. This approach is applied in an empirical setting related to water quality policy issue in Lake Erie basin shared by Canada and the United States. Eutrophication and harmful algal blooms in Lake Erie resulting from excessive phosphorus runoffs have put the agricultural industry under increasing pressure due to mounting evidence identifying non-point source runoff as the major contributor (International Joint Commission, 2014; Michalak et al., 2013). As both national governments, and Ontario and Ohio at subnational levels, are addressing this issue by developing policies that involve diverse groups of actors, we analyze the role and influence of two major actors in this policy process: The Ontario Federation of Agriculture (OFA) and the Ohio Farm Bureau (OFB). These two organizations represent the largest agricultural advocacy groups in each region as well as the priority watersheds (Thames watershed in Ontario and Maumee watershed in Ohio) that have been identified as the main sources of nutrient runoffs (OFA, 2017; OFB, 2017). Results from analyses of documents, interviews, the media, and other relevant sources suggest that over the period 2010-2018 the agricultural industry has evolved in its material and discursive response to the nutrients runoff issue both in acknowledging its role in contributing to the problem as well as its actions geared to addressing it. Results show that actors' discursive influence in environmental policy processes that involve many stakeholders are supported and enabled by their material capacities (Fuchs & Glaab, 2011).

### **3.2 Discursive influence in watershed-based policy process**

In both the scholarly literature as well as policy practice, the watershed scale has been popular as the most appropriate unit for integrated and collaborative resource management efforts in the last three decades (Sabatier, Leach, et al., 2005; Tortajada, 2014). There has also been increasing focus on the 'collaborative' aspect in these approaches without much appreciation of the political nature of many issues that are dealt within those contexts (Ansell & Gash, 2007; Lubell et al., 2002). Highlighting the importance of 'embracing' watershed level politics, Schlager and Blomquist (2008) make a compelling argument for engaging with power and politics as well as situating them within policy processes at scales higher than the watershed unit. Even though collective choices made at the watershed scale are ultimately political choices, appropriate political and power-focused explanations and analyses have been largely missing in watershed-based water governance approaches (Harrington, 2017; Lemos & De Oliveira, 2004; Molle, 2009).

The lens of power and politics in watershed-based water governance is important because, as Huitema et al. (2009) note, patterns of policy development and institution building often end up reflecting power asymmetries present in those contexts rather than promoting sustainable resource use. Moreover, designing rules and regulations for environmental protection from

scratch is difficult because of the resistance by actors with vested interests in the present arrangements (Epstein et al., 2014; Molle, 2009). Actors' differential capacities in material and non-material resources are often reflected in their ability to shape the meaning and acceptability of the terms of engagement, in setting the appropriate agenda, and their overall influence in the collective rulemaking process (Cleaver & de Koning, 2015; Fuchs & Glaab, 2011). As such, a meaningful understanding of water governance at the watershed level requires a careful study of the varying capacities and powers of actors to influence policy processes and how such influence is exercised (Cascão & Zeitoun, 2010; Self & Penning-Rowsell, 2017; Theesfeld, 2011).

The increased involvement of actors in watershed-based policy processes brings with it the question of whether both overt and covert capacities are being acknowledged in deliberations as well as decision-making processes (Harrington, 2017; Morrison et al., 2019). Over the past two decades, we have seen an increased scholarly interest in the nature and role of power in collaborative water governance processes (Choi & Robertson, 2013; Purdy, 2012; Theesfeld, 2011). The concept of power, as understood in sociology and political science, is very broad (Dowding, 2012; Haugaard, 2012; Haugaard & Clegg, 2009). One useful understanding of power is to view it as having three 'faces' or dimensions (Lukes, 2005). The first dimension, instrumental power, enables actors to pursue their goals by employing their material capacities, such as economic and financial resources. Structural power, the second dimension, emanates from actors' dominant social position or their essential roles in the market economy (e.g., investments and job creation) and helps them achieve desired objectives by making favorable alternatives also attractive in the eyes of decision makers. Discursive power, the third dimension, manifests itself in how some actors are better positioned to shape the prevailing ideas, norms, and preferences that serve as the social context for decision making (Clapp & Fuchs, 2009; Levy & Newell, 2005). Discursive power in an environmental policy context is thus the capacity to influence policies and political processes through the shaping of perceptions, attitudes, values, and ideas in a way that makes favored practices or alternatives appear as the 'common good' (Fairclough, 2015; Fuchs & Kalfagianni, 2009).

While scholars are increasingly recognizing how the power dimension of discourse might affect decision making processes involving a multiplicity of actors (Morrison et al., 2019), Leipold and Winkel (2017) note that much of the literature on discursive influences focuses on the structural aspects of discourse. Thus, they call for more attention to the agency of actors and the exercise of their discursive capacities. In this regard, it is important to attend to the discursive practices of actors in relation to the other two dimensions of power as they all tend to complement each other (Fuchs & Glaab, 2011; Swartz, 2007). This is why some scholars have argued that classifying power into discrete categories should be done only for analytic purposes (Zeitoun & Allan, 2008). For instance, in the current era of 'information age' economic capacity allows some actors to propagate and strengthen their preferred ideas through repetition and reproduction of those ideas in the media (Fuchs, 2013). As Newell and Levy (2006) show some business actors for example, engage in environmental sustainability initiatives to depict themselves as responsible stewards of the environment; they may construct their products as 'green', thereby giving assurances to the public about the fundamental harmony of economic and environmental interests (Clare et al., 2013; Dauvergne & Lister, 2013; Lenihan & Brasier, 2010).

Unfortunately, despite its importance, the concept of discursive power has attracted only limited attention in the field of water governance (Brisbois & de Loë, 2015; Self & Penning-Rowsell, 2017). There is even more limited understanding of how exactly actors exercise

discursive power in policy contexts related to water quality policy (Leipold & Winkel, 2017). This paper contributes to filling this gap in scholarship by providing an enhanced understanding of the discursive dimension of water quality policy processes wherein a diverse group of actors with unequal capacities are brought together in a policy development context in Lake Erie basin. Such an understanding may help in overcoming the many challenges in sustainable resource governance that have their roots in the social and political domains.

### **3.3 Water Quality Policy in Lake Erie basin**

The issue of water quality in Lake Erie has increasingly been a concern over the last decade due to nutrient pollution (Ohio Lake Erie Phosphorus Task Force, 2010). This is attributed to the excessive runoff of nutrients, especially phosphorus, from various watersheds in the basin entering the lake and resulting in nuisance and harmful algal blooms (Bosch, Allan, Selegean, & Scavia, 2013; Kerr, DePinto, McGrath, Sowa, & Swinton, 2016). In 2011, the western portion of the lake saw a record level of algal blooms, with an area of more than 5,000 km<sup>2</sup> covered in a mass of algae (IJC, 2014). This record was again broken by the algal bloom in 2015 causing degradation in water quality that has had impacts on humans as well as fish and wildlife populations and their habitats. In August 2014, the City of Toledo in Ohio, along the shores of Lake Erie, had to issue a ‘do not drink’ advisory to almost half a million of its residents (D. Smith et al., 2015). This was due to the presence of harmful toxins, produced by Cyanobacteria found in blue-green algae, which entered the system through the intake pipes on the lake and resisted the treatment process (Hoornebeek et al., 2017). Many beaches were also fouled, pipes clogged, and the lake’s important commercial fishery was increasingly put at risk, leading to significant economic and environmental costs (Environment and Climate Change Canada [ECCC] & Ontario Ministry of the Environment and Climate Change [OMECC], 2018). The increases in phosphorus levels were further complicated by other contributing factors such as the introduction of invasive species, e.g., zebra and quagga mussels; changes in agricultural production systems; changes in land use and increased urbanization; and climate change (Michalak et al., 2013; Pagnucco et al., 2015).

Canada and the United States, the two countries sharing Lake Erie, have been working in a collaborative fashion to protect the ecosystem health of the lake for many decades (IJC, 2014). In 1972 they signed the Great Lakes Water Quality Agreement (GLWQA) with the goal of restoring and enhancing water quality of the Great Lakes and revising in 2012 (Botts & Muldoon, 2008; Grover & Krantzberg, 2014). At a sub-national level, the province of Ontario has been working on nutrient management issues with initiatives such as the Nutrient Management Act of 2002 and soil improvement programs such as Environmental Farm Plan and the Great Lakes Agricultural Stewardship Initiative (OMECC, 2016). Similarly, the state of Ohio has been dealing with nutrient issues with programs such as Lake Erie Protection and Restoration Plans and Ohio Nutrient Reduction Strategy, which is an outgrowth of Ohio’s participation on the Mississippi River/Gulf of Mexico nutrient reduction efforts (LERP, 2000; OEPA, 2016).

In the revised 2012 GLWQA the threat to Lake Erie by algae from excess nutrients was duly recognized and the parties agreed to establish new phosphorus loading targets for Lake Erie by 2016 (Objectives and Targets Task Team, 2015). In addition, they agreed to develop plans by 2018, known as Domestic Action Plans (DAP), specifying how they intend to achieve those targets (EPA & ECCC, 2016). In 2016, the phosphorus loading reduction target of 40% by 2025

from the waters entering western and central Lake Erie basin from 2008 levels was adopted by the two countries. At the subnational level, the province of Ontario agreed with the states of Ohio and Michigan to work collaboratively to reduce loadings with a similar numerical target. In both regions agriculture has been identified as a major source of nutrient runoff from applications of commercial fertilizers and manure in the mostly agricultural landscape (Bosch et al., 2014; Kerr et al., 2016). Hence, the policy process to address the nutrients problem - the Domestic Action Plan process - in both Ontario and Ohio has made agriculture one of its main objects for policy intervention. The policy instruments being considered to help achieve targets range from 'soft' approaches such as encouraging voluntary adoption of Best Management Practices (BMPs) with monetary incentives to harder, regulatory interventions such as ban on nutrient application under certain conditions (Environmental Commissioner of Ontario, 2017; Ohio Lake Erie Commission [OLEC], 2018).

In the face of such interventions, the agricultural community has been working to engage with the overall nutrient reduction effort as well as alleviate the possible impacts of such interventions on the sector's economic interests (Zehringer et al., N.D.). There are indications that groups that represent the interests of farmers in a formal and organized manner have been working to discursively influence the nutrient runoff reduction policy effort. This paper takes the case of the two largest farm organizations in Ontario (Ontario Federation of Agriculture) and in Ohio (Ohio Farm Bureau) to assess how discursive influence on policy could be exercised by key actors in the context of water quality policy in the Great Lakes basin.

### **3.4 Conceptual Approach**

In the context of environmental policy making, a diverse array of actors may attempt to influence the process at various stages in the policy cycle (Howlett & Ramesh, 2003; Kingdon, 1984). Ostrom calls this policy arena wherein struggles for influence occur an 'action situation' (Ostrom, 2011). As the basis for such influence could take many forms there are various perspectives in the policy studies literature on the main actors considered central in this process and how their influence is manifested (Petridou, 2014; Sabatier, 2007; Schlager & Weible, 2013). In line with an interpretivist research approach, we have adopted a perspective that accords the study of actors and their discourse about the policy issue a central focus in the policy process (Leipold & Winkel, 2017; White, 1994). This is because producing discourses of change is considered a "fundamental activity for actors trying to influence other actors and transform public policies" (Zittoun, 2009, p. 65). These actors may draw on, and use, discourse strategically to advance their policy goals (Fischer, 2003; Rydin, 2003). Examining the specific discursive activities that are performed by actors in their attempts to influence policy requires the study of their discourse more broadly and the specific linguistic devices they may employ more specifically. Zittoun (2009) indicates that this particular niche – the discursive approach to policy analysis – is not yet well developed. This paper contributes to this research perspective with the use of a conceptual framework inspired from the literatures on critical discourse analyses and framing theory that, together, provide useful tools for the study of discursive practices (Benford & Snow, 2000; Rein & Schön, 1996). Employing such an approach allows one to assess how actors promote environmental discourses that may either enable or constrain "the available policy options and the range of legitimate actors for its resolution" (Feindt & Oel, 2005, p. 169).

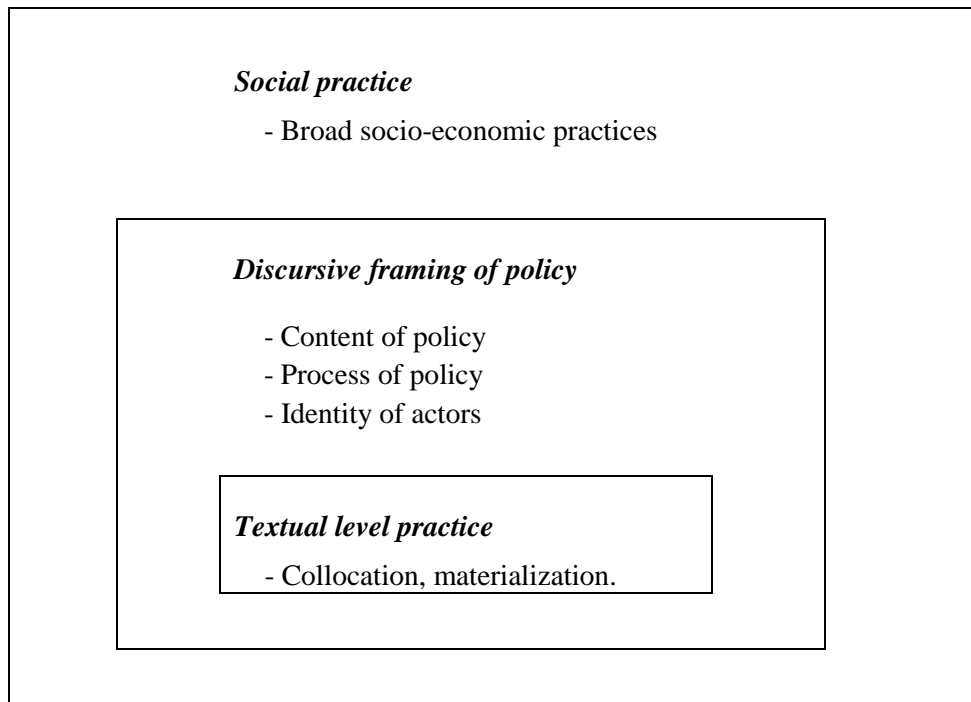
Critical discourse analysis (CDA) is an approach that links the linguistic expression of actions to broader societal structures and power relations to uncover otherwise obscure connections between language use and other social practices (Fairclough, 1992, 2016; Wodak & Meyer, 2001). Discourse organizes discrete linguistic utterances into meaningful expressions and links them to larger social patterns. Norman Fairclough (1992) provides a concrete operationalization of the work of Foucault (1982) “to connect very careful, detailed, close textual analysis with discourse processes occurring within the larger social community” (Mills 2004, 140). In understanding the role of language as a tool for discursive interactions we need to unravel how it helps actors construct representations of the world in a way that furthers their interests or preferred alternatives (Jørgensen & Phillips, 2002; Wodak & Meyer, 2001). In order to better understand and interpret them, these discursive practices also need to be situated within a wider frame of socio-political and economic relations with the help of some sociological theories (Donoghue, 2018; Wodak, 2009).

Accordingly, building on Fairclough (1992) the conceptual framework adopted in this paper focuses on three levels of practices by actors: at the level of broad social practice, at the level of policy discourse and at the level of texts (Fig 3.1). In terms of analyzing discursive practices at the social level Fairclough (1992) builds on the works of Gramsci (1971) and attempts to link discursive practices with broader social practices that particular social groups engage in as part of their efforts to maintain hegemony. This hegemony or leadership is manifested across economic, political, cultural and ideological domains of society (Fairclough, 2003; Gamson, Croteau, Hoynes, & Sasson, 1992). Applying this perspective in the field of environmental affairs, Levy and Newell (2002) show how business actors work on material, organizational and discursive fronts to preemptively avoid stringent regulations. Thus, in order to better understand specific discursive practices, there is a need to focus on actors’ economic capacities and their positions in society’s overall power relations. This includes their role in economic production and consumption processes that enable them to foreclose certain political options in the policy process in favor of other alternatives (Guber & Bosso, 2007; Heinmiller, 2017; Kraft, 2011). This is important in light of the “dependence of political elites on the provision of jobs and investments by the private sector” (Fuchs & Glaab, 2011). Many have observed that the ability of some actors to dominate the policy discourse partly depends on “the ability of economic elites to win framing battles by utilizing their cultural and economic resources” (Watts & Kaza, 2013, p. 256).

Within the broader context of power relations, the policy process is also subject to actors’ discursive struggles with one another over the definition of problematic policy issues (Hajer, 1995). This involves struggles of naming and framing to create desired meaning about an issue domain “where meaning implies not only what is at issue but what is to be done” (Schon & Rein, 1994, p. 29). By producing powerful meaning frames – a specific conceptualization of a problem that includes certain aspects while excluding others – actors attempt to protect or promote their policy goals (Guber & Bosso, 2007; Kamieniecki, 2006). As Entman (1993) describes it:

To frame is to select some aspects of perceived reality and make them more salient in a communication context, in such a way as to promote a particular problem definition, causal interpretation, moral evaluation, and/or treatment recommendation (Entman, 1993, p. 52).

**Figure 3.1. Modified Critical Discourse Analysis Framework**



The major task in the study of framing activities is thus to capture and describe the different ideas and conceptualizations of issues promoted by actors within the policy process (Erikson, 2015). van Hulst and Yanow (2016) indicate that framing and reframing operate on three aspects of the policy arena: the substantive content of the policy issue; the identities and relationships among actors; and the policy *process* itself. Furthermore, framing can focus on the ‘problem’ component of the policy issue, or the ‘solution’ part of it, which Benford and Snow (2000) refer to as *diagnostic framing* and *prognostic framing* respectively. The former involves problem identification and the attribution of responsibility to actors while the latter involves the articulation of a proposed solution to the problem.

At the textual level, actors can use different linguistic devices in portraying specific environmental actions. Two useful devices are *collocation* and *materialization*. Collocation is the practice of placing specific words and phrases in close proximity (Alexander, 2009), while materialization refers to the practice of imbuing social events with “a material purpose or effect” (van Leeuwen, 2008, p. 59). Such linguistic tactics at the textual level can create a pattern to collectively shape the way problems and solutions are framed at the policy level. Thus, the concept of framing acts as a bridge between individual texts and the policy discourse (Fuchs & Kalfagianni, 2009; Lehrer, 2010; Lenihan & Brasier, 2010). Specific discursive practices by actors can then be situated within broader socio-economic and political processes which would either enable or hinder the effectiveness of those discursive practices (Lenihan & Brasier, 2010). In making such a connection, Fuchs and Glaab (2011) provide a useful suggestion to link actors’ socio-economic capacities to specific discursive practices in a given policy domain. This includes examining actors’ ability to have (a) access to political decision-making bodies, (b) access to knowledge production, and (c) ability to have their preferred messages repeated and propagated. This approach helps in providing insights into potential synergies among actors’ various forms of

influence and is applied here in an empirical setting to study the discursive influence of two major actors within water quality policy processes in Ontario and Ohio.

## **3.5 Cases and Methods**

### **3.5.1 Cases**

The two cases in this study involve the discursive activities of Ontario Federation of Agriculture (OFA) operating in Ontario, and the Ohio Farm Bureau (OFB) operating in Ohio, both in the Western Lake Erie Basin (WLEB). They both are membership-based agricultural organizations representing the interests of the farming community in policy, legal and other public relations-related engagements with the broader policy community in the two regions. As such, these organizations have been active in the development of the Domestic Action Plan (DAP) process to address nutrient runoff and eutrophication in Lake Erie. These two organizations have been selected in this case study because: a) the agricultural sector has been identified as the primary sector contributing nutrient runoffs as well as having the most potential for reductions (IJC 2014), and b) both OFA and OFB are the largest agricultural association in their respective regions representing the interests of the farming community.

The Ontario Federation of Agriculture is Canada's largest farmer-led organization representing and advocating for over 38,000 farm businesses across the Province of Ontario (OFA, 2018). Established in 1946 and headquartered in Guelph, southern Ontario, it champions the interests of Ontario farmers through government relations, farm policy recommendations, lobbying efforts, research, community representation and media relations (OFA, 2018). The OFA has regional and local level organizational structure with 52 county and regional federations and is governed by an 18-member elected Board of Directors that oversees the work of the president. In addition, the OFA works with various agricultural commodity groups, partners, affiliates and broad coalitions. The two major such coalitions with specific relevance to the discursive influence of OFA on water quality policy addressed in this paper are the Grow Ontario Together (GOT) coalition and the Food and Farm Care Ontario (FFCO).

Similarly, the Ohio Farm Bureau Federation (OFBF) is the largest general farm organization in Ohio with members producing a vast variety of agricultural commodities encompassing grains, beef, pork and dairy in all of Ohio's 88 counties (OFB, 2018). It was founded in 1919 and is an affiliate of the national-level organization, the American Farm Bureau Federation. According to Sharp (2017b) the organization had 165,000 members in 2017. Based in Columbus, Ohio, the OFBF has a complex organizational structure that straddles from the county to the national level directed by an elected Board of Trustees that oversees the work of the president. Apart from the day-to-day organizational activities of the OFBF itself, an affiliate organization with relevance to the topic in this paper is the *Ohio Farm Bureau Federation Agriculture for Good Government Political Action Committee* (OFBF-AGGPAC). It operates at both national and state levels and it directs Farm Bureau's "engagement with farm-friendly candidates to help them win election or re-election to office" (OFBF-AAGPAC, 2018).

### **3.5.2 Data collection and analyses**

Data for this study came from various sources. A total of fifty-five semi-structured interviews were conducted in the spring and summer of 2017 with members of farming groups, members of government departments working with agriculture (e.g., Ontario Ministry of Agriculture, Food



and Rural Affairs, Ohio Department of Agriculture), ENGOs working with farmers, and researchers and other experts whose work relates to nutrient reduction policy. Reports, strategy documents, policy briefs, response letters and other documents relevant to the involvement of the farming community in the nutrient runoff reduction policy process were also collected. Relevant newspaper articles from national and regional papers (*Toronto Star*, *the CBC*, and *Globe and Mail* in Ontario; *Columbus Dispatch*, *New York Times*, and *Toledo Blade* in Ohio) were also collected. The websites of the two organizations under study – the Ontario Federation of Agriculture and the Ohio Farm Bureau – provided a rich source of data as well. Finally, field notes taken during personal observations in such events as public meetings, seminars, workshops, online webinars, on-farm best management practice (BMPs) demonstration events, ‘Breakfast on Farm’ events provided data complementing those from the other sources.

Data analysis was guided by the analytic framework presented in section 3.4 above and was conducted with the help of the qualitative data analysis software QSRNvivo version 10. We used the modified CDA as an organizing framework to identify the broad socio-political context within which the two organizations operate with respect to the nutrient runoff problem. The framework also guided analysis into the framing practices by OFA and OFB that involve both the substantive content of policy, its process, as well as the identity of policy actors. At the textual level, basic quantitative textual analysis such as word frequencies and collocations led to the identification of recurring themes in the body of relevant data (Fairclough, 1992, 2003; Wodak & Meyer, 2001). Basic word frequency analysis of key documents produced by OFA and OFB on nutrients and water quality issues in the period 2015-2018 was used to determine which terms were being used often in their communications with stakeholders. Bazeley and Jackson (2013) note that text-mining could be used in discourse analysis methods “to identify passages suitable for detailed coding and analysis from within the larger body of text”. From a CDA perspective, frequent occurrence of specific words might suggest the promotion of certain types of discourse by actors (Alexander, 2009; Daniel & Sojamo, 2012). The coding of the main body of texts itself then focused on the three levels of discursive practices shown in Box 3.1. A close reading and identification of themes was first undertaken to assess emerging themes in an open coding fashion. Then the concepts of ‘diagnostic’ and ‘prognostic’ framing by Benford and Snow (2000) guided the initial pattern coding. A second round of coding involved theoretical coding to further refine the categories from the first round according to the categories that van Hulst and Yanow (2016) provide. They identify three main objects of framing activity by actors: the content of policy, the process of policy and the identity of actors. The analysis of the linguistic aspects of discursive practices at the textual level is kept at a fairly high level, with a focus on ‘collocations’ and ‘materialization’. This is consistent with studies in discourse analyses by those who are not experts in linguistics. Thus we “have chosen to analyze texts at a fairly basic level – the policy documents and interview transcripts identified in the study ... analyzed to identify what seem to us to be particularly strong examples of language use to construct particular meanings” (Sturzaker & Shucksmith, 2011, p. 174).

### **3.6 Results: Discursive practices and the policy process**

The results of the discursive practices of the Ontario Federation of Agriculture and the Ohio Farm Bureau are described in this section separately, and we provide a discussion of the main themes that emerge from both cases in the next section. In describing the activities of the two organizations this section follows the conceptual framework’s (Fig. 3.1) three analytic levels: the

broad socio-economic context, framing activities related to the DAP policy process, and textual analysis of the discourse produced by the two organizations. This enables us to situate the significance of specific textual structures to the policy process, and to situate specific policy framings in relation to the broader socio-economic structures (Fuchs & Kalfagianni, 2009; Lehrer, 2010; Lenihan & Brasier, 2010).

### **3.6.1 The Ontario Federation of Agriculture's discursive practices**

#### **The socio-economic context**

The OFA's ability, as an advocate for the farming sector, to access political decision-making bodies seems closely linked to the apparent role of agriculture in the socio-economy of the country and the province. The country is the 5<sup>th</sup> largest agricultural exporter in the world, and the agriculture and agri-food industry provides 1 in 8 jobs (Agriculture and Agri-Food Canada, 2013). The agriculture and agri-food system is also a significant component of Ontario's provincial economy accounting for more than six percent of the total provincial GDP as well as more than 11 percent of the total employment in the province in 2017 (OMAFRA, 2018). More than 90 percent of agricultural production in Ontario occurs in the Great Lakes basin, and the Lake Erie basin alone supports more than a third of the province's cropland and livestock (ECCC, 2017, 15). Financial supports of various kinds from both levels of government to Ontario agriculture were more than 30 percent of the sector GDP by 2010, amounting to more than \$1.6 billion (Agriculture and Agri-food Canada, 2011). This apparently favorable treatment of the agricultural sector by government is in line with the broader trend in most western countries in the post-war period that some scholars refer to as "agricultural exceptionalism" (Daugbjerg & Swinbank, 2012; Skogstad, 1987, 1998).

As the largest farm organization in the province, the Ontario Federation of Agriculture (OFA) plays a significant role in the agricultural landscape of Ontario, both in the food production as well as the policy and regulatory environment in the sector. This is often done in alliance with various agricultural commodity groups and other actors outside the sector. The Grow Ontario Together (GOT) and the Farm and Food Care Ontario (FFCO) are two recent examples of such alliances relevant to the nutrients runoff discourse (Grow Ontario Together, 2016, 2018). While the GOT is primarily a coalition of agricultural producers such as the Beef Farmers of Ontario and the Grain Farmers of Ontario, the Farm and Food Care Ontario (FFCO) is a broad coalition of a large number of farming organizations, agri-businesses, banking and insurance organizations – a 'whole-sector' coalition (FFCO, 2018). Its main goal is to build public trust in food and farming in Ontario, and Canada, more broadly. In pursuing this goal, it employs various strategies including consumer research, public outreach, strategic partnerships, engaging with the media and government, as well as monitoring "activities by special interest groups, public attitudes, and government legislation" (FFCO, 2018). Such efforts are done in order to address the growing public concern with agricultural practices. As FFCO's chairman notes:

The challenge to maintain social license to grow and process food in this province is escalating. The investment in a coalition approach has never been more important (J. Maaskant, 2014, p. 1).

The OFA maintains a yearlong contact with key decision-makers and other influential actors by organizing farm tours for key legislators such as party leaders and members of agricultural committees in the House of Commons, and members of news and social media. Such events

provide opportunity for the OFA to educate as well as influence decision-makers' thinking on agricultural matters, as can be seen, for example, during the field season of summer 2017. In this case the OFA focused its conversations with members of the legislature on three core issues, including phosphorus reduction in the Great Lakes and surrounding waters (OFA, 2017). As the OFA also indicates, such "discussions at Field Day will carry on into the fall legislative session as part of OFA's ongoing advocacy efforts" (Farm Tour for MPPs, 2017).

A second avenue through which OFA's material resources supports their discursive efforts is the ability to produce or access knowledge, fund research, or pay for conferences and publications thereby facilitating the gathering and the communication of knowledge (Fuchs & Glaab, 2011). This strategy is seen, for example, in the efforts by the OFA to commission studies to ascertain the scientific basis for the 40% nutrient reduction target, studies to produce an inventory of all phosphorus related projects being undertaken in the agricultural sector, and studies to identify the best course of action for the agricultural sector to engage in the province's climate change plans (BluMetric Environmental Inc, 2017; Viresco, 2015). Moreover, research related to the 4Rs program (research-intensive method to applying fertilizers at the right time, right source, right rate and right amount) is an example of the OFA being able to engage in policy-relevant knowledge production (Grow Ontario Together, 2016). Endorsed by the IJC (2014, 2016), this preferred alternative's "rigor, structure, governance, and credibility of the 4R Certification Program make it a top candidate" among policy alternatives in tackling nutrient management issues (Vollmer-Sanders, Allman, Busdeker, Moody, & Stanley, 2016, p. 1395).

The third avenue through which material capacity enhances discursive strategies is the capacity to enable repetition of preferred messages (Fuchs & Glaab, 2011). In addition to the consistent efforts by OFFC on social media to promote a good image of Ontario agriculture via social media platforms such as Twitter, Facebook, Instagram and YouTube (FFCO, 2018), two other linked activities that are important to the repetition of messages are *Breakfast on the Farm* events and farm tours for 'food influencers'. The FFCO organizes events called 'Breakfast on the Farm' where thousands of people, mostly from urban areas, are invited on a breakfast visit to a farm and given exposure to selected farm operations. The aim is to "show how modern and progressive farming achieves high quality while preserving sustainability" (FFCO, 2018, p. 1). In the period 2014-2017, more than 13,500 people attended those events. Moreover, in an attempt to "create an appreciation" for food production in Ontario, tours are organized for 'food influencers' who are thought to have a better chance of reaching an even larger audience, gain trust of the public with their messages, and positively influence people's perception about farming. These 'food influencers' include journalists, food writers, bloggers, recipe developers, chefs and other 'food enthusiasts' with significant social media presence. More than 550 of these 'influencers' attended those events in the period 2014-2017 (FFCO, 2017; Daynard, 2018).

### **Framing the policy for nutrient runoff**

The nutrient runoff related framing activities by the Ontario Federation of Agriculture (OFA) manifests references to the nutrient reduction policy while situating them within the broader position of the agricultural industry in the province. These framing practices by OFA relate to the *content* of the water quality policy issue, the policy *process* itself, as well as the identity of policy actors, including themselves (van Hulst & Yanow, 2016). The main diagnostic framing activities by the OFA and its coalitions have primarily dealt with redefining the nutrients issue in a way that diminishes the perceived role of agriculture to Lake Erie eutrophication. Such framing was

done along two prongs. The first framing of the issue promotes the issue as ‘a society’s problem as a whole’, and thus there need to be an ‘all hands on deck’ societal effort by all stakeholders. As an officer in one farmers’ organization indicates “I think it’s going to be a whole country or a whole society approach, we need everybody to be on board” (CI-19). In addition, even when it was recognized that agricultural nutrient runoff could be part of the problem it is claimed that the same level of phosphorus entering the lake previously didn’t cause such problems in the past, and as such focusing on nutrient runoff from farms may not be the best approach (CI-22). Thus, the emphasis is put on the multiplicity of factors at play “in and around the lake” in a way that deflects attention from farmers’ practices. Referring to how the DAP document describes Lake Erie eutrophication as being caused by a variety and complex set of factors the OFA notes that:

OFA is pleased with the description of the problems and explanations of the causes of the resurgence of the algae in Lake Erie. ... It is reassuring that the changing environment in and around the lake is being recognized as a significant case of the issues to be addressed. It is also important that these changes to the environment in and around Lake Erie are clearly articulated to the public and any interested parties. In the absence of the recognition of these significant changes, some may **erroneously** conclude that farmers are being careless in their practices, for example (Currie, 2017; emphasis in original).

The second prong of framing of the eutrophication issue took the form of undermining the scientific basis for mandatory actions or questioning the scientific basis of decisions. This was done mainly through focus on the inconclusiveness in the research about the specific causal relationships in the eutrophication process. During the preparation of the Great Lakes Protection Act, the OFA requested the province that the principle of ‘precautionary approach’ be replaced with ‘cost-effectiveness’ as the former may lead to the “development of regulation based neither on scientific principles or scientific evidence” (OFA, 2015). One officer in the agricultural industry puts it this way:

I think that we have seen policies and programs put in place in the past that have turned out to have been not based on scientific reality. So there is a bit of hesitation about urgently putting into place programs and policies without there being sufficient evidence and science to back it up (CI-23).

With regards to presenting the ‘appropriate’ solutions, the prognostic framing activities by OFA calls for action by all actors involved as well as promoting voluntary and incentive-based (up to 90% cost-share funding) approaches as the most effective approach to addressing the problem (Bowman, 2017; Grow Ontario Together, 2018). This is to be accomplished by promoting and maintaining the existing voluntary approaches to dealing with nutrients unchanged in any significant manner. As Lyle Hall, president of the Essex County Federation of Agriculture noted “We are working on this so there will be no need for more (government) regulations. We will self-regulate” (Battagello, 2018). Incentive-based voluntary initiatives such as the Environmental Farm Plan (EFP) and the Great Lakes Agricultural Stewardship Initiative (GLASI) are promoted as just needing more adoption and improvement. This demand for voluntary approaches is complemented by efforts to emphasize the negative consequences of regulatory interventions that are thought to only “add undue burden” to agricultural operations. For example, the OFA challenged the Great Lakes Protection Act as “a classic case of over legislation” that would “cause unnecessary duplication and has the potential to be in conflict with existing legislation and regulations” (2014, 2015).

## **Textual level analysis of discursive practices**

A significant element of discursive practices of actors involves the choice of words and other texts in disseminating information. This is because the frequency of specific words relative to others in a body of text conveys a certain kind of discourse (Daniel & Sojamo, 2012). A basic study of individual words was made in texts generated by the OFA in its annual publications (*OFA Today* for 2014-2018). The selected text makes explicit reference to nutrients issue and water quality policy in Lake Erie and the Great Lakes basin. This provided indications of efforts by the OFA in constructing a public image of the farming community as the proactive steward of the environment (OFA, 2014, 2018b). Basic word frequency analyses identified verbs that denote “materialization” of actions used in conveying information to the public and other policy actors (van Leeuwen, 2008, p. 59).

Out of the most frequent 50 words in the body of texts, the verbs denoting ‘material action’ were: ‘reduce’, ‘work’ and ‘improve’. In almost all of these occurrences these words were collocated with the phrases ‘phosphorus’ and ‘nutrient runoff’. This style of presenting reports is often associated with creating “a positive appraisal pattern” of OFA’s efforts in the eyes of the reader (Stibbe, 2015, p. 85). In addition, the meager frequency of the terms ‘cause’ and ‘responsibility’ (four and five counts respectively out 5294 words) indicate avoidance of words related to “the expression of causality and the attribution of responsibility” (Fairclough, 1992, p. 236). This is indicative of cases where actors, especially business actors portray their environmental records in a way that “accentuate the positive, decentuate the negative” (Alexander, 2009, p. 58). The use of positive-sounding words, such as ‘improve’ and the avoidance of negative sounding words, such as ‘degradation’ by the agricultural industry is seen here in the context of its potential to affect perceptions of consumers and the general public (Alexander, 2009).

## **Effect on the Ontario DAP policy**

The effects of OFA’s discursive practices on the DAP policy, as manifested in the DAP document, are seen in two respects: in the language that views environmental protection through the lens of economic calculations, and in providing lenient language with reference to the need for mandatory actions for nutrient applications. Actions to address Lake Erie issues were paired with other economic imperatives such as “reducing economic impacts” of actions while still ensuring the country’s “global competitiveness”. Thus the elaboration of the concept of “environmental sustainability” in the DAP (2018) was in line with OFA’s call for “ensuring the Principle of Sustainability (which considers environmental, economic and social factors)” (OFA, 2016). The provisions for “environmental sustainability” set in the Great Lakes Strategy and in the initial draft of the DAP (OMECC, 2017), were later replaced with language that favored “economic sustainability” as one of the four principles guiding the final version of the DAP. The DAP document also endorses previous BMP practices, noting that “BMPs are proven, practical and affordable approaches to conserve soil, water and other natural resources that can also reduce phosphorus loss from agriculture sources” (ECCC, 2018, 26). In addition, the more strict language, “Ontario will consider further restrictions on the application of nutrients during the non-growing season” (OMECCC, 2017, p.35) in the first draft, was modified in the final draft to:

Ontario will engage with key sectors as it considers further restrictions on the application of nutrients during the non-growing season with a focus on conditions when there is higher risk of nutrient loss, such as when the ground is frozen or snow covered (ECCC, 2018, p.50).

### 3.6.2 The Ohio Farm Bureau and the DAP policy process

#### Agriculture in Ohio's socio-political context

The Ohio Farm Bureau (OFB), as the largest agricultural organization in the state, with nearly 165,000 members producing a vast variety of agricultural commodities, represents an important actor with respect to water quality policy that affects agricultural operations (Sharp, 2017b). The organizational and material capacities of OFB seem to have enabled it to influence the broader socio-political context of nutrient runoff policy through its access to political decision making bodies. These capacities are closely linked to the importance of agriculture to the state of Ohio, where the food and agriculture industry contributes up to \$100 billion to the economy annually and providing jobs to one in seven people on or off the farm (Turner & Morris, 2018). In 2015, Ohio was the 7<sup>th</sup> largest soybean producer and 8<sup>th</sup> largest corn producer in the nation (DiCarolis et al., 2017). The state Directors of Agriculture; Natural Resources; and EPA describe Ohio agriculture as “the backbone of Ohio’s rural communities, our state’s overall economy, and our nation’s capacity to feed a hungry world” (Zehringer et al., N.D., p. 3).

An important avenue for accessing political decision making by the OFB can be seen in the efforts by its Political Action Committee - *Agriculture for Good Government Political Action Committee (AGGPAC)* (Sracic & Binning, 2016). AGGPAC directs the Farm Bureau’s overall efforts to get farm-friendly candidates elected or re-elected to state or national level offices by routinely monitoring the voting records and political campaigns of legislators (OFB, 2016, 2018). To be supported by AGGPAC, candidates are first given the ‘friend of agriculture’ designation depending on whether they are supportive of policies that protect agriculture’s interests, including how they vote on a ‘key vote’ – a potential piece of legislation that is deemed particularly important to agriculture and rural Ohio (OFB, 2018). For example, in 2015 House Bill 61 related to the timing of nutrients application in Ohio’s Western Lake Erie Basin was designated a ‘key vote’ (OFB, 2015). During the 2016 election cycle, the endorsements of ‘Friends of Agriculture’ was given to ‘friendly’ legislators running in both the US congress as well as Ohio’s state race, and the OFB communicated this information to its members through its ‘*Election Guide 2016*’ pamphlet. It reminded farmers that:

This election guide isn’t here to tell you who to vote for, but we do want you to know who has an open door to our message and who has been supportive of our organization’s policies (OFB, 2016).

In the race for Ohio House of Representatives, 76 of the 79 ‘Friend of Agriculture’ were winners, and overall (both state and federal) 96% percent of all designated candidates won their respective races in 2016 (OFB, 2016). These efforts are supported by direct campaign donations wherein, in the same election cycle, Senator Rob Portman and Congressman Bob Gibbs received the largest contributions from OFB’s donations (Center for Responsive Politics, 2018). Senator Portman serves on the Senate Energy and Natural Resources Committee that oversees issues that include water quality, while Congressman Gibbs sits on the House Committee on Agriculture (Congress.gov, 2018).

In addition to access to political decision-making bodies, the capacity to enable the repetition of preferred messages is an important avenue of policy influence for the OFB. These include discursive activities in information production and dissemination through OFB’s internet

platforms including its website and social media activities. It also maintains a statewide weekly radio program called *Town Hall Ohio*, which hosts agriculture related discussions with high profile guests and those running for statewide offices including the legislature. Such efforts are complemented by other programs such as *Adopt a Legislator*, whereby with the help of OFB's policy advocacy office farmers target members of the legislature and 'adopt' them by focusing on year-round engagement with them. A similar initiative is *Host a Legislator*, where farmers are encouraged to invite legislators and members of the media to their farms and highlight specific agricultural priority issues in a "site that provides the opportunity to tell a good story" as in the case of the Blanchard Demonstration Farm Network (OFB, 2018).

Finally, the material and organizational capacity to produce and disseminate knowledge is an important aspect that supports OFB's discursive practices (OFB, 2017). OFB's lead role in the establishment of *Healthy Water Ohio* is an example of this. It is a coalition of diverse interests that aimed to work towards developing a long-range plan with a proposed \$100 million public-private Ohio Water Trust to support the sustainable management of water resources while enhancing the economy and the quality of life of Ohioans. Moreover, together with its partners, OFB invested more than six million dollars on edge-of-field research and other initiatives such as the Blanchard River Demonstration Farms Network developed to demonstrate on-farm conservation practices to help improve water and nutrient conservation. In addition, the OFB owned non-profit organization, the *Ohio Farm Bureau Foundation* funds Scholarships, field days and organizes other training programs aimed at supporting students, funding innovation in communities, and environmental stewardship activities so as to help students "become a part of the sustainable future of agriculture" (OFB, 2018). Some of the research produced by the agricultural community may also find its way into the policy relevant academic literature, as the example of a paper on the efficacy of the 4Rs program shows. It was authored by a team of researchers from Nature Conservancy, Ohio Agribusiness Association, The Andersons, Inc., and The Fertilizer Institute (Vollmer-Sanders et al., 2016).

### **Framing the nutrients runoff policy**

The first large-scale research that identified agriculture as the main contributor to Ohio's nutrient runoffs to Lake Erie was the report of the first *Phosphorus Task Force* in 2010 which indicated that most agricultural manure production, application, and disposal was unregulated. It also pointed out that even though agricultural BMPs were available to farmers they weren't "used consistently enough because policy and institutions don't require it" (Ohio Lake Erie Phosphorus Task Force, 2010, p. 71). However, even though the Farm Bureau had a representative in both Task Force I and Task Force II (Ohio Lake Erie Phosphorus Task Force, 2010, 2013), the findings of those studies did not change the way it framed the nutrients issues in any significant way. These framing activities, while rarely directly refuting the contributions of runoff from agriculture, regularly challenged research by others as non-comprehensive, non-conclusive or done only through unreliable modelling approaches (CI-38, CI-49). This challenge was reflected, for example, in the rejection of a major study by a team of scientists at the University of Michigan on the use of scenario evaluation to assess agricultural nutrient management in Lake Erie basin (Scavia et al., 2016). This study was used as an input in the development of the DAP policy but was challenged by the Ohio Corn and Wheat Growers Association and the Ohio Soybean Association which issued a public statement criticizing the methodology as "unrealistic and impractical" as well as rejecting its policy implications (Kemp & Graham, 2016). This study

was seen as prioritizing environmental concerns, such as the importance of wetlands, over other concerns. They also criticized the study's alleged "calls for additional regulation" because, they noted, "sustainability is more than just environmental quality. It's about finding the right balance of environment, economics and a reliable food supply" (Kemp & Graham, 2016). Conversely, reports that show agriculture in a positive light, such as the National Resources Conservation Service's *Effects of Conservation Practice Adoption on Cultivated Cropland Acres in Western Lake Erie Basin*, are favorably reviewed and presented as supporting evidence for the agricultural industry's claims of the effectiveness of voluntary practices (Sharp, 2016, 2017a, 2017b; U.S. Department of Agriculture, 2016).

Hence, the thrust towards voluntary approaches to dealing with the nutrients issue was accompanied by the opposition to any shift from the business-as-usual type arrangement that the Farm Bureau has been operating for years. As John Fisher, the Farm Bureau's executive vice president stated, the goals of environmental protection and responsible business are not considered contradictory because it is possible "to find solutions that protect our water, preserve our ability to grow food, and help our state's businesses and communities" (Henry, 2014a). Even attempts by concerned authorities to ensure coordination of efforts, such as those done by the Ohio Lake Erie Commission (OLEC) are considered manifestations of "mission creep"—a case "whereby an agency extends its authority beyond the original intent of rules and legislated purpose" (Sharp, 2016). This resistance for mandatory actions can be seen for example, in the fact that the passing of Senate Bill 1 in early 2015 to control the application of nutrients during the non-growing season occurred only after the city of Toledo endured a major drinking water crisis of national importance in late 2014.

In its engagement with other policy actors Ohio Farm Bureau's discursive framings have emphasized the message that voluntary conservation "works" and that the agricultural community has a "strong conservation ethic". Based on those premises it forwarded a framing of a problem that focused attention on the need to identify and increase adoption of BMPs in order to achieve nutrient reduction goals. In a comment letter to the DAP office they note that: "The question before us today is 'What management practices are the most effective in reducing the off-site transport of dissolved phosphorus?'" (Sharp, 2016). The OFB often points to voluntary practices on farms and other demonstration projects (e.g., the Blanchard Watershed Demonstration Project) that show the effectiveness of farmer-led voluntary measures. They point to the USDA's Natural Resources Conservation Service report (NRCS, 2016) that indicates that by 2012 99% of cropland acres were managed with at least one conservation practice. Such reports are used as evidence that regulatory approaches are not needed. In this regard, voluntary approaches adopted by the agricultural community are used as a way for policy influence by proactively creating a voluntary program to prevent potential government regulation or such programs serving as a template/model for inescapable government regulations (CI-47). In the context of nutrient runoffs a member of the agricultural industry notes that:

The rule that came forward, you know, came from the industry and agriculture, they had a hand in developing it and they were actually already voluntarily doing many aspects of it before it was even a rule (CI-55).

The Ohio Farm Bureau's framing efforts also challenge the policy making process that involves participation by a diversity of actors. The process is seen as getting input from, and is influenced by, various stakeholders who allegedly lack a good understanding of farming and what



the farming sector is actually doing to protect water quality (CI-45). The media is also seen as doing less to educate people and more to enhance a biased understanding of farming (CI-52, CI-39, CI-47). A member of the farming community notes that:

I think that the media, news media, either print or television or radio has a lot to do in terms of establishing or providing perception of the situation. And unfortunately, it doesn't matter what the issue is but if you look at the nutrient water quality, harmful algal blooms, livestock, row crops, whatever, the only time that, a lot of that is in the news is in such a negative way not in a positive way (CI-45).

Thus, efforts by the Farm Bureau at educating the public about the progress made by the farming community often includes challenging or refuting demands for restriction on phosphorus use made by other actors in the policy process. For example, the need to provide ethanol energy from corn production or feeding a world of 7 billion are invoked as self-evident justifications (OFB, 2018). Emphasis is also put on the need for phosphorus in agriculture, for example, by linking the potential economic impact of restricting its use directly to concerns of public health:

Phosphorus is essential for the creation of DNA, cell membranes and for bone and teeth formation in humans. It is vital for food production since it is one of three nutrients (nitrogen, potassium and phosphorus) needed for plant productivity. Without these nutrients, there is no agriculture (OFB, 2018).

Consequently, many observe that in Ohio “regulation is a real tough sell in agriculture in this area because agriculture is a big part of the economy” (CI-33) and that “there is a lack of political will because of the fact that no one wants to be seen as attacking a farmer” (CI-57).

### **Textual level analysis of discursive practices**

Basic word frequency analysis shows that out of the top 50 most frequent verbs in the annual *Water Quality Status Reports* produced and disseminated by the OFB in the period 2015-2018, verbs that denote ‘material action’ have been ‘help’, ‘improve’, ‘reduce’, ‘protect’ (OFB, 2015, 2016, 2017, 2018). On the other hand, words denoting causality or responsibility have been avoided to the most part. The words ‘cause’ and ‘responsibility’ (and their derivatives) do not appear in the top fifty most frequent words. The term ‘cause’ does not appear in the documents at all, while the word ‘responsible’ appeared three times in total, out of 9,683 words. The significance of the OFB dissociating its name with responsibility-attributing terms such as ‘cause’ can be seen in the example of OFB’s response to a radio advertisement produced by one environmental organization in the wake of the Toledo drinking water crisis. In February 2015 the National Wildlife Federation (NWF) ran a radio advertisement in Toledo indicating that the August 2014 drinking water ban had occurred “because Lake Erie was contaminated by toxic algae caused by farm runoff”, calling for more action and pleading Governor Kasich “to lead us in protecting our drinking water” (National Wildlife Federation, 2015). The OFB’s President Steve Hirsch responded to the message by writing an open letter to NWF’s CEO while copying the letter to various policy actors that include the Governor’s office, members of Ohio General Assembly and Ohio’s members of U.S. Congress:

Your message that “Lake Erie was contaminated by toxic algae caused by farm runoff” was a disservice to the agricultural community and to citizens who rely on the lake for drinking water, commerce and recreation (Hirsch, 2015).

The letter goes on to demonstrate how the OFB had been taking various initiatives in doing its part to protect the environment. Thus, the NWF was portrayed as doing a “disservice” not only to

farmers but also to citizens in general. Other examples include associating or collocating specific terms with successful and responsible environmental stewardship in documents targeted at key policy actors (Alexander, 2009; Fairclough, 2015). OFB's documents specifically directed at decision makers, such as members of United States Congress, and other key policy actors, such as the IJC, show similar patterns where there was emphasis on associating successes in agricultural management with "voluntary" and "incentive" based approaches in addressing nutrient pollution (McClure, 2016; Sharp, 2017b).

### **Effect on the OH-DAP policy**

The possible influences of the Ohio Farm Bureau on the Domestic Action Plan can be gleaned in the DAP document in the form of a) lack of any new provisions for mandatory compliance; b) prioritizing economic considerations in efforts to address the nutrients issue, and c) presenting the efforts of the farming community in a positive light. The OFB had repeatedly called for government agencies not to engage in "mission creep" in the name of environmental protection. One of the principles guiding the DAP, "accountability", which, in the early drafts, referred to "ensure clear areas of responsibilities and that the commitment is made and kept toward achieving the goals" (OLEC, 2016, 1), was modified in the final DAP to "ensure compliance with rules and laws, establish clear areas of responsibilities..." (OLEC, 2018, 3). Seen in light of the significant position that the OFB has in Ohio's state-level policymaking process such language provides indications of the power to influence the context of the nutrients policy process. The addition of references to "economic considerations" in later iterations of the DAP with respect to actions that agriculture is expected to take is another indication (OLEC, 2018, p. 14). The final DAP document also avoids earlier descriptions of the large sums of money spent in encouraging BMPs (but without much success) while still presenting the efforts of the farming community in a positive light:

These BMPs often exceed the minimum standards outlined in Ohio Administrative Code. Continued and expanded implementation of these BMPs will be required to achieve the phosphorus loading reduction goals outlined in this plan (OLEC, 2018, p.13).

## **3.7 Discussion**

### **3.7.1 The agricultural industry and the socio-political context**

The case studies considered in this paper provide an illustration of how the exercise of discursive power by actors is supported by and works in tandem with, their material and organizational capacities (Fuchs & Glaab, 2011; Levy & Newell, 2002). This was shown by taking the case of the Ontario Federation of Agriculture (OFA) and the Ohio Farm Bureau (OFB), two major actors in the eutrophication related policy process in Lake Erie basin. We observe that their significant material and organizational capacities supports their position in the socio-economic structure by enabling them to provide products and services considered essential to the basic functioning of national capitalist economies. Such capacities have also enabled them to create and maintain coalitions and alliances with various groups that are considered not to pose any major challenge to their environmental practices. The year-round contacts that the OFA and OFB maintain with members of the legislative body, social media 'influencers' as well as directly engaging the public in curated farm tours complement and support their formal lobbying programs. Such

activities are essential for building and maintaining what Steffek (2009) calls ‘discursive legitimation’. The case of OFA highlighted the importance of creating sector-wide coalitions in competing with other voices on the discourse on food and agriculture in Ontario. These coalitions also enable and support repetition of desired messages as can be seen in ‘Breakfast on the Farm’ programs and other similar events. The enlisting of ‘food influencers’ as a more credible medium for agriculture’s message to support efforts at earning the ‘social license’ to operate is especially remarkable. How trustworthy an environmental message is perceived by the public not only depends on its cognitive or normative appeal but also on the perceived credibility of those uttering it (Hajer, 1995; Schmidt, 2008).

Similarly, the case of OFB also showed how material and organizational capacities support the discursive efforts by actors to influence legislative processes in a preemptive fashion. The OFB has continually resisted what it calls “mission creep” by agencies in their attempts to mandate agriculture to do more with respect to environmental protection. While this call for agencies to adhere to the mandates given to them through the legislative rule making process seems reasonable, it needs to be considered in the wider context of OFB’s significant access and influence on the legislative process itself. This seems to be the case when the legislature passed Senate Bill 1 in early 2015 to control the application of nutrients only after public outcry in the wake of the city of Toledo’s drinking water crisis. The influence of the OFB on the state level legislative process is also coordinated with the works of the national-level American Farm Bureau Federation and its activities to influence members of U.S. Congress on issues pertinent to water quality and agriculture. In their report *Growing Influence: The Political Power of Agribusiness and the Fouling of America’s Waterways*, Madsen et al. (2011) identify campaign spending, lobbying expenditures and the ‘revolving door’ as the major avenues for favorable treatment of agriculture by decision makers even though farming operations continue to contribute to water pollution in the United States. Lobbying activity by the OFB is normal and expected in the political process. What stands out, however, is the extent to which this lobbying effort is supported by other discursive activities such as the designation of political candidates as ‘friends of agriculture’. In examining the motivation for members of Congress to vote in support of the 2002 and 2008 Farm Bills Bellemare and Carnes (2015) identify direct lobbying as an important factor for legislators to protect the agricultural sector. In addition, they measured the scores given to legislators in U.S. congress by the Farm Bureau and compared it to their voting patterns. They found that the major reason many legislators want to protect agriculture was that they had electoral incentives to do so. However, agricultural issues are also often linked to broader economic and political imperatives perceived to be of national importance. Lehrer (2010) shows that the support for corn-based biofuels production in the 2008 U.S. Farm Bill was seen as a way to bolster national energy security, environmental conservation, as well as rural economic development. Similarly, in examining the Conservation Security Program under the 2002 US Farm Bill Lenihan and Brasier (2010) also show how the U.S. approach to agri-environmentalism is linked to agriculture’s relation to a diverse set of social, historical, political, institutional and economic factors (Corry, 2014; Reimer, 2015).

The material and organizational capacities of the OFA and OFB to influence the policy process also seem to be enabled by a major structural factor favorable to their messages: the dominant neoliberal lens for environmental policy evaluation (Gareau, 2015). This gives them “the power to resist the inclusion of alternative ideas into the policy making arena” (Carstensen & Schmidt, 2016, p. 318). Daugbjerg and Swinbank (2012) note that traditionally agriculture has

enjoyed a special place in the policy process because, at least until the 1980s, western countries have protected their farmers from international competition, as the farming community was often depicted as special ‘custodians of the countryside’. As such “agricultural policy making was undertaken in relatively closed policy networks of farm ministries and farm groups founded upon shared values” (Daugbjerg & Swinbank, 2012, p. 259). This “agricultural exceptionalism” may be on decline due to growing concerns for the environment, food awareness by consumers, and contribution of agriculture to climate change (Daugbjerg & Feindt, 2017). However, it seems that the dominant economic system of neoliberalism may have created the political and economic space conducive to agriculture’s message that prioritizes economic sustenance over environmental protection (Sheingate, Scatterday, Martin, & Nachman, 2017). As Torgerson notes, “those that receive most favored treatment are those that are at once most crucial to the stability of advanced industrial development and most capable of persistently organized expression in an idiom consistent with the prevailing presuppositions” (Torgerson, 2005, p. 114).

### **3.7.2 Agricultural industry and policy framing**

The cases analyzed above show that in analyzing how the practice of framing is undertaken by actors on the process and content of a specific policy it is insightful to link discursive framing with their broader social and economic power because the practice of “framing is an exercise in political power” (Watts & Kaza, 2013, p. 256). In terms of framing the content of the nutrients policy we can see that both the OFA and OFB consistently framed environmental issues by latching the issue to the broad ideals such as the need for continuous and viable food production in feeding ever-growing global population or the presumed harmonious coexistence of agriculture with environmental goals. The implication is that any disruption to the existing structure of this system would not be in the interests of both the agricultural industry and society more broadly. The consistent messaging by both organizations in framing the nutrients policy has been that it had to be in terms on voluntary and incentive based approaches. Regulation as an option was depicted as an absolute last resort to deter few ‘bad actors’ who do not buy into the general stewardship ethic by farmers. The concept of framing has been especially helpful in illuminating the shape that this resistance takes and is in line with the literature that suggests that framing as a practice is not only used by actors in mobilizing to change unfavorable policies but also to resist change and maintain the status quo (Geels, 2014; Dewulf et al., 2004).

We also observe how the content of policy could be framed not only with respect to specific ideas but also with the strategic choice of specific terms and phrases so as to deliver the desired message to a targeted audience. The frequent use of positive-sounding words while evading terms that attribute responsibility in food and agricultural messaging as well as juxta-positioning specific terms and phrases constitute an important ingredient of framing strategies (Goodwin & Grix, 2011). This is also in line with arguments made by others that the association of widely held values (e.g., democracy) with consumer behavior (e.g., consumption opportunities) by food retail organizations helps them to enhance their perceived legitimacy (Fuchs, Kalfagianni, & Havinga, 2009). In their study of perceptions and reactions by consumers to words commonly associated with agriculture, Rumble, Holt, and Irani (2014, p. 12) indicate that agricultural organizations need to pay attention and “strategically use agricultural terms to avoid negative connotations”. Similarly, Goodwin & Grix recommend that not only should agricultural communicators need to focus on issues that are essential in the eyes of the consumer but also on “words that relay responsibility, mental images, and a positive outlook for the future” (Goodwin & Grix, 2011, p.

10). In this regard, while both the OFA and OFB spoke the language of sustainability, the meaning of the concept was skewed in a way that promoted the harmonious coexistence of food production and environmental protection (Conley, 2006; Lenihan & Brasier, 2010; Munro, 2015).

Another interesting observation in the case studies in terms of framing the process of policy making is the indications of the challenge posed to the traditional role of science as an authoritative arbiter of policy controversies (Huitema & Turnhout, 2009). The ability of actors to challenge research and modelling results produced by the academic community, as was seen in the case of the study by Scavia et al. (2016), and frame the results as inappropriate to be used as the basis for policy is an important avenue for policy influence (Hickmann, 2014; Maddock, 2004). However, such processes are more nuanced than simply and blatantly rejecting any results of research. Challenging some scientific research is accompanied by conducting parallel own research such as Vollmer-Sanders et al. (2016), or selectively highlighting and promoting results in reports by authoritative figures that show the agricultural industry in a positive light as it was the case with the NRCS (2016) report. This also points to the observations made by Sarewitz (2004) that in complex policy contexts, where cause and effect relationships are not clear, there tends to be significant room for selective use of science in the policy process. However, even if the science was more definitive, as it was the case in Ohio after the reports of the second Ohio Lake Erie Phosphorus Task Force (2013), there were still indications of the agricultural community criticizing research for their potential implications in terms of the need for immediate or stringent policy approach (Schlager & Blomquist, 2008).

By broadening the focus of attention from the water quality policy process to the wider issue of what major actors do to influence or shape the bigger context within which that policy process occurs, new insights can be revealed. Often, the involvement of key actors, such as the OFA and the OFB, with the wider socio-political process may not be in response to, or even directly tied to some policy issue. However, their efforts to highlight their significant role to the stability and functioning of the socio-economic order might prove beneficial when a policy issue directly linked to their operations does arise. In addition, the focus on the actual text of the policy positions they take reveals that their public ‘policy position’ in such issues such as sustainability may be at variance with how narrowly they define them in their texts.

### **3.8 Conclusion**

In contemporary Western political processes, numerous actors (e.g. industry, ENGOs) attempt to exert influence on policy outcomes. This paper demonstrates that in the cases considered agricultural actors have been among the more effective and capable at shaping policy processes through their discursive activities. We provide useful insights into how, in the context of water quality policy making, the material, organizational and discursive capacities of agricultural sector organizations complement and support each other. These capacities, in turn, support the structural powers that these organizations have. The economic and organizational capacities to engage in continuous and persistent contact and information exchange with key actors before and during the policy process seem to give agricultural actors, in the cases considered, an advantage within the nutrient runoff related policy process. Such discursive engagement with members of the legislative body, social media ‘influencers’ as well as directly engaging with the public are all enabled by the agricultural organizations’ material capacities. These efforts seem to potentially have important contributions to building and maintaining legitimacy in the eyes of the public as

well as to keep ‘social license’ by these actors. The study also shows how a dominant position in the policy process may be established at multiple levels from the local to provincial/state levels as well as national levels. The structural privileges that the agricultural industry traditionally had in post-war period in the form of “agricultural exceptionalism” now seems to be supported by the dominant neoliberal economic system that prioritizes competitiveness in the global market place. This position may also be complemented with the support of governments in pursuit of their own objectives for economic growth, job creation or electoral considerations.

While material capacities and structural powers may be important in shaping the very context of the policy process, they also support and enable actors to influence a specific policy domain discursively as well. We can see both agricultural organizations’ attempts at framing the content of the nutrient reduction policy, which they did by latching the issue to broadly held ideas such as the need for continuous and viable food production and feeding ever-growing global population. Such framing practices are complemented with careful management of their public images in portraying an appearance of environmental stewardship by making use of specific terms and phrases to deliver desired messages to targeted audiences. This also involved defining the concept of sustainability in a way that promoted the harmonious coexistence of food production and environmental protection. As such, the concept of framing has been useful in illuminating the multilevel nature of influence by actors in terms of shaping the context of the policy process while simultaneously influencing the content of the specific policy issue as well as constructing and portraying desired public images for themselves and other actors. It also helps us provide a detailed and nuanced account of the actual process of discursive influence, providing us with more insights in how discursive power is actually exercised (Fuchs, 2007; Fuchs & Kalfagianni, 2009). Thus, by directing attention to the material and organizational basis of policy influence as well as linking them to the more detailed textual level discursive strategies of influence, the concept of framing provides an important complement to critical discursive analyses in offering a fuller picture of actors’ capacities for policy influence. Such an approach is important in the context of efforts towards sustainable resource governance in revealing key hurdles to the achievement of policy objectives.

## Chapter 4

# Institutional Context and Water Quality Policy Discourse in Lake Erie Basin

This paper comprises a manuscript for a refereed journal article that will be submitted to *International Journal of the Commons*.

### Abstract

The effects of environmental discourses on policy processes often occur nested within broader institutional contexts. Consequently, over the last decade there have been increasing efforts by institutionalism scholars to theorize the link between discourses and institutions through the discursive institutionalism perspective. This perspective considers discourse not only as an ensemble of ideas and their expression in language, but also it takes into account the institutional contexts in which discourses emerge and the ways in which they are institutionalized in social practices. The application of this perspective in the context of resource and environmental governance has mainly focused on how dominant discourses become institutionalized into policy and regulatory frameworks. However, the reverse scenario, whereby the institutional context shapes the nature of the discourse itself has been generally overlooked in the scholarly literature. In this study, we employ the discursive institutional perspective to better understand the policy processes that the province of Ontario and the state of Ohio have been engaged in order to address the problem of eutrophication in Lake Erie, shared between Canada and the United States. Data collected through interviews, documentary sources, the news media and other relevant sources was analyzed with a process tracing approach. Results show that the federal and provincial/state level institutional arrangements in the two regions have influenced the nature of the ideational and interactive dimensions of discourse differently in the context of developing domestic action plans (DAP) that were prepared to guide actions to address the eutrophication problem. This was primarily because Ontario had adopted relatively more explicit regulatory framework to guide various water quality related initiatives in the Great Lakes. This is significant in view of how the institutional context acted as a conduit and filter for the different cognitive and normative ideas constituting the policy discourse that ultimately found institutional expression in the DAPs.

## 4.1 Introduction

Discourse, as a shared way of interpreting information and constructing meaning among social groups, has played an important role in the evolution of environmental policies in the west since the 1970s (Dryzek, 1997). Nevertheless, the effect of environmental discourses on the policy process does not happen in a void; it is nested within larger institutional contexts that provide the overall structure for that process (Hajer, 1995; LeRoy & Arts, 2006). Over the last decade, there have been increasing efforts by some institutionalism scholars to theorize the link between discourses and institutions (Clement, 2010; Phillips et al., 2004; Schmidt, 2010). Within the broad area of institutionalism, the literature that focuses on the interaction between discourse and institutions – discursive institutionalism (DI) – is a relatively new field of study (Peters, 2012). This approach considers discourses not only as an ensemble of ideas and their expression in language, but also it takes into account the institutional context in which discourses emerge and the ways in which discourses are institutionalized in social practices (Arts & Buizer, 2009; Raitio, 2012). DI is characterized by a relational two-way interaction between discourses and institutions. Thus, it enables researchers to theorize how and when some ideas and actors may be enabled by the institutional context while others may be constrained (Bosomworth, 2018; Fairbrass, 2011; Schmidt & Radaelli, 2004). In addition to its emphasis on ideas embedded within discourse, it also engages directly with the interactive dimension of discourse focusing on the ‘coordinative’ aspect of policy making as well as the ‘communicative’ aspect of policy legitimacy. Because of this focus, it helps us understand how, when, where and why certain policy relevant discourses succeed in gaining acceptance or become dominant while others fail or are marginalized in the context of power asymmetries (den Besten et al., 2014; Hope & Raudla, 2012; Lauber & Schenner, 2011).

While many authors acknowledge the conceptual relationship between discourse and institutions, the application of the discursive institutional perspective in the context of resource and environmental governance has mainly focused on how dominant discourses become institutionalized into policy and regulatory frameworks. However, the reverse has not been the subject of much empirical investigation (Arts et al., 2010; Rantala & Gregorio, 2014). In addition, the environmental discourse literature tends to accord a prominent role to the effects of discourse on policy without addressing the institutional conditions that privilege certain discourses over others (Leipold, 2014; Murdoch, 2004; Takahashi & Meisner, 2012b). Some analysts even have considered discourses to be constitutive of environmental politics as a whole and as such “conceptually have precedence over interests, institutions and outcomes” (Arts, et al. 2010, 57). As such, these discourse approaches have been criticized by some scholars for their poor relevance to real world policy processes that they claim to analyze (Buijs et al., 2014; Gerlak & Schmeier, 2014; Schmidt, 2010; Schmidt & Radaelli, 2004).

Hajer notes that as the struggle among competing discourses in environmental policy processes takes place in the context of broader social practices, “institutional arrangements are seen as the pre-conditions of the process of discourse-formation” (Hajer, 1995, p. 60). While Hajer did not provide further conceptual elaboration, attending to the institutional contexts of discourse is crucial especially in the context of environmental research as the social system is linked with the ecological system primarily through institutions (Epstein et al., 2015; Folke et al., 2007; Ostrom, 2009). Some have even argued that the “fundamental problems regarding environmental governance have to do with institutional matters” (Young, 2008, p. 28).



Institutions influence decision making at individual and collective levels and can either hinder or promote sustainable resource and environmental management by affecting policy responses to environmental change (Ostrom, 2011). This paper contributes to this conversation by focusing on how the institutional context may affect policy discourse in the context of eutrophication problems in Lake Erie basin shared by Canada and the United States (International Joint Commission, 2014). Taking the case of the differences in institutional contexts between the two countries (Hoberg, 1997; Lipset, 1990), and more specifically between the province of Ontario and the state of Ohio, this paper focuses on how the nature of the discourse on water quality policy may have been affected differently due to those differing institutional contexts (Johns, 2000). Results of data analysis suggest that the institutional contexts in the two regions may have differently influenced the nature of the interactive discourse related to achieving a commonly agreed nutrient runoff reduction policy target.

## **4.2 How do institutional arrangements influence discourse?**

The term ‘institutional context’ refers to a broad array of formal and informal normative, regulative and cognitive structures that shape human conduct (North, 1990; Scott, 2014). These include the norms, rules, conventions, habits, and values that guide human behavior (Ostrom, 1990, 2011). In this paper, we address one specific component of this broad context: institutional arrangements. An institutional arrangement is the organization of society through, and the relationships among, government sectors, political jurisdictions, corporate hierarchies, networks, associations, and communities (Hollingsworth, 2000). For example, federal systems tend to have a different constellation of governance actors, and decision making procedures in comparison to unitary systems, as is also the case between parliamentary systems and presidential systems (Schmidt, 2000). Thus, institutional arrangements relate to the system of decisions and rules that involve structural links between governance actors and the opportunities, obligations and constraints those institutional rules create regarding a specific issue domain (Kooiman, 2003).

Importantly, focusing on ‘institutional arrangements’ within the much broader ‘institutional context’ means that the informal institutional context (e.g., norms, political culture) received less emphasis. This is not to disregard the importance of informal institutions in shaping environmental policy and governance. Other authors have drawn attention to the informal institutional context that may give rise to differing environmental performance in Canada and the US (Verweij, 2000; Buhr & Freedman, 2001). Verweij argues that the adversarial mode of conducting environmental politics in the US side of the Great Lakes basin emanates from the unique ‘moral orders’ and state-society relationships that exists in the US. Americans are thought to value the notions of liberty, individualism, populism and laissez-faire more than other societies – notions closely related to the idea of ‘American exceptionalism’ (Lipset, 1990). A dislike and distrust of central government and anti-authoritarian thrust have shaped the relations among the executive, legislative and judiciary branches of the government as well as the relations of the government with business corporations, environmental groups, and other interest groups as well. With regard to the state-society relationship, Canada as a society has been described as being a more collectively-oriented society than the United States (Buhr & Freedman, 2001). Lipset notes the tendency in Canada for “a strong paternalistic government” (Lipset, 1990, p. 44) with the country being founded on the central principle of “peace, order, and good government”. Such different tendencies are bound to have significant influence on the nature of environmental policy and governance in the Great Lakes basin. While cognizant of the importance of this informal

institutional context, for the specific purpose of teasing out the influence of different policy contexts in Ontario and Ohio on the nature and development of the Domestic Action Plans, we have focused on the more empirically discernible component of the broader institutional context: institutional arrangements.

To understand how such different institutional arrangements affect the nature of discourse with respect to environmental policy, it is necessary to first elaborate on the concept of discourse. According to Schmidt (2008), discourse comprises not only the substantive content of ideas but it also has an interactive dimension involving actors at various levels. Discourse involves not only the representation of ideas that may have cognitive (what could possibly be done) and normative (what course of action ought to be taken among alternatives) aspects about a policy issue. But it also involves the construction and communication of those ideas in an interactive process falling in two domains. The *policy sphere* is characterized by a ‘coordinative’ discourse among policy actors engaged in creating, deliberating, arguing and bargaining on policies. The *political sphere* is characterized by a ‘communicative’ discourse among political actors and the public as policy ideas are presented to the broader public, and then deliberated and legitimated (Schmidt, 2011; Schmidt & Radaelli, 2004; A. Smith & Kern, 2009).

The specific institutional arrangements within which societies conduct policy processes affect the form and process of the interactive dimension of discourse. Discourses about similar environmental issues differ among countries not only because their peoples differ in their values but also “because different institutional contexts tend to frame the discursive process” about the issue differently (Schmidt, 2000, p. 232). Formal institutional arrangements may shape the interactive dimension of discourse by affecting, among other things, the relative importance of the coordinative and communicative discourses. Countries that have a multitude of actors directly involved in policy making (multi-actor systems) tend to have more elaborate coordinative discourses to bring together such a diverse array of actors with varying interests and capacities (Schmidt, 2011). In these multi-actor political systems, power is more dispersed and can be seen in federal countries having a large number of policy actors with varying powers that have input into policy formulation (Schmidt & Radaelli, 2004). On the other hand, relatively simpler ‘single-actor’ political systems, where power is concentrated in the hands of the executive tend to have less coordinative discourse but a more elaborate legitimating communicative discourse aimed at the public (Schmidt, 2011). These systems are characterized by majoritarian politics, “where policy formulation is the purview of a restricted governmental elite” (Schmidt & Radaelli, 2004, p. 198). Thus, with respect to their complexity, institutional arrangements can be viewed along a continuum on the ‘single-actor’-‘multi-actor’ discursive constellations to emphasize the degree of plurality of relevant and important actors involved (Fairbrass, 2011; Hope & Raudla, 2012; Kern, 2011; Schmidt, 2000, 2002; Schmidt & Radaelli, 2004).

**Table 4.1. Coordinative and communicative discourse in single-and multi-actor systems**

Discourse	Institutional context	
	<i>Single-actor system</i>	<i>Multi-actor system</i>
<i>Coordinative discourse</i>	Thin	Elaborate
<i>Communicative discourse</i>	Elaborate	Thin

Source: Schmidt (2002).

The significance of the different nature of interactive discourses among countries working towards a commonly agreed regional environmental target is that it potentially affects the relative effectiveness of their policy outputs. Countries with similar socio-economic characteristics and environmental value systems “may nevertheless differ greatly in policy outcomes because of differences in the locus of legitimization through discourse, whether at the coordinative or the communicative stage” (Schmidt, 2000, p. 305). This mechanism through which the institutional arrangement affecting policy outcomes through how it shapes the interactive dimension of policy discourse is a less studied area of research. It is also applicable to the case of Canada and the U.S. where their societies tend to share similar values in environmental protection but differ in their political and institutional arrangements in dealing with their shared resources.

### **4.3 The water quality policy context**

The Great Lakes of North America located between Canada and the United States hold about 20% of the world’s freshwater supply. In the 1960s and 70s pollution from various sources had deteriorated water quality in the lakes so much that it became a concern at the highest political levels. Canada and the United States signed an agreement to protect water quality in the lakes by signing the Great Lakes Water Quality Agreement (GLWQA) in 1972 (Botts & Muldoon, 2008). Since that time Canada and United States have been working collaboratively to safeguard the ecological integrity of the Great Lakes even though to a lesser extent such collaborative approach dates back to the signing of the Boundary Waters treaty in 1909 (Botts & Muldoon, 2008). Despite progresses made in the 1980s and early 90s in cleaning up the lakes from the effects of household detergents, agricultural nutrient runoff and by-products from industrial activities in the region, water quality issues, especially in Lake Erie have now once again resurfaced as important environmental, social and political concerns (Grover & Krantzberg, 2012). In 2011 phosphorus loadings into Lake Erie in combination with other biophysical and climate-related factors resulted in a mass of algae that extended more than 5,000 km<sup>2</sup>, three times larger in size than any bloom previously recorded in the lake (International Joint Commission, 2014). Due to such problems, some cities and towns have had to shut off water supply from their plants such as the city of Toledo in 2014 and Carroll Township in 2013.

The International Joint Commission (IJC) notes that a growing body of research has provided “convincing evidence that the single most important solution for the restoration of Lake Erie water quality is the reduction of phosphorus inputs” (International Joint Commission, 2014, p. 26). The most recent revision of the GLWQA in 2012 mandates both countries to work towards reducing nutrient runoffs by setting numerical targets and developing plans for implementation. At the subnational level, the Province of Ontario and the states of Ohio and Michigan have also signed an agreement in June 2015 to reduce phosphorus loadings from the waters entering the

western Lake Erie basin by 40% by 2025 from 2008 levels. This study considers only the cases of Ontario and Ohio, both having two watersheds that are among the major contributors of nutrient runoffs to Western Lake Erie Basin (WLEB).

This common policy target of 40% phosphorus load reduction at both national and provincial and state levels is being pursued within different institutional contexts in the two countries, both at the national and sub-national levels. In both Ontario and Ohio, the policy process primarily involves defining what the exact nature and sources of the problem are, as well as producing an implementation plan that charts the way to achieve those targets – a Domestic Action Plan (DAP). This process involves engaging a diverse array of stakeholders with varying views, interests and capacities such as the farming sector, municipalities, ENGOS, watershed organizations and others. In this paper, we examine the differences in institutional contexts in this policy process for their implications in differently affecting the nature of discourse around water quality policy in the two regions as well as the final policy outcome.

## 4.4 Methods

### 4.4.1 Conceptual framework

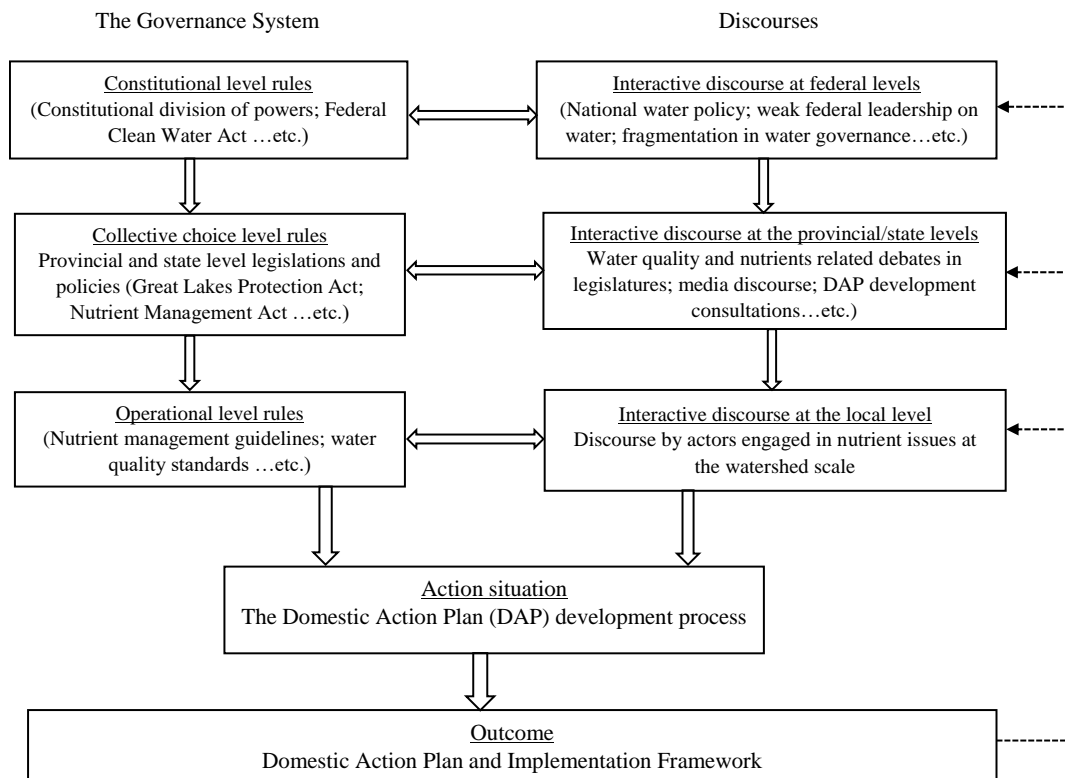
In order to guide data collection and analysis in this paper we use a framework inspired by two institutional frameworks that build on the Institutional Analysis and Development (IAD) framework. These are the *modified IAD framework* by Clement (2010), and the Combined IAD-SES (social-ecological systems) framework by Cole et al. (2019). The IAD is a multi-tier conceptual map to identify the major types of structural variables present in many institutional arrangements (Ostrom, 2011). For researchers interested in understanding how different institutional arrangements enable actors to solve collective problems, the IAD framework provides diagnostic and prescriptive capabilities. Polski and Ostrom (1999) indicate that this framework is especially helpful as a systematic method for organizing the study of a policy domain in a way that is compatible with a wide variety specialized analytic techniques. The appeal of the two frameworks in the context of analyzing the influence of the institutional context on policy discourse is because they enable a nested analysis of environment related decision processes at multiple hierarchical institutional levels. This multilevel nature of the IAD's structure (constitutional, collective choice and operational) enables one to make explicit and clear links between institutional processes at multiple administrative levels such as the federal, provincial/state and local levels considered in this paper. We especially benefit from insights provided by Clement (2010, 2012) and Rydin (2003) who made important attempts to explicitly incorporate the effects of discourse within the framework. The conceptual framework below shows institutions at multiple hierarchical levels as represented by the 'governance system' interacting with discourse similarly operating at multiple scales.

While the combined IAD-SES, or CIS as denoted by Cole et al. (2019), provides the framework to identify the main factors to be considered in an institutional analysis of a policy discourse, it provides limited insight into the dynamics of the policy process (McCord et al., 2017). Thus for the purposes of explaining the discourse-institutional interactions we rely on useful insights provided in the works of Schmidt (2008); Schmidt and Radaelli (2004); Hope and Raudla (2012) and Fairbrass (2011). In this discursive institutional perspective, discourses are understood to have both an ideational dimension and an interactive dimension. The ideational dimension is comprised of cognitive and normative elements about the substance of a policy

issue, while the interactive dimension has coordinative and communicative dimensions. The coordinative dimension of discourse is manifested in how a diverse set of actors come together in constructing and developing the cognitive elements of a policy program at the federal or provincial/state levels. By contrast, the communicative dimension is seen in how policy actors seek to legitimize their policy programs through invoking normative elements of policy, for example through appeals to a broadly held values and ideals, in their consultation and engagement sessions with the public.

However, even though we can make analytical distinctions between the cognitive and normative dimensions of the ideational component of discourse as well as between its coordinative and communicative functions, in practice they may occur in parallel or in an intertwined manner. This makes it “often difficult to separate the ideas in the discourse from the interactive process through which they are generated and constructed (coordinative stage) and then publicly presented and deliberated (communicative stage)” (Schmidt, 2003, p. 136). The framework below (Fig 4.1) builds on these insights and shows the interaction of discourses with institutions at multiple levels of the governance system (federal, provincial/state, local or watershed levels). Discourses and institutions interact both horizontally (on the same governance level) and vertically (along hierarchical governance level) in what den Besten et al. (2014) call the ‘Discursive-Institutional Spiral’. Their interaction cascades down from the federal levels to the local and policy specific levels, the outcomes of which may in turn feed back into the higher scales, thus further influencing discourse at higher levels across time.

**Figure 4.1. Conceptual framework: interacting institutions and discourses**



#### 4.4.2 Data Collection and Analysis

The cases considered in this paper are the different institutional contexts in Ontario and in Ohio and their relationship with the interactive discourses around nutrient related water quality policy processes. More specifically, the cases are focused on the processes leading up to, and including the preparation of the policy and plan of action document called the Domestic Action Plan (DAP) over the period of 2011 - 2018. These DAPs are prepared at both national (federal) and subnational (province/state) levels. As such, even though the focus of the effort to reduce nutrient runoff is on targeted watersheds – the Thames watershed in Ontario and the Maumee watershed in Ohio – the policy process is nested within larger and more complex provincial/state and federal/national institutional contexts. The differences in institutional contexts between Ontario and Ohio, and more broadly between Canada and the US are analyzed for their influences on the nature of the water quality policy process and the accompanying interactive discourse in the context of the preparation of the DAP.

Data collection for this paper was guided by the conceptual framework that is inspired by the modified IAD and SES frameworks by Clement (2010) and McCord et al. (2017). The conceptual framework focuses attention on public and private actors that could provide useful data to better understand institutional arrangements and interactive discourse at various levels in each case (McGinnis & Ostrom, 2014; Schmidt, 2002). The range and number of actors involved in policy construction and policy legitimation can be unmanageably large. We identified data sources from the five categories of relevant actors involved in such a process that Steffek (2009) identifies: State representatives (e.g., politicians and civil servants); Experts (e.g., academics); Activists and lobbyists (e.g., NGOs); Journalists; and Citizens. These categories guided data collection that included documentary sources from governments at federal, provincial/state and municipal levels, Non-government and civic organizations, as well as advocacy and lobbying groups. Data were also collected from relevant media sources (Toronto Star, Globe and Mail, CBC News, in Ontario; The New York Times, Columbus Dispatch and Toledo Blade in Ohio) and websites of relevant organizations. The academic literature that describes, explains and compares the structures and working of institutions in both regions has also been an important resource. These data sources were complemented with semi-structured interviews with government officials, members of the farming community, academic researchers as well as other local watershed bodies (33 in Ohio, 22 in Ontario). Direct observation through participation in meetings, workshops, forums, and webinars by relevant organizations were also valuable data sources.

Data analysis was guided by the conceptual framework, which enabled us to systematically categorize and assess the institutional structures at the federal, provincial/state, and local levels as well as the corresponding policy discourse at each level. It also guided the assessment of the influence of the institutional arrangements on the policy discourse over time in a process-tracing fashion (Villamayor-Tomas, Fleischman, Ibarra, Thiel, & van Laerhoven, 2014). Even though there are several types of process-tracing approaches (Beach & Pedersen, 2013), the ‘detailed narrative’ form of process tracing is suitable here in light of the research objective to provide “a general explanation rather than a detailed tracing of a causal process” on the influence of the institutional context on policy discourses (George & Bennett, 2005, p. 211). The interactive dimension of discourse in this study is thus analyzed by carefully tracking the timeline of the major interactive ‘events’ (Fairbrass, 2011) that constitute the progression of the coordinative and communicative discourses in the two DAP cases. It involves examining the role played by key

actors in those events in supplying the cognitive (what could be done) and/or normative (what ought to be done) elements of the policy discourse within the confines of their institutional contexts (Hope & Raudla, 2012; Kern, 2011; Raitio, 2012).

Coding of interview data and documents identified the main themes in the policy discourse and linked them to the institutional contexts, facilitated by the use of QSRNvivo software. Institutional arrangements and the interactive dimension of discourse in each case were first coded separately. Then we linked these two by examining the sequence of key institutional processes (e.g., a particular legislative activity in parliament) with the interactive discourse among policy actors before, during, and after those key events across a period of time in a process-tracing fashion (Beach & Pedersen, 2013; Verweij, 2000).

## **4.5 Different institutional contexts and the policy discourse**

### **4.5.1 Binational institutional structures**

Before delving into the details about the institutional contexts in Ontario and Ohio, two important binational institutional structures that may have influenced the nature of the policy discourse around water quality in each region need to be explained. These are the International Joint Commission and the Great Lakes Water Quality Agreement. More than a century ago, the two countries signed the Boundary Waters Treaty in 1909 to “prevent and resolve disputes over the use of the waters shared by Canada and the United States and to settle other transboundary issues” (IJC, 2019). They also established an advisory body – the International Joint Commission (IJC) - in helping and guiding the two governments in their efforts in meeting the provisions of the agreement. In its advisory role, the IJC conducts scientific studies, prepares progress reports and assessments, and holds consultation and engagement sessions with stakeholders and citizens of both countries interested in Great Lakes issues.

In the context of eutrophication in Lake Erie, annual and special reports prepared by the IJC, as well as studies by its Great Lakes Science Advisory Board and the Great Lakes Water Quality Board, have provided stakeholders with crucial data and scientific information that served as the cognitive basis for their policy discourses (Great Lakes Water Quality Board, 2016; International Joint Commission, 2014, 2017b, 2018). A landmark report, ‘A Balanced Diet for Lake Erie: Reducing Phosphorus Loadings and Harmful Algal Blooms’ (IJC, 2014) for example, provided specific, science-based policy recommendations such as the designation of the Western Lake Erie Basin as ‘impaired’ under the US Clean Water Act and restrictions on winter application of manure. Such recommendations were picked up by policy actors such as the Lucas County Commissioners in Ohio, and ENGOs such as Environmental Defence and Freshwater Future in Ontario to call on governments to adopt those action items (Goucher & Maas, 2014; Tuholske & Kilbert, 2015).

Another important binational institutional mechanism that has affected the policy discourses in both regions is the Great Lakes Water Quality Agreement (GLWQA). In order to address the degradation of water quality in the Great Lakes in the 1960s, especially severe eutrophication related pollution in Lake Erie, the governments of Canada and United States first signed the GLWQA in 1972 (Government of Canada & Government of the United States of America, 1987). With the goal of restoring ecosystem health and ecological integrity of the lakes, the agreement has served as an important mechanism for coordination of actions by the two federal governments

as well as the involvement of other levels of government, non-governmental organizations, industry, Indigenous peoples, and the public in Great Lakes issues (International Joint Commission, 2017a). The agreement also contributed to the significant successes in cleaning up the lakes by the two countries in the period from the early 1970s to mid-1990s in part through the development and implementation of binational Lakewide Action and Management Plans (LAMPS) for each lake (Environment Canada & U.S. Environmental Protection Agency, 2016). Recognizing the return of eutrophication issues in the 2000s, especially in Lake Erie, the 2012 revision to the GLWQA called upon the two governments to work on developing targets, by 2016, to reduce nutrient runoff from their respective watersheds. This call culminated in the two countries each adopting the target of 40% phosphorus loading reduction by 2025 from 2008 levels in their respective Lake Erie watersheds. It also put in motion the policy process to develop Domestic Action Plans that chart the strategies, organizational mechanisms and resources to meet those targets.

#### **4.5.2 Canadian institutions and interactive discourse in Ontario**

##### **The institutional context**

At the highest level, the source for specific institutional rules that structure how decision making regarding water can be made, and who has the authority to make those rules ultimately lies in the Canadian Constitution (Irvine, 2002). However, this authority is provided indirectly through the apportionments of powers and responsibilities between the two orders of government. The governance structure in Canada at both the federal and provincial levels is modeled after the British parliamentary system, with no formal separation of powers between the executive and legislative branches of government (Library of Parliament, 2002). As such, the executive branch (the cabinet) draws its powers and personnel from the legislative branch. Horizontally, the system at the federal level is characterized by the potential for a dominant executive because the government is effectively the party with the majority of seats in the lower house of parliament (Radin & Boase, 2000). Even though the parliament is bicameral with a House of Commons and a Senate, the members of the latter are not elected independently; the Prime Minister selects them. Hence, the House of Commons has been the dominant chamber in the legislative process, and the Prime Minister and the Cabinet can stay in office as long as they have the confidence of the House of Commons (Library of Parliament, 2002). The government in power typically does not face any stiff challenge from the Senate as the latter's role has been mostly to advise, "scrutinize legislation, suggest improvements and fix mistakes" (Senate of Canada, 2018). While some degree of executive control over the lower house is a prominent feature of parliamentary systems in general MacIvor indicates that often "control goes further in Canada than in any other Western democracy" (MacIvor, 2010, p. 211). At the provincial level, in Ontario, the legislative body is unicameral. The Cabinet of the current government, with the possible involvement of other Members of the Provincial Parliament (MPPs), is primarily in charge of passing legislation and other legislative decisions (Legislative Research Service, 2011).

Even though it may vary with specific policy issues, the Canadian system, in general, has been described as having a top-down approach to the development of policy based on the tradition of strong faith in government (Radin & Boase, 2000). The Constitution Act of 1867 apportioned powers between the federal and provincial governments, and some of the powers that relate to specific sectoral jurisdictions are shared between the two levels (Bakvis, 2013). In the



area of environmental affairs, the constitutional powers that provinces have derive from the “rights of ownership or proprietary rights over natural resources” (Benidickson, 1997, p. 27). In the case of the agricultural sector even though both levels have the authority to legislate, the federal legislation prevails in cases of conflict (Belanger, 2011; Skogstad, 1987). These divisions of power to govern resources and the environment, in general, are enshrined in various statutes and acts at the federal and provincial levels. As Clancy (2014) notes due to the local nature of many natural resource issues, provinces have increasingly assumed primacy in relation to the federal government’s roles in most areas of water policy. Similarly, Heinmiller (2017) and Winfield (2012) observe how the roles of provincial governments, as the relatively more dominant actors in the formulation and implementation of local and provincial level environmental policy in Canada, have grown since the mid-1990s.

At the federal level, the Canada Water Act (1970) and the Canadian Environmental Protection Act (1999) provide the overall framework for water quality protection. They include provisions for regulating the concentration of nutrients in cleaning agents, water conditioners and other pollutants that may adversely affect or degrade aquatic ecosystems (Babbie and Worsley, 2005). The Federal Fisheries Act also provides tools to regulate surface water pollution. Estrin and Swaigen (1993) describe it as the federal government’s “most powerful weapon” for protecting the aquatic environment as it “makes it an offence for people to ‘carry on any work or undertaking that results in the harmful alteration, disruption or destruction of fish habitat’” (Estrin & Swaigen, 1993, p. 522). The Act enables the protection of fish populations and fish habitat from pollution through the prohibition of the deposition of harmful substances such as suspended solids, fertilizer, manure, fuel, and pesticides into fish-bearing waters.

At the provincial level, there are a number of policies and regulatory frameworks that address freshwater resources in general and the Great Lakes waters more specifically. As Ontario’s *12-Point Plan to fight algal blooms* indicates, the province has several regulatory tools at its disposal to directly affect efforts for water quality in Lake Erie basin (see table 4.1. For further details see Bakker and Cook (2011); C. Cook (2014); Estrin and Swaigen (1993); C. Hill, Furlong, Bakker, and Cohen (2008); Sproule-Jones et al. (2008)).

**Table 4.2. Summary of relevant institutional provisions**

<b>Water Quality Related acts in Ontario</b>	<b>Provisions for water quality protection in Great Lakes</b>
Environmental Protection Act (1990)	Canada-United States Great Lakes Water Quality Agreement (1972, 2012)
Ontario Water Resources Act (1990)	Ontario Great Lakes Strategy (2012)
Safe Drinking Water Act (2002)	Great Lakes Protection Act (2015)
Clean Water Act (2006)	Canada-Ontario Agreement on Great Lakes Water Quality and Ecosystem Health (1971, 2014)
Lake Simcoe Protection Act (2008)	Nutrient Management Act (2002)

The policies on the right hand column are especially relevant to the DAP process as the Province is discharging its commitments under those regulatory frameworks in Lake Erie basin through the preparation and implementation of the Domestic Action Plan. The DAP also

simultaneously fulfills the province's commitment to an agreement reached with Ohio and Michigan in 2015 to reduce phosphorus runoff to WLEB by 40% by 2025 from 2008 levels. Even though Canada does not have a national water policy, the Canada-Ontario Agreement Respecting the Great Lakes Basin Ecosystem (COA) is a crucial coordinating framework for policy aimed at freshwater issues in the Great Lakes basin. This agreement has been renewed six times since its first signing in 1971, the latest renewal being in 2014. As this agreement is signed between seven federal ministries and three provincial ministries, it provides a potentially significant institutional mechanism for a cooperative approach to policy.

At the local and watershed levels in Ontario, there is a long tradition of the province and the federal government working in a fairly collaborative manner through the coordinating role of Conservation Authorities (CA's). Established by the Conservation Authorities Act (1946) and in many ways unique to Ontario, the special role of CAs as local institutions linking the province to municipalities, the farming community, and other local actors for environmental stewardship is notable (Conservation Ontario, 2003, 2012; Plummer, Spiers, FitzGibbon, & Imhof, 2005). CAs are watershed-based semi-autonomous bodies that help achieve provincial and federal level goals in flood management, green infrastructure, rural stewardship, monitoring, education and out research, and a host of other issues, working under the umbrella of the Ontario Ministry of Natural Resources and Forestry (OMNRF). The 36 conservation authorities in Ontario have a long history of working in collaboration with municipal, agricultural and other partners in their watersheds. Directly relevant to the cases considered in this study are the Upper Thames Conservation Authority and the Lower Thames Conservation Authority which together coordinate and lead various initiatives in the Thames watershed that affect nutrient runoff and management.

The institutional structures and relationships briefly presented above have had implications for the nature of the nutrients policy discourse in Ontario. More importantly, they highlight a noticeable involvement of government (affiliated) bodies working in the environmental field. As CI-25, a researcher and activist in southern Ontario notes:

...you know, personally and I think I hear it around me among activists there is a feeling that government ... I think we need to, as a society get stricter about how we manage environmental resources and goods, which means, coming to some fairly clear rules, as well as incentives and supports to make the transition. So I am kind of hedging on this because I don't think we are as vigorously opposed to government intervention as people are in the US for example (CI-25).

### **Linking the institutional context with the interactive discourse**

In Ontario, interactive discourses occur at both the 'policy sphere' and the 'political sphere'. At the policy sphere, those actors who are involved in policy making are engaged in 'coordinative' discourse in order to develop the cognitive ideas and possible alternatives in addressing an issue. This involves bargaining, argumentation, information sharing and struggles to influence the content and process of policy. In the 'political' sphere, however, the main task is 'communicative discourse' where the main activity is to provide the normative rationale for a particular course of action so as to legitimate the policy proposal in the eyes of the wider public. Steffek (2009) notes that this 'discursive legitimation' can be observed by studying the discourse of the main 'speakers' in a given policy domain that include state representatives, experts, activists and lobbyists, journalists and even ordinary citizens (Johansson, 2014).

The interactive discourse in Ontario showed a marked increase in intensity after 2011 in terms of coverage in the news media as well as activity by government and non-government bodies. In early 2011 the CBC published an article under the title: “*Great Lakes phosphorus levels rising, report warns: Lake Erie is the 'poster child' for eutrophication, says IJC U.S. co-chair*”. The article refers to the 32 recommendations made by the IJC to the Canadian and US governments as a “call to action” to prevent pollution to Lake Erie from phosphorus runoffs with different approaches. These include the protection and restoration of wetlands that act as a filter for pollutants, including phosphorus (Oosthoek, 2011). Such news reports along with other reports by ENGOs in the following years provided policy actors with the necessary cognitive basis for their arguments on the nutrients issue (Goucher & Maas, 2014). This included defining the nature of the problem, possible avenues to address it as well as the main actors that would need to act. Later in the fall of 2011, the largest algal bloom ever recorded in Lake Erie previously was captured by NASA’s satellite imagery showing a vivid visual depiction of the severity of the issue. Such imagery helped to impart a sense of urgency to the conversation about Lake Erie algal problems beyond the immediately affected local communities or the scientific community in government and academia (CI-21; Ferreyra et al. 2008). Attesting to the increased sense of concern the Environmental Commissioner of Ontario (ECO), an independent watchdog for the province’s environmental management, also noted that in the Great Lakes and especially in Lake Erie phosphorus pollution was “re-emerging as a major environmental concern” (Environmental Commissioner of Ontario, 2013, p. 132). It indicated that more needs to be done to limit phosphorus losses from farms and urged the Ontario Ministry of Agriculture and Food (OMAFRA) to embark on an ‘overarching policy framework’ that should include the adoption of a phosphorus management hierarchy. The Commissioner would repeat such calls for action in its subsequent reports as well, with an entire chapter, titled ‘*Algae Everywhere*’, dedicated to the nutrients issue in its 2017 report. It would urge the province to act on the nutrients issues including, when necessary, with regulatory tools (ECO, 2012, 2017, 2018)

The release of the Ontario Great Lakes Strategy in 2012 provided the nutrients discourse with some political significance as it paved the way for policy action (Government of Ontario, 2012). This strategy document acknowledged that current pressures were overwhelming some of the successes recorded in previous decades to the extent that “scientists have warned that the Great Lakes are at a ‘tipping point’ of irreversible decline” (GLS, 2012, p. 5). This strategy document provided the first province-level commitment to reduce excessive nutrients runoffs to Lake Erie. It also established the Great Lakes Guardians Community Fund aimed at helping finance local projects by grassroots community groups, non-profit organizations, and First Nations and Métis communities in their various environmental initiatives in the basin. A key milestone in the way of conducive institutional context for the nutrients discourse occurred in 2014 when the Ontario government renewed its agreement with the federal government to work on Great Lakes issues with the *Canada-Ontario Agreement on Great Lakes Water Quality and Ecosystem Health* (Environment Canada & Ontario Ministry of Environment and Climate Change, 2014). In this agreement, both parties recognized that they had a “shared jurisdiction over the Great Lakes, which makes coordination and cooperation essential to their restoration, protection and conservation” (COA, 2014, p.2). Another stipulation in the agreement with a normative dimension is that the parties agreed to engage the Great Lakes community “on a good governance basis”, defining good governance as “a decision-making process based on public participation, transparency and accountability” (COA, 2014, p.4). This provision anticipates a

participatory approach to the development of the Domestic Action Plan, which is also the implementation mechanism for COA. Another significant stipulation of the COA (2014) was the explicit commitment to engage First Nation and Metis communities as well as the consideration of their traditional indigenous knowledge in dealing with Great Lakes issues (COA 2014, p.75).

When the Great Lakes Protection Act received royal assent in November 2015, it enshrined into law many of the goals, principles and approaches that were initiated with the Great Lakes Strategy (2012) and the Canada-Ontario agreement (2014). Part IV subsection 9 (2) of the *Act* committed the Minister of the Environment and Climate Change to set at least one nutrient runoff reduction target by November 2017 so as to assist in the reduction of algal blooms in Lake Erie. This is a notable milestone in the nutrients discourse as it provided the province with the legal basis to take action on the issue. The act also reaffirmed the need for the province to adopt in its decision making processes the “precautionary approach” and “recognition of First Nations and Métis communities that have a historic relationship with the Great Lakes-St. Lawrence River Basin” (GLPA 2015, 7). Moreover, the Act provided civil society actors with the benchmarks needed to call on the province to fulfill its legislative mandates. The Great Lakes Protection Act Alliance, a coalition of more than ten ENGOs and other civil society actors, for example, has been working to encourage utilization, by governments, individuals, communities, and public bodies, of the tools enabled in the Act as well as monitor governments in their progress (Great Lakes Protection Act Alliance, 2016).

The Great Lakes Protection Act (2015) also established the Great Lakes Guardians Council to serve as a forum to facilitate communication and coordination among a diverse group of actors, as well as provide feedback on Great Lakes matters to the Minister of the Environment and Climate Change (Krantzberg, 2017). Members of the Council include representatives from municipalities, the farming community, conservation authorities, industry, environmental groups, the recreation and tourism sectors, academia, as well as First Nations and Métis peoples. In their meetings participants discussed the importance of establishing a foundation of shared values and the importance of people’s physical, emotional and spiritual connections with the Great Lakes and followed it up with establishing a knowledge integration working group to facilitate those initiatives under the direction of the Council (Krantzberg, 2017). Eleven out of the 38 members of the inaugural meeting came from First Nations peoples representing Union of Ontario Indians, Chiefs of Ontario, and the Mississaugas of the New Credit First Nation.

In October 2016, the province of Ontario published a formal policy statement with a commitment by both the federal and provincial governments to act on reducing nutrient runoffs to Lake Erie by 40% by 2025 from 2008 levels. It was published in the Environmental Bill of Rights website (EBR: 012-8760) and comments and other input was invited from the public on the policy brief. An office within the Land and Water Policy Branch in the Ontario Ministry of Environmental and Climate Change (OMECC) took the lead in coordinating provincial and federal efforts in preparing this initial phase of the DAP preparation. With this policy statement, the aim was to deliver on Canada’s GLWQA (2012) commitment as well as Ontario’s obligations under GLPA (2015) and its collaborative agreement with Ohio and Michigan (2015). From a coordinative discourse perspective, the office essentially became a ‘one-stop shop’ for any nutrient policy related matters in Lake Erie basin on the Canadian side for both federal and provincial levels (CI-06). In addition, the online posting of the policy statement marks the official start of the communicative discourse in Ontario with respect to the efforts by the provincial government to justify the need for action to the public at large. This was complemented with the

DAP coordinating office working with a ‘Lake Erie Nutrients Working Group’ that was established as a platform for sharing perspectives among various sectors (agriculture, municipalities, ENGOs) and to provide advice on the development of the DAP. The engagement with the general public, however, was rather limited with only very few in-person sessions and webinars in 2017. In March 2017 the first draft of the Domestic Action Plan (DAP) was released and comments were invited for a period of 60 days till May 2017, and after another draft was shared privately via email in preparation for a webinar discussion, the final DAP document was released in February 2018 (MECC and OMECC, 2018). Thus, before the release of the final document only one draft was made available to the general public.

### **Influences on the DAP policy**

The way in which the institutional context in Ontario influenced the policy discourse in the context of the DAP is manifested in the form of significant references by the DAP to provisions stipulated in Canada-Ontario Agreement, the Great Lakes Strategy and Great Lakes Protection Act. The most apparent potential influence can be seen in the fact that the Canada-Ontario final DAP consists of a single document that integrates plans by the federal and provincial governments in addressing nutrient runoffs to Lake Erie. For the most part, the plan does not show apportionment of responsibilities between the federal and provincial governments with programs and tasks collectively referred to as “commitments by Canada and Ontario”. The phrase “Canada and Ontario” appears 60 times in the 66-page document. From an institutional perspective, this provides indications of the conducive institutional context that is often associated with minimal need for coordinative discourse (Schmidt, 2002; Schmidt & Radaelli, 2004). The DAP document also provides a coordinated response by five relevant federal and provincial government agencies that are also signatories to the Canada-Ontario Agreement: Environment and Climate Change Canada, Agriculture and Agri-Food Canada, Ontario Ministry of the Environment and Climate Change, Ontario Ministry of Agriculture, Food and Rural Affairs and Ontario Ministry of Natural Resources and Forestry. The plan further indicates that “Canada and Ontario will lead the development of an implementation framework based on a collaborative governance model” reflecting the principle of “good governance” already stipulated in COA. Moreover, the DAP adopted references to provisions in GLPA (2015) to facilitate participation by indigenous communities and considerations of their traditional ecological knowledge. The preparation of a ‘*Nutrient Reduction Project Catalogue 2018*’, a document containing a comprehensive inventory of programs and projects aimed at reducing phosphorus loads currently underway across the Canadian WLEB by the Upper Thames Conservation Authority provides further indications of the institutional context in Ontario that supports interactive discourse. Another example is the progress made with the Thames River Phosphorus Reduction Collaborative in which the Ontario Federation of Agriculture and the Great Lakes & St. Lawrence Cities Initiative came together in addressing nutrient runoff from agricultural watersheds and city landscapes.

### 4.5.3 Ohio's institutional context and interactive discourses

#### The institutional context

In the presidential system in the United States, political institutions at the federal, state and local levels tend to minimize the exertion of concentrated power by separating authority across the political landscape (Radin & Boase, 2000). Horizontally, separate institutions are charged with the executive, legislative, and judicial functions. The executive, represented by the president, and the legislature are separately chosen by the public and having been built on the ideal of the separation of powers the system pits the executive against the legislator (Verweij, 2000). As such, institutional fragmentation and constitutionally created checks and balances shape the policy process (Kraft, 2011). Often, this institutional arrangement creates an environment where both the executive and the legislature are embroiled in a web of checks and balances that also involves the Courts (Hope & Raudla, 2012). Such fragmentation among centers of power is also carried on within institutions, as can be seen in separately elected bicameral legislatures (Radin & Boase, 2000). Due to the nature of such institutional arrangements many authors have characterized American politics as often involving 'gridlock' in the legislative and policy making process (Klyza & Sousa, 2013).

Similar to that of the federal level, the states also show a comparable separation of powers in their governance structures. Ohio has separately elected bicameral legislative body, the General Assembly, consisting of the Senate and House of Representatives, as well as a separately elected Governor (Sracic & Binning, 2016). The dominant two-party system in the legislative body has also been noted as a crucial factor in the analysis of federal and state-level policy processes (Kraft, 2011). This is especially significant in the case where one party (Republican or Democrat) dominates the House while the other dominates the Senate (Sussman et al., 2002). Another dimension is added to this dynamic with the governor's party affiliation. This is significant because as Sracic and Binning (2016, p. 53) note, in general, the Ohio governor's legislative success, or lack thereof, "is determined by whether there is divided government in the state".

The institutional context with direct relevance to water quality policy at the federal level and state levels include the three major regulatory frameworks administering water pollution in the United States: the Resource Conservation and Recovery Act (RCRA), the Clean Water Act, and the Safe Drinking Water Act (SDWA) (Z. Smith, 2013). The SDWA regulates drinking water produced by public water supply systems and the main concern of RCRA deals with hazardous waste. Hence, the principal regulatory framework for safeguarding water quality at the national level is the Clean Water Act of 1972. However, unlike the case of point source pollution, for which it provides rules and regulatory standards, the Clean Water Act relies on planning and incentive programs when it comes to regulating non-point source pollution (Kilbert, Tisler, & Hohl, 2012). Nonetheless, it provides mechanisms that allow citizens to sue non-point source polluters in order to enforce the provisions contained in the Act (Kraft, 2011).

At the state level the main authorities directly involved with nutrient runoff and water quality issues in relation to Lake Erie in Ohio include the Ohio Environmental Protection Agency (OEPA), Ohio Department of Agriculture (ODA), Ohio Department of Natural Resources (ODNR), Ohio Department of Health and the Ohio Lake Erie Commission (OLEC). The Ohio Legislature has also been involved with the nutrients issue a number of times as shown with the passage of Senate Bill 150 in 2014 (requiring certification for fertilizer application), Senate Bill 1

in 2015 (restricting manure and fertilizer applications), and Senate Bill 2 in 2017 (expanding the mandates of OLEC) (EPA, 2017). The primary office charged to coordinate all nutrient runoff related efforts in Lake Erie basin is the Ohio Lake Erie Commission. However, OLEC is not only a small organization with limited staff and a limited budget, but it has served primarily with an advisory role to the Governor on the development of policy, and not to steer and guide policy implementation (Hoornbeek et al., 2016).

At the local and watershed scales, the state of Ohio, like many other states, provides the enabling legislation that supports local water users to create water organizations to govern local water resources mainly by creating special districts (Schlager & Blomquist, 2008). Special districts, where the government unit performs only one function or a very limited number of functions (e.g., irrigation districts), are a prominent feature of the government structure in the United States (Hogue 2013, Mullin 2008). For instance, there are 88 Soil and Water Conservation Districts (SWCD) in Ohio, which collectively aim to provide local solutions to water and other related issues through such activities as legislative advocacy, public outreach, grant support, etc. The Lucas County Soil and Water Conservation District, for example, has been very active in the Toledo area in initiatives related to nutrient runoff and water quality.

This institutional context at the local, state and federal levels briefly noted above has had an influence on the nature and evolution of the interactive discourse in nutrients related water quality policy in Ohio. The complex institutional structure may have affected the speed with which actions are taken to address the eutrophication issue. As a researcher in the Toledo area (CI-28) notes:

...there has been some small incremental progress but our institutional arrangements on a lot of these issues don't respond very efficiently and very timely manner and as a result delayed action is still occurring as the problem continues to exist (CI-28).

### **The interactive discourse**

The interactive discourse in relation to nutrients runoff and Lake Erie eutrophication shows a marked difference in its content and process before and after the Toledo drinking water crisis in August 2014.

#### ***Interactive discourse prior to Toledo drinking water incident***

After the improvements in Lake Erie during the 1980s and early 1990s, the return of significant algal blooms to Ohio Lake Erie shores had been occurring since at least the early 2000s. At the time, the focus by the Ohio EPA had mostly been on monitoring and following up of programs that had been in place from earlier decades (Ohio Lake Erie Commission, 2008). Academic and research institutions noticed a gradual increase in dissolved reactive phosphorus, which Heidelberg University researchers brought to EPA's attention (CI-30). In terms of major responses by concerned authorities to the increasingly deteriorating situation, a major milestone occurred in 2007 when Ohio EPA established a task force to study the increasing trends in algal blooms and loading in total and dissolved reactive phosphorus. The Ohio Phosphorus Task Force (OPTF) was formed in January 2007 with members mostly from federal and state-level government bodies whose mandates relate to some aspects of Lake Erie eutrophication, such as USEPA and ODA as well as research institutions such as Heidelberg University (Ohio Lake Erie Phosphorus Task Force, 2010). The only member from the private sector was a representative of the Ohio Farm Bureau Federation (OEPA, 2010). An important component of the study that the

Task Force undertook was to “recommend management actions that could be implemented to alleviate current conditions” (OEPA, 2010, p. 11). The Task Force reported its results in 2010 and the report provided the nutrients discourse with the initial science based grounds for debate among actors, and developing a case for action in the policy process (CI-30).

In 2011, the year Lake Erie endured record algal blooms extending some 5000km<sup>2</sup> (IJC, 2014), Governor Kasich charged three department directors “to develop recommendations for improving Ohio’s water resources while maintaining the integrity of the region’s agricultural industry” (Zehringer et al., N.D.). Based on the foundations laid by the report of the OPTF, the Directors’ Agricultural Nutrients and Water Quality Working Group’s Report was produced under the oversight of the Directors of the departments of Agriculture, Natural Resources, and the Ohio EPA. While the phosphorus task force report released in 2010 provided the initial scientific basis for action, the Directors’ report emphasized the need for coordination, education and outreach, as well as upscaling of the 4Rs nutrient management (right time, right place, right source, right rate). Above all, despite being released in the wake of the 2011 record algal blooms in Lake Erie the report made it clear that the priority was that “agricultural viability must be maintained” (Zehringer et al., N.D.). Although it was noted that discussions of “possible regulatory options were a consistent cornerstone of every meeting”, in the end, the more than 130-member “working group” ended up providing a ‘laundry list’ of potential actions that can be taken without an overarching regulatory or other organizational structure. Annex C of the document which lists approved action items indicates that:

*This document is a compilation of the individual comments from individual participants of the working group. As such, this document is not intended to convey general consensus or full agreement on any given topic among the participants in the diverse working group (Zehringer, et al. ND, emphasis in original).*

Some interviewees noted that by trying not to put pressure on the agricultural sector, the report ended up being a ‘document of debate’ which further obfuscated future plans for actions (CI-30). Partly in response to the 2011 record algal bloom, the Ohio Phosphorus Task Force was reconvened for the second time with an expanded number of representatives, including the ENGO community which had been sidelined in the first one (C-58). Released in 2013, this second report of the OPTF confirmed agriculture to be the major contributor and largely unregulated, further recommending numeric phosphorus runoff reduction targets (Ohio Lake Erie Phosphorus Task Force, 2013). All these developments intensified the call for more bold actions from many political actors especially emboldened by the calls made by the IJC in its landmark report: *A Balanced Diet for Lake Erie* (International Joint Commission, 2014). Released in February 2014, the report called upon responsible government authorities to declare Ohio’s portion of Lake Erie “impaired” under the Clean Water Act. This would have put in place an overarching framework to dealing with nutrient runoffs starting from the sub-watershed scale all the way up to the basin level (Tuholske & Kilbert, 2015). Instead, only piecemeal actions were taken. The Ohio Legislature passed Senate Bill 150 that requires farmers to undergo certification procedures by the Ohio Department of Agriculture in order to apply fertilizers in farm fields above certain sizes (Farm Office, 2014).

#### ***Interactive discourse after the Toledo drinking water incident***

In August 2014, the intake pipes of the city of Toledo’s water supply plant along Lake Erie took in algae produced toxic microcystin that went untreated through the system and reached people’s



tap water. The city issued an advisory and nearly half a million people were told they could not use their tap water for drinking and other domestic purposes for two days (Wines, 2014). This incident instantly made national headlines. On August 5, The New York Times published an article titled '*Behind Toledo's Water Crisis, a Long-Troubled Lake Erie*'. The local and regional papers also covered this story often juxtaposition the tragedy with failure by government officials to act and framing it as a public health issue.

Perceiving the government's responses insufficient to tackle the issue, several state-level lawmakers also joined the ENGO community in publicly voicing their call on the relevant state departments to act on Lake Erie. With the Toledo incident capturing media attention at the national level, Ohio State Rep. Teresa Fedor called upon the governor's office to declare the Maumee region a "distressed watershed" (Fraser, 2014). The editor of Toledo Blade, the largest newspaper by circulation in the city of Toledo, also made a similar call on the Kasich Government to declare the Maumee River watershed "in distress" (Kushma, 2014). Again, continuing with the piecemeal approach, the Ohio legislature passed Senate Bill 1 in early 2015 to regulate the timing of fertilizer or manure application during the non-growing season on frozen grounds and other weather and soil conditions (EPA, 2016). Such lack of an overarching strategy by the state government was criticized by lawmakers such as U.S. Rep. Marcy Kaptur who observed that "there's a state responsibility here that is very haphazard, very hit-or-miss" (Henry 2016). For many, the Toledo incident brought the issue of Lake Erie eutrophication close to home as it was increasingly seen as being about people's basic livelihoods and an issue of public health (C-36). As such, the Toledo incident provided many actors calling for more bold actions by the government with much needed normative basis for their arguments.

Over the course of 2015, the calls for "watershed in distress" designation for the Maumee watershed were increasingly followed by calls for "impaired" designation for the entirety of Ohio's western Lake Erie basin. This gained more momentum especially after the state of Michigan declared its portion of the basin "impaired" in the same year. Unlike the "watershed in distress" designation which subjects a watershed to state-level mandatory guidelines, the "impaired" designation is more stringent and it subjects a designated water body to federal procedures. Under the Clean Water Act, an impaired water body and its watersheds are put on "pollution diets" called Total Maximum Daily Loads (TMDL) whereby nutrients are fingerprinted and backtracked to their sources with the oversight of the USEPA (Kilbert et al., 2012). Hoping that they could benefit from such approaches, the Council of the City of Oregon and the Lucas County Commissioners (wherein the city of Toledo is located) formally called on the USEPA and the state of Ohio for impairment designation of Lake Erie under the Clean Water Act (Wozniak et al., 2016).

However, for some observers, Governor Kasich's run for the 2016 US presidency would make it politically unlikely for his office to embark on the "impairment" designation as this move was seen unpopular among the agricultural community (Henry, 2015). Consequently, some actors saw the best way forward to be through litigation. In early 2017, a group of concerned non-governmental organizations including the Alliance for the Great Lakes, the Lake Erie Charter Boat Association, the Lake Erie Foundation, and the Ohio Environmental Council filed a lawsuit in a federal court against the U.S. EPA Great Lakes Region Administrator (Rosenkrans, 2017). One month later, the Environmental Law and Policy Center and the Advocates for Clean Lake Erie also filed another lawsuit against the EPA. Both of these suits accuse the EPA for failing to properly discharge its mandates under the Clean Water Act and not declaring the whole of WLEB

impaired (Rosenkrans, 2017). While running for the 2017 Toledo city mayoral race, the incumbent Mayor Paula Hicks-Hudson also had to join the call for impairment, as it became a key election issue. She wrote a letter directly to the US President calling on the federal government to declare Lake Erie impaired (Patel and Parshina-Kottas, 2017).

Overall, it became increasingly apparent that the Clean Water Act had major shortcomings in addressing non-point source agricultural nutrient pollution. As Kilbert et al. (2012) note it “neither authorizes the federal government to regulate nonpoint sources nor requires states to regulate nonpoint sources in order to comply with TMDLs”. Moreover, federal grants to help implement incentive-based voluntary BMPs couldn’t show much progress as they weren’t “used consistently enough because policy and institutions don’t require it” (Ohio Lake Erie Phosphorus Task Force, 2010, p. 71). Hoornbeek et al. (2016) observe that the organizational structures that could bring actors together in working towards a common direction were similarly weak. They note that “the overall picture of organizational resources and tools that emerges from our investigation is one of fragmented efforts among multiple organizations that have many priority items on their respective agendas” (Hoornbeek et al., 2016, p. 36). The inability of the lead coordinating body, the Ohio Lake Erie Commission, to provide a framework for action towards a common objective was also reflected in the comments provided by stakeholders in the various consultation forums that the Commission convened over the course of 2017 (CI-58).

Consequently, in late 2017 the Commission was given some more “authority to ensure the coordination of state and local policies and programs pertaining to Lake Erie” (OLEC, 2018, p. 8). Thus, the commission was able to organize various town hall meetings open to all interested citizens in elaborating what the state was doing to address the eutrophication issue (C-58). This is also attested by the planning document’s five iterations/ drafts in the period 2016-2018. Nevertheless, when the final Ohio Domestic Action Plan was released in February 2018 a notable aspect of the document was that it ensured each of the major agencies involved had their own separate sets of tasks with no apparent indication of synergy. The document indicated that accountability for ensuring implementation would lie with the individual state agencies as the plan “does not establish any new legislation, rule, or enforceable standard. Rather, the actions listed in the DAP propose or describe recommended changes...” (OLEC, 2018, p.8).

## **4.6 Discussion: How far do institutional contexts affect discourse?**

### **4.6.1 Institutional factors and interactive discourse**

The perspective of discursive institutionalism posits that the different institutional arrangements of simple and compound political systems make them pursue a different combination of coordinative and communicative discourses in their policy-making processes. Relatively complex polities with dispersed power locus generally have stronger coordinative discourse in developing policies compared to their communicative discourse to legitimate those policies in the eyes of the public. Conversely, relatively simpler political systems tend to have ‘thin’ coordinative discourse as the power locus is mostly concentrated in the hands of the executive or the ruling party but tends to have a more elaborate legitimating discourse as the public is not generally involved in the initial development of the policy itself. As the level of coordinative discourse affects the number and type of actors who get to have their cognitive or normative ideas considered about potential policy, different institutional arrangements could influence not only the process but also the substantive content of policy as well (Fairbrass, 2011; Schmidt, 2002). In the cases considered in

this paper institutional structures in Ohio and more broadly, the United States, come closer to ‘compound polities’ whose policy-making processes require an elaborate coordinative discourse but ‘thin’ communicative discourse. The results of this study suggest that there was indeed elaborate coordinative discourse in Ohio as policy actors were embroiled in debates about various aspects of the policy. However, contrary to the stipulation in the discursive institutional perspective, there also seems to have been an elaborate communicative discourse as opposed to a ‘thin’ one. Comparatively, institutional contexts in Ontario, and Canada more broadly, come closer to ‘simple polities’ that require ‘thin’ coordinative but elaborate communicative discourse. Nevertheless, the results suggest that even though the coordinative discourse was ‘thin’ in the case of Ontario, the legitimating discourse was also ‘thin’-- contrary to the stipulations in the literature. So why do we see an elaborate communicative discourse in Ohio, while a limited one in Ontario contrary to what we would expect according to the discursive-institutional perspective? There seem to be several reasons that help to explain.

In terms of the institutional setting, we observe that the formal institutional structures in Ontario seem to have provided a more conducive environment for a more closed policy making style compared to that of Ohio. The *Canada-Ontario Agreement on Great Lakes Water Quality and Ecosystem Health* provides the institutional mechanism for coordination not only between the provincial level and the federal levels vertically but also horizontally among three ministries at the provincial level and seven relevant ministries at the federal level. Moreover, the *Great Lakes Protection Act* provided province level explicit policy commitments supported by legislative mandates. As such, these institutional mechanisms that provided the overall framework for a policy response seem to have made the need for more elaborate communicative discourse in Ontario less important. This finding is in line with observations made by others in relation to the institutional approach to address non-point nutrient pollution by Canada and Ontario. Referring to the politics of water pollution control in the Great Lakes, Verweij indicates that Canadian institutions resemble European ones in that “their environmental decision making processes are often based more on consensus than they are in the United States” (Verweij, 2000, p. 1010).

In the case of Ohio, there was no overarching institutional framework to coordinate the activities of the various actors and thus shape the nutrients discourse. The only relevant regulatory framework, the Clean Water Act, only served to provide actors with incomplete tools and interpretations on its applicability to non-point source pollution, pushing actors to resort to the Courts to interpret them. In addition, the various state and municipal level agencies and commissions seem to have their own agendas and programs, which are not coordinated with the efforts by the state legislature or even with the line departments. Reflecting the tradition of the ‘separation of powers’ among government entities, the Ohio Domestic Action Plan provides separate sections of activities divided by the relevant line departments. The complete independence between the relevant officers in the line departments and the legislature in the Ohio assembly (unlike in Ontario) also seems to contribute to the divergence in the policy discourse. This is also manifested in the fact that considering Ohio’s long history in dealing with nutrients it is remarkable to see the state still facing difficulties in embarking on a coherent strategy to deal with non-point nutrient pollution in Lake Erie. Ohio’s institutional fragmentation and the constitutionally created checks and balances seem to have created a condition that made it difficult for a coordinated strategy. With such type of institutional structures, it is likely that “environmental problems cannot be addressed quickly or adequately” (Kraft, 2011, p. 77).

Even though both Canada and the U.S. have issues of fragmentation when it comes to water quality policy, these problems have roots from different institutional traditions. Fragmentation in the Canadian case happens because of poor institutional design that fails to bring more coordination (Bakker & Cook, 2011). Conversely, fragmentation and uncoordinated institutional mechanisms occur in the United States partly because they were designed to be so (Binder, 1999, 2015). The late constitutional scholar and U.S. Supreme Court Justice Antonin Scalia observes that this design, which often leads to gridlock in the American political system, was deliberately designed by the forefathers and that Americans need to “learn to love the gridlock” (C-SPAN, 2011). In addition, the U.S. constitution allocates ‘residual powers’ to the states, and not to the federal government as it does in Canada (Skogstad, 1987). Hence, in many cases the federal government cannot overstep on “states’ rights” in terms of demanding the states to act in some environmental issues, further contributing to the fragmented policy approach as was the case with the non-point source nutrient pollution in Ohio. Thus, the institutional structures in place with specific reference to nutrients issues in the Great Lakes basin seem to have guided the policy process and obviate the need for an elaborate legitimating discourse in Ontario. Conversely, the absence of such structures required the concerned authorities to engage in an elaborate legitimating communicative discourse in Ohio.

In both cases, we have seen that there was some level of interaction between the institutional context and the policy discourses in each region. While the conceptual map in Fig 4.1 above suggests a neat and clear relationship between discourses and institutions along a hierarchical scale, the case studies reveal that the relationship is more of a spiral than sequential. In Ontario, the Canada-Ontario Agreement seems to have provided the impetus for the policy discourse that resulted in the Great Lakes Strategy in 2012, and later to the Great Lakes Protection Act in 2015. Such institutional provisions then provided further energy to the water quality related discourse that may now produce specific institutional structures in order to implement the domestic action plan (DAP). In the Ohio case, the relationship between institutional structures and discourse was more diffuse, more political/partisan that also involved the courts. The earlier ‘soft’ institutional provisions (such as the Great Lakes Restoration Initiative - GLRI) seem to be too weak to provide the policy discourse with some level of legitimacy needed for authoritative calls for more regulatory actions to safeguard water quality in Lake Erie. Thus, even though the discursive-institutional conceptual map has been helpful in revealing the dynamics of the policy discourse in relation to the institutional context, other factors also need to be considered for a better appreciation of the way the eutrophication discourses evolved differently in each region.

#### **4.6.2 Non-institutional factors and interactive discourse**

In the section above we saw that contrary to what we would have expected based on the literature on the relative shares of the coordinative (in policy making) and communicative (in policy legitimation) discourse between Ontario and Ohio we saw ‘thin’ communicative discourse in Ontario, while it was more elaborate in Ohio. Schmidt notes that there could always be non-institutional factors that act as intervening variables in affecting the nature of the interactive discourse, for example as in the case where the general public is not interested in an issue due to its complexity (Schmidt, 2000, 2002). This seems what might have happened in the case of Ontario with the diminished level of communicative discourse in the eutrophication discourse relative to that of Ohio. In addition to the institutional contexts that shaped the nature of the

interactive discourse as elaborated above, non-institutional factors may also have affected the nature of the interactive discourse to some extent.

After the heightened sense of concern in addressing agricultural nutrients related water pollution in the early 2000s (Ali, 2004; Hrudey, 2008; Prudham, 2004), Ontario has not had to deal with any major problems of algae in Lake Erie in the 2010s (Johns, 2017). This is partly due to the proximity of the occurrence of those early algal problems to the Ohio shores on the southwestern parts of Lake Erie (IJC, 2009; OEPA 2010). In Ohio, efforts specifically geared toward addressing algal blooms in Lake Erie date back at least to 2004 (GLRC, 2005; LEPR, 2008). Moreover, Ohio has been active in preparing nutrients strategies as part of its nutrient runoff contributions to hypoxia problems in the Gulf of Mexico through the Mississippi River. Even after algal blooms started to become significant in the 2010s the level of scientific understanding for its occurrence differed between Ontario and Ohio. In Ohio, a number of dedicated facilities and research units had been following the increases in dissolved reactive phosphorus since the mid-2000s (Ohio Lake Erie Commission, 2008). By the time the first Ohio Phosphorus Task Force delivered its report in early 2010, there was a fairly comprehensive scientific understanding of the sources of the problem and its effects, which were further detailed with the second report in 2013 (Ohio Lake Erie Phosphorus Task Force, 2010, 2013). There seems to be a lack of a comparable, focused scientific research initiative on the Ontario side of the basin, and more specifically on the Thames watershed, that could spell out the exact contributions of point and non-point sources of nutrient pollution until the 2010s (Michalak et al., 2013). As recently as 2017, the Ontario Federation of Agriculture had to commission a consultant to provide it with a rough estimation of the possible contribution of agricultural runoffs in the Thames watershed. Building on a single study by Nürnberg and LaZerte (2015) it was estimated that out of total non-point runoffs, 18-51% of DRP and 66-74% of TP came from agriculture (BluMetric Environmental Inc, 2017).

The different contexts, and differences in the complexity of each region's governance systems, as well as the objective biophysical conditions contributing to the problem, thus seem to have led to differences in the nature of the nutrients discourses. In Ohio, there were clear indications of the major role of agricultural runoffs by 2010, which led to the discourse in Ohio to focus on the role of the agricultural industry's culpability and the lack of coordination of efforts. However, in the case of Ontario, without a clear understanding of the cause-effect relationships of the eutrophication problem, those policy actors blamed external variables (such as climate change) and the government as a whole for not doing enough to keep the lakes 'great' (Dryzek, 2013). In addition, major population centers such as the City of Toledo and the Cleveland Metropolitan area, both within the reach of algal blooms that originate in the western basin, make the eutrophication problem a politically sensitive issue on the Ohio side. The issue had become a key talking point for the mayoral races in Toledo in 2017, while some have observed that Governor Kasich's reluctance to take strong action might have been linked to political calculations during the 2016 presidential election cycle wherein he was a candidate. On the Ontario side, the city of Windsor on the northern shores of WLEB is the only major population center in the area and it seems to not have experienced any severe algal blooms as experienced in the southern shores. As such, these non-institutional factors may also have contributed significantly to differences in the emphasis on the nature of the interactive discourse in the two regions with respect to the immediacy of actions to address the problem (Fischer 2003).

## 4.7 Conclusion

This paper situates the interactive dimension of the eutrophication discourses in the western Lake Erie basin in their institutional settings. In doing so, we focused on how the institutional contexts in Canada as a simple polity and the United States as a compound polity may have affected the nature of the interactive discourse in both Ontario and Ohio. The significance of situating discourse in institutional contexts is that the very nature of coordinative discourse affects the number and type of actors who get to have their cognitive or normative ideas considered about potential policy. As such different institutional arrangements could influence not only the process but also the substantive content of policy by the way they shape the interactive policy discourse.

In the cases considered in this paper, we see that institutional structures in Ohio, and more broadly the United States prompted an elaborate coordinative discourse in Ohio as policy actors were embroiled in debates about various aspects of the policy process. In Ontario, some important formal institutional structures that helped bring together key actors at the provincial and federal levels seem to have provided a more conducive environment for a more collaborative policy making style compared to that of Ohio. As such, these institutional mechanisms seem to have made the need for more elaborate communicative discourse in Ontario less significant. In the case of Ohio, the Clean Water Act did not provide the needed institutional framework conducive for coordinated policy approach among the major policy actors. Thus, the extent to which the institutional contexts in Canada and the U.S. create fragmented approaches to water quality policy differs significantly, at least in the cases of Ontario and Ohio.

In this study, the fragmentation observed in the case of Ontario in relation to water quality policy was not very pronounced, probably due to the relevant stipulations in the *Nutrient Management Act* and the *Great Lakes Protection Act*. We do not see comparable regulatory frameworks on the Ohio side. However, the differences in the nutrient related discourse also seem to have been influenced by non-institutional factors as well, highlighting the contextual nature of discourse. The implications for policy practice could be that the extent to which commonly agreed binational or international environmental targets are achieved could be dependent on the differing institutional contexts among countries. This means that in addressing environmental issues that cross political boundaries or even occur at regional and global levels, the domestic institutional formations of countries could be a significant factor to the overall success of achieving policy targets. Thus, in the current era of climate change and the urgent need for collective action, an important variable to consider would be the extent to which the internal institutional structures of countries promote or constrain domestic and international initiatives to tackle common societal problems.

## Chapter 5

### Conclusion

This chapter reviews the main findings in the preceding chapters and provides an elaboration of the implications of the findings for the broader literature and practice. It also brings together the findings presented in individual chapters above into an integrated conceptual whole. First, the purpose and objectives of this research project are briefly reviewed in section 5.1 followed by a summary of major findings in section 5.2. Next, I discuss the significant, original contributions to knowledge that this study makes to the academic literature, presented in section 5.3. This section also includes a discussion of some potentially useful recommendations for policy practice. This is followed by some discussion on the limitations and challenges encountered over the course of this research project. Finally, research reflections are presented in section 5.4. This section includes some thoughts on conducting research on a comparative case study basis as well as other personal reflections, including some ideas for further research.

#### 5.1 Purpose and objectives

The purpose of this study was to assess the role of discourse in influencing policy, and how the broader institutional setting in the context of eutrophication and water quality policy in Lake Erie basin enables or constrains the influence of that discourse. To achieve this purpose, the different ways in which discourse manifests in environmental policymaking contexts were identified and examined within the geographical setting of Lake Erie basin, shared between Canada and the United States. I conducted an in-depth study of the eutrophication related discourse in a comparative case study approach between two watershed-focused cases in Ontario and Ohio. These multiscale cases straddle the watershed, the provincial/state, and the federal levels. In order to achieve the purpose of this study, I undertook three major tasks. First, the way groups of actors come together in coalitions to promote a common storyline within the broader discourse around eutrophication and water quality policy was assessed. Next, two major agricultural organizations were selected from those coalitions in order to study in detail the specific strategies and tactics employed by such major policy actors in promoting specific discourses. Finally, the role of discourse in the policy process was situated within its institutional context. This helped me to better relate the enabling and constraining role of institutional setting to actors' environmental policy discourses. Specifically, the following three objectives guided this research as it sought to:

- a) Assess the role that discourse coalitions and storylines played in influencing the policy process to develop Domestic Action Plans (DAPs) in both Ontario and Ohio;
- b) Identify the specific discursive practices of the Ontario Federation of Agriculture and the Ohio Farm Bureau in attempting to influence policy outcomes related to nutrient pollution;
- c) Assess how the institutional context in both Ontario and Ohio may have affected the nature of the nutrients and water quality policy discourse.

## 5.2 Major findings

This section highlights the major findings from each of the chapters above (see Table 5.1 below). Chapter Two explored the various storylines that constituted the broader discourse around nutrient runoffs and the accompanying problem of eutrophication of Lake Erie. It drew attention to the dynamics of how various actors are brought together into discourse coalitions as they promote different elements of the same storyline that contains a specific conception of the problem and approaches of addressing it. The specific discursive activities undertaken by individual members of the discourse coalitions is assessed in detail in Chapter Three. In this chapter, the cases of the Ontario Federation of Agriculture and the Ohio Farm Bureau were taken in each case for in-depth analysis. This chapter provided insights into the power dimensions of discourse and its links to the material and structural capacities actors have in influencing policy. The constraining or conducive effects of the institutional context on the actors or coalitions in pursuing their goals is taken up in Chapter Four. This chapter situates the discursive influence of policy in its broader constitutional and other enduring institutional contexts. The differing institutional contexts between Canada and the United States at the federal level, and Ontario and Ohio at the provincial/state level, were shown to affect the policy discourse differently.

In Chapter Two, the detailed analysis of storylines and discourse coalitions shed light on how policy problems are defined and responsibilities are assigned to actors. Storylines define broad environmental issues into specific policy problems that require different approaches in addressing them. They do this by constructing a narrative that includes and emphasizes certain aspects of the problem while ignoring or deemphasizing other aspects. The ‘weak governance’ storyline in Ontario and the ‘random acts of restoration’ storyline in Ohio were similar in their conceptualization of the problem as well as the desired solutions: both consider the alleged weak governance structures and processes in the two regions largely to blame for the algal bloom issue.

The ‘weak governance’ storyline relies on the argument that for a long time, the water governance system in Ontario has been fragmented due to lack of institutional coordinative mechanisms among federal and provincial mandates and among provincial ministries dealing with water. The ‘random actors of restoration’ storyline emphasized the lack of coordination among state agencies themselves and with federal departments in discharging their responsibilities. This was especially the case in the inability to efficiently and effectively administer the significant amounts of financial resources being allocated annually by both levels of governments. Similarly, in the ‘farmers shirking responsibility’ storyline, the farming community is assigned blame for failing to act responsibly on a shared resource, while the government is blamed for not taking bold actions to establish mechanisms where delinquent actors could be held responsible. As such both the ‘farmers shirking responsibility’ and the ‘random acts of restoration’ storylines in Ohio invoke the same notion of lack of leadership from governmental actors in protecting the environment (Metze & Dodge, 2016). Unlike with the other three storylines wherein some specific actor bears the bulk of the blame, with the ‘external factors’ storyline in Ontario, there is no single actor that is held responsible as the main culprit to the problems in Lake Erie. This storyline deflects focus and blame away from any single actor and puts it in diffuse interrelationships among biophysical and climatic factors acting externally to the governance system.

Chapter Two also showed how discourse coalitions may not be bound by geographic proximity and that policy influence can come from outside a specific geographic or other



jurisdictional policy setting. ENGOs operating across the Canada – US borders, and the binational advisory body, the IJC all were important constituents of those discourse coalitions demanding more and bold actions. This diffuse nature of discourse coalitions thus opens up the potential for policy influence from other jurisdictions, raising important questions on who gets to have a ‘legitimate’ voice to be considered in the policy process. This chapter also showed how the interests of some actors, as opposed to the ideas they subscribe to, might have been an important factor in bringing some of the members of the coalitions together. This was seen in the case of the ‘externals factors’ storyline in Ontario and ‘random acts of restoration’ storyline in Ohio, wherein the interests of the farming community in avoiding regulations seemed to have been a principal reason for them in promoting those storylines (Huitema, 2002; Kern, 2011). Moreover, governments in both Ohio and Ontario seem to have prioritized protecting agricultural production and the economy in general in their approaches to environmental protection. Thus, we see an interplay of ideas and interests in bringing actors together in promoting a preferred problem definition and policy response.

Overall, this chapter provides insights into how storylines can construct a broad issue into a ‘problem’ with identifiable cause-effect relationship and assign responsibilities to actors. Such specific conceptualizations of problems help make certain responses look more appropriate than others in the eyes of decision makers, with important implications for the extent and level of urgency with which policy actors may respond to environmental issues. Chapter Two thus provides important insights that support the usefulness of the concept of discourse to a better understanding of freshwater policy and governance. While discourse coalitions might engage in discursive contestations to influence policy, not all coalitions are similar in terms of how influential their voices might be. Some are comparatively better positioned to influence policy than others, as detailed in Chapter Three.

Chapter Three provided an illustration of how the exercise of discursive influence requires more than the creative use of language in shaping the policy process. We saw that the discursive influence of actors is supported by, and works in tandem with, their material and organizational capacities. In the context of the Ontario Federation of Agriculture and Ohio Farm Bureau, such capacities supported their position in the socio-economic structure, enabling them to have the ear of key decision-makers and also to create and maintain partnerships, coalitions, and alliances with various groups that are considered not to pose any major challenge to their environmental practices. The combined outcome of such efforts helps them to create some level of ‘discursive legitimation’ or to earn some ‘social license’ to operate. This chapter also showed how actors may be able to influence legislative processes in a preemptive fashion, by influencing the broader context itself, as was shown with the case of the OFB. While lobbying can be considered a legal and normal part of the political process, the extent to which lobbying efforts are supported by other discursive activities to produce more effective results for dominant actors is an important finding in this chapter (Bellemare & Carnes, 2015).

While the post-war era “agricultural exceptionalism” that actors in the farming sector enjoyed may be changing in recent decades the current dominant neoliberalism economic system seems to have created a more favorable political and economic space that prioritizes economic sustenance over environmental protection. The agricultural industry also works actively to nurture such dominant views by engaging in framing activities in depicting its farming operations as well as its policy positions. We saw that the problems of nutrient runoff were framed by both the OFA and OFB by latching issues to the broad ideals such as the need for continuous and viable food

production, and healthy nutrition. They also depicted their practices in a way that presumed a harmonious coexistence of agricultural operations with environmental goals. Chapter three thus provided insights on how actors use framing strategies not only to initiate change but also how to resist change and maintain the status quo (Goodwin & Grix, 2011). This resistance included influencing policy by challenging the scientific basis for decisions that imply significant changes for agricultural operations. The chapter also gave a detailed and nuanced account of the actual process of discursive influence, offering more insights into how discursive power is actually exercised (Fuchs, 2007; Fuchs & Kalfagianni, 2009).

From both chapters two and three, we understand that the final shape of the Domestic Action Plans in both Ontario and Ohio was influenced by discourse coalitions promoting specific storylines and the relative power/influence of the constituent actors within those coalitions. Consequently, the different discourse coalitions have had differing impacts on the language and the substantive content of the final Domestic Action Plans (DAP) in Ontario and Ohio. The stated objectives of these DAPs was to serve as a blueprint to guide the implementation of their policy commitments to tackle the issue of eutrophication that has harmful consequences to human and animal health. However, we were able to identify changes in the way phrases and expressions were modified and edited in successive iterations of the draft documents of the DAPs. The result was that in their final form they conveyed a more subdued and less ambitious policy commitment from the perspective of environmental concerns. In both jurisdictions, the DAPs especially steered away from pressuring the single most important source of nutrient runoffs: the agricultural industry. This largely meant the continuation of the current pace of actions in a mostly voluntary approach, thus diminishing the urgency for action. However, we also observed that the potential for influence by actors was either enabled or constrained by the broader and institutional setting in the two jurisdictions. Therefore, Chapter Four focused on the different institutional contexts in the two regions with the goal of exploring how such structures affected the nature and form of discourse.

Chapter Four assessed how institutional structures may have affected eutrophication related discourse among policy actors with the help of the discursive-institutional perspective (den Besten et al., 2014; Schmidt, 2010). It showed that institutional structures in Ohio, and more broadly the United States, come closer to ‘compound polities’ whose policy-making processes require an elaborate coordinative discourse but ‘thin’ communicative or legitimating discourse. It also showed how, due to the structure of the institutional arrangements, policy actors in Ohio found themselves embroiled in debates about various aspects of the policy process in both policymaking and policy legitimation. Such struggles may be attributed to the lack of an overarching institutional framework to coordinate the activities of the various actors and provide the overall nutrients discourse with a shared vision. The most relevant regulatory framework, the Clean Water Act, only served to provide actors with incomplete tools and interpretations on its applicability to non-point source pollution, pushing actors to resort to the Courts to interpret them. Reflecting the tradition of the ‘separation of powers’ among government entities, the Ohio Domestic Action Plan also provided separate sections of activities for implementation assigned to the relevant line departments.

Comparatively, we saw that the institutional context in Ontario, and Canada, comes closer to ‘simple polities’ that may require only ‘thin’ coordinative discourse but more elaborate legitimating discourse. We observe that the formal institutional structures in Ontario seem to have provided a more conducive environment for a more closed policy making style compared to that

of Ohio. The *Canada-Ontario Agreement on Great Lakes Water Quality and Ecosystem Health* provides the institutional mechanism for coordination not only between the provincial level and the federal levels vertically but also horizontally among three ministries at the provincial level and seven relevant ministries at the federal level. Moreover, the *Great Lakes Protection Act* provided province-level explicit policy commitments supported by legislative mandates. As such, these institutional mechanisms that provided the overall framework for a policy response seem to have made the need for more elaborate communicative discourse in Ontario less pressing.

However, non-institutional factors also seem to have had a significant role in influencing the nature of the discourses in the two jurisdictions. The difference between Ontario and Ohio in terms of their major urban areas and population centers near the part of the Lake that was prone to visible algal blooms was an important factor. The differences in the level of awareness and understanding about the issues among the public, and the availability and dissemination of relevant scientific information, also seem important factors. As such, these non-institutional factors may also have contributed to the nature of the interactive discourse in the two regions especially with regard to the call for immediate actions to address the problem. Chapter Four thus situates the interactive dimension of the eutrophication discourses in the western Lake Erie basin in their institutional settings. The significance of situating discourse in institutional contexts is that the very nature of coordinative discourse affects the number and type of actors (e.g. indigenous communities) who get to have their cognitive or normative ideas considered about potential policy. As such different institutional arrangements could influence not only the process but also the substantive content of policy by the way they shape the interactive policy discourse.

Collectively, the findings from each chapter show the importance of discourses in providing a seemingly coherent account of complex issues with many scientific, political and cultural component parts by distilling them into comprehensible narratives amenable for policy interventions. They also show the limits and opportunities that actors promoting discourses face within the broader and more enduring institutional context. They also provide detailed and critical analyses of the state of the eutrophication problem and water quality policy process in the broader Lake Erie basin. This gives rise to a number of significant and original contributions to knowledge as elaborated below.

## **5.3 Contributions**

### **5.3.1 Theoretical and empirical contributions**

One of the ultimate aims in this research has been to complement weaknesses in the water governance literature in its treatment of the role of discourse in influencing collective decisions by various stakeholders in the context of managing shared resources. Contrary to many approaches in resource governance that treat language and discourse as neutral tools to facilitate communication and collective action (Ostrom, 2006), this study shows that discourse is indeed imbued with power. The extent to which particular groups have dominance on the terms with which policy options are debated is directly tied to their powers to influence policy outcomes. In this regard, this research makes four significant and original contributions to the academic literature. The first theoretical contribution from this work relates to the conceptual elaboration of storylines and the exercise of discursive influence by actors in the context of freshwater policy and governance. The second conceptual contribution relates to broadening the scope of institutional approaches, especially the institutional analysis and development framework (IAD)

based approaches, to include the important role of discourse. Thirdly, this research provides an empirical social scientific account of the relationship between discourse and the institutional setting for water governance in the context of eutrophication issues in Lake Erie basin. Finally, this research provides methodological insights on the use of critical discourse analysis and framing theory to study discourse and its power effects.

The first theoretical contribution relates to the conceptual elaboration of discourse and discursive power in the context of freshwater policy and governance, supported by empirical investigation into how they shape the policy process in a multilevel case study approach. This study provides key insights into the importance of the process of defining issues into problems. This insight about problem definition is important not only because it directly affects the kind of solutions that are deemed appropriate in light of that definition but also the nature of the problems that modern societies are facing in this age are increasingly becoming difficult to define (Termeer, Dewulf, Breeman, & Stiller, 2015). As Peters (2005) notes many modern societal issues now have confounding characteristics that make the process of issue definition problematic:

For example, conventional economic problems are now transforming into ‘‘competitiveness’’ problems that involve not only finance but also labor, environmental, and education issues (Peters, 2005, p. 352).

Thus, with many ‘environmental’ issues also having social, political and economic dimensions, the struggle on whose definition eventually prevails directly impacts the allocation of responsibilities and resources in addressing those issues (Hornbeek & Peters, 2017). In the cases considered in this research, the economy was found to be a key confounding factor within the broad discourse, with studies commissioned to determine the ‘economic’ impacts of the problem (Bingham et al., 2015). While there have been various studies that show how exactly storylines construct issues into problems especially in the areas of forestry (Dang et al., 2012; Rantala & Gregorio, 2014) and energy transitions (Rosenbloom, 2018; A. Smith & Kern, 2009), the literature that makes similar contributions in water governance has been very limited (Sherren et al., 2017). This study offers a significant contribution to the water governance literature in terms of the elaboration of discourse in the context of the policy process and implications for freshwater quality focused environmental initiatives (Guo et al., 2019).

In addition, by operationalizing the concept of discursive influence as a form of power and relating it to the dominant positions of some actors in society, this study illuminates the actual practice of influencing policy discursively. An important contribution from this study is how some actors might be able to influence the very context of the policy process itself. As two prominent scholars in new institutionalism have noted before:

There is a tendency for large, powerful actors to be able to specify their environments, thus forcing other actors to adapt to them. Dominant groups create environments to which others must respond, without themselves attending to the others (March & Olsen, 1989, p. 47).

Thus, this work provides insights and empirical evidence into how the three dimensions of power may support each other to the benefit of particular groups. As shown in other contexts (Clapp & Meckling, 2013) powerful actors may engage in lobbying activity, influencing market conditions, and issue framing exercises. This study provides a detailed analysis of the interlinkage of actors’ material and organizational capacities and how they relate to their discursive efforts. In doing so this study contributes to a better understanding of power as a concept and how it may be

exercised in real-world environmental governance contexts. In this study, the ability of the OFA and OFB to influence the socio-economic context can be seen as a manifestation of dominant actors forcing other actors to adapt to the changing circumstances of the context of the policy process. This power to force other actors to try to adapt to the changing context can be seen in the selective use of policy-relevant science, and challenges to potentially unfavorable results from modelling efforts. The many uncertainties around the actual dynamics of large-scale algae formation and the inconclusiveness of the science in attributing numeric contributions of nutrient runoffs from specific sub-watersheds and farm plots were exploited in favor of delaying mandatory actions by agricultural actors. An important insight is that such actors were able to do this, in part, due to their perceived importance to the smooth functioning of the existing political-economic system that often gives them "privileged access to government politicians and decision-makers" (Clare et al., 2013, p. 47). Thus, this study has contributed to uncovering non-observable conflicts of interest among actors by revealing the ideational and normative justifications that exist before decisions and non-decisions are made in the context of water quality policy process (Conroy, 2018; Guo et al., 2019). This provides important insights into understanding water quality issues in other parts of the world.

The second contribution of this research relates to elaborating and examining the value of the discursive-institutional theoretical approach in guiding water governance research (Schmidt, 2010). In particular, this study has illuminated the interactions between actors and their discourses, and the institutional frameworks that act as the context for the policy process. The results of this analysis provide supporting evidence to the argument that discourse and institutions operate in a spiraling, dialectical fashion as shown in the works of den Besten et al. (2014). This process consists of a spiral development of institutionalization of earlier ideas and discourse, which in turn give impetus to the emergence of new actors, and ideas because of the opportunities and constraints accorded by the new institutional arrangements. Thus, while the dominant discourses that resulted from previous institutionalization of ideas, helped give rise to the current form of the DAPs, the institutional frameworks that would result from the DAPs would also in turn open up spaces for new actors and ideas. As these domestic action plans move into implementation stages, the discourses that have percolated in these plans would find institutional expressions through guidelines and other operating procedures.

Within the broader scholarship of institutionalism, this study also makes contributions to enriching the combined IAD/SES (CID) framework that incorporates discourse as an integral component of the framework. This research shows that in addition to material resources, actors also have important linguistic and other discursive resources at their disposal that the literature has generally disregarded. Instead of treating language as a neutral tool for communication and understanding this framework accords importance to the strategic use of language as a resource and source of power in social interactions (Rydin, 2003). While Ostrom (2006, p. 37) recognized that the "stability of rule-ordered actions depends upon the shared meaning assigned to the words used to formulate a set of rules", the different capacities that actors have to imbue those words with their preferred meanings is left open as a problem "that typify any language-based phenomenon". But many empirical studies have shown that when actors come together in pursuit of common goals there is potential for different framings of broad issues into specific meanings (Dewulf, Mancero, Cardenas, & Sucozhanay, 2011). There is thus the potential for the capture of the terms of engagement by powerful actors thus making collectively set rules reproduce existing power relations. This work thus addresses the weaknesses in the IAD and the related SES

literature in their treatment and uncritical view of language, ideas and discursive power (Partelow, 2018; Whaley, 2018). The discursive-institutional perspective, as a relatively new approach to policy analysis, also benefits from this work in terms of elaboration and empirical grounding of its concepts.

Thirdly, this study provides an empirical account of the interaction between policy discourse and the institutional setting with respect to the problem of eutrophication in freshwater bodies (Jetoo, 2018). This work contributes to nuanced and critical understanding of the Lake Erie social-ecological system by highlighting the role of ideas, ‘notions’ and discursive practices and their power dimensions in influencing policy through storylines. Especially significant is the simultaneous consideration of the watershed, regional and national level institutional influences that are relevant in the context of a binational water body. In terms of the governance system, we observe that tight delineation of the governance system at any one scale may leave out important linkages to other administrative or geographic scales. More importantly, it may leave out important ‘problemsheds’ that remain outside of the scope of consideration purely due to their geographic location or administrative jurisdictions (Mollinga, Meinen-Dick, & Merrey, 2007). The case of the county level, state level, and national level Farm Bureau organizations and their policy influence, whereby a Farm Bureau from far away state may intervene, shows that there is more work to be done by decision makers in considering a better multi-level analysis along adjacent action situations (McGinnis, 2011). Based on empirical study, this research also provides indications of how institutional change may need to be preceded or paralleled with changes in discourse, in line with the understanding of discourse as the ‘software’ of institutional processes. As Rydin (2003) notes, “institutional change has to go alongside discursive strategies in achieving resolution of conflicts and developing a more common approach”. If the ultimate aim of the DAP policy process is the sustainability of the Lake Erie ecosystem, then the very discourse around sustainability needs to reflect those ideas that the institutional processes are aspiring to achieve.

Finally, the fourth conceptual contribution relates to the methodological insights gained over the course of studying discourse and its power effects by employing critical discourse analysis (CDA) and framing theory (Morrison et al., 2019). Traditionally, CDA and framing theory have occupied rather distinct domains in the literature, with CDA associated with the study of ideological practices and discursive psychology, while framing theory is more common in studies focused on understanding of the media depictions of social events (Gamson et al., 1992; Watts & Kaza, 2013). By combining both approaches, the researcher is able to make explicit links between individual words and phrases in the texts of policy documents to their significance in the broader network of social relations. Thus, it brings down to earth some abstract notions about how a society works to tangible micro-level expressions of such broader processes and structures. This approach also helps us provide a detailed and nuanced account of the process of discursive influence and insights into how it is actually exercised. By also directing our attention to the material and organizational basis of policy influence, and actors’ position in society such an approach offers a more complete picture of the overall capacities for policy influence. Thus, by bringing together these two important strands of methodological approaches this study supports other similar, emerging attempts (Mattheis, 2017; McIntyre, Patterson, & Mah, 2018). Another related insight links research methodology to broader epistemology. One of the criticisms leveled at researchers who study discourse or employ discourse analytic approaches is the extent to which they could stand ‘outside’ of discourse in studying it. This study shows that the very fact of being

critically aware of the potential for being influenced by discourse is a very important step to not be a helpless victim to discourse (Dryzek, 2013). In this regard, this study provides support to the arguments by Hidding and colleagues who note that:

Each of us - academics, policy makers, politicians - tends to think within a discourse. But we do not need to be imprisoned within it. Moreover, being made aware of what we have been taking for granted ... can be liberating, academically and politically (Hidding, Needham, & Wissershof, 2000, p. 129).

**Table 5.1. Summary of contributions by chapter**

Contributions	Chapter 2	Chapter 3	Chapter 4
Problem context and theoretical orientation	<ul style="list-style-type: none"> <li>• How environmental stewardship actions related to water quality perform is partly the result of the different interpretation of problems by different groups of actors having different environmental values and the appropriate courses of action advocated by those groups. In the context of water quality problems, this chapter unravels the effects of those different interpretations on achieving environmental policy targets via the concepts of discourse, discourse coalitions and storylines.</li> </ul>	<ul style="list-style-type: none"> <li>• Environmental regulations can face challenges during the formulation and implementation stages by those actors who are likely to be negatively affected. Resistance to regulations takes the form of relatively visible responses such as non-compliance or less visible ones such as lobbying, media campaigns, and other efforts that seemingly do not directly challenge a specific regulatory instrument. Such ‘discursive’ strategies are deployed by actors to protect or maintain economic and other interests. This chapter assesses these processes and their implication for effectiveness of basin wide nutrient reduction programs. Discursive power and policy framing are two major concepts guiding this chapter.</li> </ul>	<ul style="list-style-type: none"> <li>• There is a close link between dominant discourses and the institutions that arise as reflections of the substantive idea of those discourses. Those ideas may end up enshrined in policies, rules, and regulations, which in turn affect the nature of the policy discourse. This chapter focuses on the extent to which different institutional structures in the two regions considered shape the nature of the policy discourse. The theoretical orientation in this chapter draws on insights from the Politicized Institutional Analysis and Development and the combined IAD-SES.</li> </ul>
Major findings	<ul style="list-style-type: none"> <li>• Groups of actors, who are either impacted by, or involved in addressing eutrophication problems differ in their conceptualization of the main aspects of the problem as well as the appropriate courses of action to respond to the problem.</li> </ul>	<ul style="list-style-type: none"> <li>• Within the policy process to address eutrophication problems, two major actors in the basin, the OFA and the OFB have been engaged in activities that depict themselves in a positive light with regard to environmental protection. This involves accentuating the role of agriculture in the political economy as</li> </ul>	<ul style="list-style-type: none"> <li>• Different institutional structures shape the nature of policy discourse differently. These differences at federal, provincial/state and local levels helped shape the nature of policy discourse differently between Ontario and Ohio. In Ontario, the presence of relatively clear regulatory provisions specific to the waters of the Great</li> </ul>



Contributions	Chapter 2	Chapter 3	Chapter 4
	<p>Such coalitions promoted story-lines that reflect the values and interests of the constituent members. The relative influence of these coalitions in the policy process has shaped the final form of the domestic action plans (DAP) in Ontario and Ohio.</p>	<p>well as defining and framing issues in specific ways in their engagements in the policy process. Their main goal was to push for voluntary and incentive based approaches to address the eutrophication problem. In this regard, their significant material and organizational capacities enabled them to engage in extensive discursive influences of policy that contributed to shape the nature of the DAPs.</p>	<p>Lakes enabled actors to have some level of coordination in their discourse on what needs to be done. Conversely, the absence of clear institutional framework directly applicable to the Lake Erie issue in Ohio meant that actors were embroiled in acrimonious discourse that even led them to the courts. Such differences impact the effectiveness to achieve environmental targets set in the DAPs.</p>
<p>Academic contributions</p>	<ul style="list-style-type: none"> <li>• This chapter provides key insights into the importance of the process of defining issues into problems. With many ‘environmental’ issues also having social, political and economic dimensions, the struggle on whose definition eventually prevails directly impacts the allocation of responsibilities and resources in addressing those issues. It offers a significant contribution to the water governance literature in terms of the elaboration of discourse in the policy process and its implications for freshwater quality focused collective environmental initiatives.</li> </ul>	<ul style="list-style-type: none"> <li>• By operationalizing the concept of discursive influence as a form of power and relating it to the dominant positions of key agricultural actors, this chapter illuminates the actual practice of influencing policy discursively. An important contribution from this study is how some actors might be able to influence the very context of the policy process itself. Thus, this chapter provides insights and empirical evidence into how material, organizational and discursive capacities may support each other to the benefit of particular groups. By doing so, this study contributes to a better understanding of power as a concept and how it may be exercised in real-world environmental governance contexts.</li> </ul>	<ul style="list-style-type: none"> <li>• This chapter examined the value of the discursive-institutional approach in guiding water quality policy research. It illuminated the interactions between actors and their discourses, and the institutional framework that acts as the context for the policy process. It provided insights into how discourse and institutions operate in a spiraling fashion, one affecting the other across administrative and temporal scales as the institutionalization of some ideas and discourse in turn give impetus to the emergence of new actors and discourses based on the opportunities that the new institutional arrangements open up.</li> </ul>

### 5.3.2 Recommendations for policy practice

In general, critical approaches in the social sciences that adopt the social constructivist perspective have been hesitant in providing recommendations about ‘a right approach’ in how society should conduct itself (Jones, 2002). However, this does not mean that nothing useful can be said that can help practitioners in their attempts to achieve sustainability-related policy objectives or better social-ecological outcomes. One of the major contributions of this study to policy practice is the recognition of the significance of environmental values and differences in powers among actors in affecting the outcomes of environmental initiatives that involve a diversity of actors. In a recent systematic review of the current literature Porter and Birdi (2018) identify “22 reasons why collaborations fail” in water governance. They find the theme [resistance to] “Acceptance of different social values, norms and cultures” to be among the top three factors contributing to failure in collaborative water governance. This means that the failure to acknowledge and properly address differences among actors not only in their interests but also in their social values and norms is a major source of failure in water governance. This research also supports such findings in terms of showing the significant role of stories and discourses that actors subscribe to in influencing policy objectives. The issue of power differentials among actors within the water governance context is also a key factor to consider. This may not be surprising once we recognize that approaches to study less visible forms of power and influence, including the imposition of ideas preferred by some dominant groups, have been lacking in the water governance literature in general (Brisbois & de Loë, 2015). Thus, it is important for those in a position to mobilize efforts from different sections of society (e.g. the government) to consider the often less visible ways through which the powers of actors could be at work. In addition, there needs to be a systematic effort to identify the multi-sector networks of influences that an actor brings to a policy making process. As Sheingate and colleagues note in their study on corporate interests in US agricultural policy:

[W]e find that corporations and organizations representing the banking industry, manufacturers of agricultural inputs, food processors, and the retail food sector allocate significant financial resources trying to influence food and agriculture policy. Although traditional peak associations of farmers and organizations representing the growers of specific commodities remain an important constituency in policy debates, agriculture is no longer a compartmentalized policy domain dominated by producer interests (Sheingate et al., 2017, p. 1641).

Moreover, there is also a need to recognize that environmental practices, especially in the agricultural sector may not be accurate representations of the values held by individual producers. In as much as farmers might have strong stewardship ethic and want to be part of a transition towards ‘ecological’ or ‘organic’ farming practices, broad socio-economic pressures might prevent them from doing so (Yoshida, Flint, & Dolan, 2018). Due to economic forces beyond their control, they might succumb, and remain locked in a cycle of environmentally unfriendly practices such as monoculture. Government policy thus needs to put in place appropriate measures to address those often conflicting goals that stakeholders have while engaging in collaborative environmental initiatives.

Finally, this study adds to the comparative policy literature in environmental governance in the Great Lakes basin. While there is a vast body of comparative policy literature that focuses on Canada and the United States, the scholarship that takes a discourse lens to understand governance and policy processes in the Great Lakes basin is relatively meager. By bringing a

discourse lens to comparative freshwater policy processes between Canada and the United States, this research adds to the body of policy-relevant knowledge from which decision makers working in a binational context can draw useful insights in their efforts to address environmental problems in the basin.

### **5.3.3 Limitations and ideas for further research**

#### **Limitations**

Some of the limitations in this study relate to time and logistical constraints as well as willingness and availability of potentially important informants. In the course of identifying and securing interviewees one of the main limitations encountered was that I was unable to secure an interviewee from the federal levels of government in both regions. In the case of Ontario, the Domestic Action Plan was more or less delegated to the Manager of the coordinating office within the Land and Water Policy Branch under the Climate Change and Environmental Policy Division within the Ontario Ministry of the Environment and Climate Change. I was informed by the manager that the office had assumed the primary coordinating role for both the provincial and national plans. This seemed reasonable as both Canada and Ontario drafted one single plan from the outset as opposed to the USEPA compiling finished plans from the states in the case of Ohio. Nevertheless, I thought the inputs from the federal environment department would still have provided useful insights. However, my requests for interviews were not successful, even though I interviewed some members of the International Joint Commission (IJC), an organization that operates at the binational scale. In the case of Ohio, the state had the primary role in preparing their own domestic action plans. Thus, the Ohio Environmental Protection Agency's deputy director, who was also the Director of the Ohio Lake Erie Commission was the lead authority in coordinating the process. I was able to secure an interview and other meetings with the manager of the commission. The federal body that works with the states in coordinating efforts in this regard is the Great Lakes Program Office under the United States Environmental Protection Agency Region Five Division. My request for an interview with the relevant person was directed to Ohio's deputy director of EPA. Again, interviews with authorities at the federal level would have provided a richer account of the policy process especially from the point of national environmental policy positions.

Even though interviewing more people in both regions from the different sectors might have provided a more comprehensive account of the process, I also had to balance coverage and depth with the time and resource constraints of completing a doctoral program. As a comparative case study approach that was conducted in two countries, this research also had some more challenges related to logistics and travel. When I was defending my research proposal in early fall 2016 the presidential election in the United States was approaching. After the new president took office, there was targeted travel ban to the US for citizens of a number of countries. Even though my country of citizenship (Eritrea) was not targeted then, my passport had residence permit stickers from the Sudan, which was in the travel ban. I had been refused a visa to the US previously after questions at the US embassy regarding this Sudanese residence permit. As such, I was not sure whether I would be able to enter the US and travel back and forth for my research. This raised the prospect of rethinking and restructuring the entire research project by dropping the US component of the study. This created mental distress for me as I had already passed the ethics clearance stage and was ready to start fieldwork. Fortunately, I was able to travel to Ohio for the

first leg of my fieldwork in the summer of 2017 for a period of six weeks. Later that summer, on August 24, it was announced that Eritrea will also be one of the four countries to face a travel visa ban by the US<sup>1</sup>. On this date, the details were not given on the specifics and there was no one to ask. This made me wary as to whether my visa issued a year before would also be subject to the ban. As I did not want to risk traveling to Ohio, and possibly be turned back at the border (something that would go on my record), I missed a couple of public meetings about the domestic action plans held on the 12<sup>th</sup> and 13<sup>th</sup> of September. More clarifications about the exact visa categories that were subject to the ban came on September 13, 2017<sup>2</sup>. The details were specified that in Eritrea's case it was a ban on issuance of new B1/B2 visas (mine is B2). Existing valid visas were said to function as usual. Moreover, as the domestic action plan public engagement processes were happening in parallel in both regions it was difficult for me to attend those happening in Ontario and Ohio at the same time.

The other potential limitations relate to the design of the project. While this study adopted a critical perspective to understand the policy process, other perspectives may have yielded a different but equally insightful account and interpretation of the process. Thus, this study can be understood as offering one useful interpretation of what the eutrophication problem entailed, and how the policy process is responding, among several plausible interpretations that can be produced if a different theoretical and conceptual perspective had been adopted. In addition, adopting the perspective that views language and discourse as potentially useful strategic resources to impose one's own interpretations of the world on others meant that the Habermasian 'communicative' aspect of discourse for deliberation was largely disregarded (Blau, 2010). This would imply that the potential aspect of language to enable a genuine exchange of information and ideas to reach to a solution agreeable to all parties was less emphasized. Furthermore, as the empirical cases in Chapter Three dealt with two agricultural organizations as examples of key policy actors, the roles and influences of the ENGO community, on the other hand, was left largely unexplored in a detailed manner. This would have provided a more nuanced account of how the ENGO community counters attempts by the agricultural industry in getting its way in the policy process. In addition, a detailed study of the role of the International Joint Commission and its influence in the policy process merits a dedicated study on its own. While we have seen many indications that suggest a significant influence of this binational body on the policy discourse, a detailed account of how exactly this is accomplished would have provided a rich and more complete account of the eutrophication related policy process.

From a methodological perspective, it is important that researchers are explicit on the positions that they have with regard to the issue under investigation as well as the unintended biases they may potentially bring to the study. Choosing to use Critical Discourse Analysis (CDA) as a method means that I acknowledge adopting a critical perspective. Norman Fairclough reminds us that CDA is not a 'neutral' method or approach. With origins in critical theory, it tends to have a normative stance on social issues and examines them in order to create the foundation for action. To Fairclough, the explanatory critique that CDA provides aims to serve as "a basis for action to change reality for the better" (Fairclough 2015, 48). This perspective exposes "discourse as part of exercising power over others in ways which are illegitimate, unjust or otherwise harmful" (Fairclough 2015, p.49). Thus, one of the criticisms leveled at researchers

---

<sup>1</sup> <http://www.cnn.com/2017/08/23/politics/trump-visa-sanctions-immigration/index.html>.

<sup>2</sup> <https://www.dhs.gov/news/2017/09/13/dhs-announces-implementation-visa-sanctions-four-countries>

who study discourse or employ discourse analytic approaches is issue of how a researcher would be able to 'study' discourse from 'outside' if the identifying feature of discourse is that it permeates the language that we use to communicate. However, the very fact of being critically aware of the potential of being influenced by discourse is a very important step to not be helpless victims to discourse (Dryzek, 2013). Hence, this critical awareness of what may be commonly taken for granted combined with a level of reflexivity "can be liberating, academically and politically" (Hidding, Needham and Wisserhof, 2000, 129).

### **Ideas for further research**

One of the eutrophication related issues that seems to need more elaboration is the extent to which the main actors consider the problem in Lake Erie to be a transboundary issue. Many interviewees on the Canadian side speak of the 'common' problem that we have with the Americans, even though some even characterize it to be more of an American problem than a common problem. There seems to be a sense by some stakeholders that if the science is telling us that close to 90% of the phosphorus that is contributed to western Lake Erie comes from the American side then our efforts on the Canadian side of the border should be minimal. On the American side, not many people speak about 'Canada's share of the problem' or 'the contributions from the Thames River'; the issue is primarily thought as a domestic problem. It seemed that just like Lake Michigan is considered to be 'Michigan's lake', Lake Erie also seems to be considered by many to be Ohio's own. Governor John Kasich tweets: "Lake Erie is Ohio's crown jewel. We must remain vigilant in our ongoing efforts to protect it -- and we will". Thus, it seems that for Ohioans, the problem is Ohio's problem, and for Ontarians, the issue is a transboundary or a common problem.

Many interviewees in Ontario also seem concerned that regardless of what efforts are done to curb the problem on their side the problem would still get worse if decisive action would not be taken by the Americans. This concern seems to arise from the fear by successive attempts by the new Trump Administration of cutting the budget for the Great Lakes Restoration Initiative (GLRI) by up to 90% and reduction in staff in EPA and other offices in charge of the Great Lakes. This was complemented by some concerns about the new appointments for the post of EPA administrators who were less enthusiastic about the federal governments' active roles in state-level environmental interventions. Thus, some stakeholders in Ontario question the origins, and relevance to Canadians, of the 40% phosphorus runoff reduction target. The reason Canadian decision-makers decided to go along with the target and the policy commitment might also have to do in part due to American influence on Canada's environmental policy. As Hoberg notes,

The case of water pollution is similar to air pollution in that there is a significant amount of environmental dependence as well as emulation. Pollution of the Great Lakes is an instance of the U.S. producing physical externalities that affect the Canadian environment, and thus constrain the ability of Canada to protect its own environment (Hoberg, 1991, p. 115).

A detailed study is needed to provide an account of whether policy emulation, or the true transboundary nature of the problem, has made Canada commit to the policy target that requires significant economic and social resources to implement and accomplish.

Another issue that requires further study is the apparent special treatment of the agricultural sector by governments. Governments may make regulations to restrict undesired behavior by certain groups in society. The vast regulatory framework around limiting air pollution from industries and other direct discharges from industry to common water resources is related to the

notion of externality. Such pollution exerts ‘external’ cost to members of society, for example, by making people pay more just to maintain their health while living in a polluted city. However, such approaches do not seem to be applied to the same extent in the case of farming operations. Some stakeholders observe that runoffs from farming operations that end up in public waterways are not subject to the same kind of strict regulation and punishment as can be the case in other industries. Runoff from agricultural fields are still exerting ‘external’ costs to members of society, and the individual producer is not bearing the full cost of their operations. Thus, these stakeholders, mainly in the industrial and municipal sectors, see a ‘double standard’ in the government’s approach in regulation pollution and externalities. In its *Guiding Principles for Water-Related Policies and Programs*, the Ontario Federation of Agriculture (OFA) indicates that:

Any regulatory impacts that mandate changes on farms beyond normal farm practices, with the goal of protecting the natural environment but do not provide benefits to the agricultural operation, must receive compensation (OFA, 2018a).

Thus, the issue of the different governmental approaches to different sectors in terms of using various combination of the policy toolbox (carrots, sticks, sermons) can be a very fruitful future research endeavor. Finally, there seems to be significant potential for future research in comparing the current period of policy formulation and development with the post 2018/2020 period where the focus will be on policy implementation and policy evaluation. In their 2015 agreement, the Province of Ontario and the State of Ohio had agreed to reduce phosphorus runoffs to western Lake Erie basin by 40% by 2025 from 2008 levels. They had also adopted an interim (aspirational) target of 20% reduction by 2020. Hence, future research could focus on temporal comparative analysis of the Domestic Action Plans in both regions with emphasis on policy effectiveness and the institutional factors that may have led to varying outcomes.

## **5.4 Research reflections**

### **5.4.1 Reflections on case studies**

In this study, I considered two cases for investigation with a comparative analytic perspective. Both dealt with the processes of developing Domestic Action Plans in order to address the problem of eutrophication in Lake Erie through the adoption of a numeric target in reducing phosphorus loadings to western Lake Erie, especially from the Thames and Maumee watersheds. Looking at the geographic characteristics of western Lake Erie, we observe that the waters entering this portion of the lake originate not only from the watersheds in Ohio and Ontario but also from Michigan and Indiana as well. In addition, as all the Great Lakes are connected, the waters in Lake Erie also come from the watersheds in Lake Superior, Lake Michigan and Lake Huron. This broadens the relevant watersheds to upstream boundaries of the Great Lakes themselves, going as far as Minnesota and Illinois. Thus, even though the priority watersheds identified may be easy to locate and bound for the purposes of adopting a manageable scope for research, it is important to keep in mind processes and decisions happening in other scales might be an important factor. Two examples illustrate this point. The state of Indiana has prepared a Domestic Action Plan to help achieve meet the targets of the western Lake Erie basin. However, the state has watersheds that drain into Lake Erie, Lake Michigan and the Gulf of Mexico as well. While the primary concern in Lake Erie is excessive phosphorus, the primary concern for the Gulf of Mexico is excessive nitrogen, which requires different approaches in addressing these

problems and involving different kinds of actors. Moreover, a significant portion of the Maumee travels within Ohio and then enters Indiana only to change direction to reenter Ohio again and finally drain into Lake Erie. Before reentering Ohio, the Maumee passes through a major wastewater treatment facility in the city of Fort Wayne and some interviewees in downstream cities in Ohio (e.g. Defiance) had voiced their concerns that the city might be dumping effluents that are not treated well. The responsible authority in Ohio set up monitoring facilities in the points where the river leaves Ohio and comes back again so as to determine the concentrations in the nutrient content of the waters. Such complications might be glossed over some important details by taking a case study that focuses on just one jurisdiction.

The second example relates to taking organizational actors as cases. In addition to problems to access internal documents about the organization, there are also challenges in gathering data when that organization is working closely in producing information with a network of other organizations who have their own (similar) objectives and agendas. In the case of the Ohio Farm Bureau, there were cases where Farm Bureaus from other states (e.g. Texas Farm Bureau) injecting themselves into the discourse in Lake Erie basin by producing information that they think would counter the allegedly incorrect depictions of the farming community during the Toledo drinking water crisis in 2014<sup>3</sup>. An important rationale for their involvement might be that the potential regulatory decisions that might be taken in Ohio might serve as a precedent for other similar cases across the nation, thus affecting other Farm Bureaus in due time. This brings the issue of isolating influences by specific groups of actors in a given geographic setting. Thus, in studies similar to this not only do we need to account for multiscale influences (watershed, state, federal levels) but also from influences from adjacent action situations (McGinnis, 2011). In addition accounting for the specific role of the binational body, the International Joint Commission, when the goal of the study is to account for influences originating from particular national jurisdictions becomes especially challenging.

#### **5.4.2 Reflections on research methodology**

One of the main issues of debate in the social sciences is the extent to which scholars can produce ‘objective’ knowledge about the phenomenon they are studying without systematic bias. Objectivity is often associated with rigid formulae towards gathering and analyzing data so as to avoid relying on intuition and personal biases that researchers might bring into the research process. In discussing the methodological tension between using rigid, formalized rules on the one hand and intuition on the other in qualitative data analysis Uwe Flick (2014) notes that there is a middle position that is both helpful and more realistic. Such a position could provide the right balance for a good qualitative data analysis that is both creative and fruitful. Thus, while a systematic approach to knowledge production is always to be sought as a basic principle, where the object of research requires interpretation and meaning-making then the concept of ‘reflexivity’ becomes helpful. Reflexivity, as a critical and conscious analytical scrutiny of the self, may help us bring out nuances and insights about the object of our observation and overcome the constraints of rigid formulas (Ward & Jones, 1999). In the context of research whose primary aim is to grasp the meaning of a particular phenomenon, it helps “correct an

---

<sup>3</sup> <http://txagtalks.texasfarmbureau.org/mega-farming-contaminates-toledo-water-supply-not-exactly/>

instrumental approach to knowledge that is informed by a desire to control, rather than understand, the social world” (May and Perry 2014, 109).

Discourse analysis in its broadest sense is only a research approach in the social sciences. It is not a method with specific rules, steps, and formulae that are widely accepted by the community of scholars who use it. Fuchs and Kalfagiani (2009, 556) note that discourse analysis does not have a specific methodology and what data are selected, and how, largely depend upon the objective of the research. This allows researchers with backgrounds in various disciplines to benefit from the advantages that discourse analysis offers as a form of critical approach. Nevertheless, as researchers, it is important that we are explicit to the reader on the positions we hold with regard to the objects of our study as well as the potential biases we may bring to the study. For instance, a student who joined the faculty of environment out of the desire to contribute to the betterment of society through the preservation of nature may have a specific lens with which they see the world. Being explicit about the choices of the conceptual approaches they use and being aware of its implications is an important task. As Kvale put it in the context of interpreting interviews:

The researcher has a perspective on what is investigated and interprets the interviews from this perspective. ... This requires a certain distance from what is said, which is achieved by a methodical or theoretical stance, recontextualizing what is said in a specific conceptual context (Kvale 1996, 201).

In addition, Norman Fairclough reminds us that critical discourse analysis (CDA) is not a ‘neutral’ method or approach. With origins in critical theory, it tends to have a normative stance on social issues and examines them in order to create the foundation for action. To Fairclough, the explanatory critique that CDA provides aims to serve as “a basis for action to change reality for the better” (Fairclough 2015, 48). It exposes “discourse as part of exercising power over others in ways which are illegitimate, unjust or otherwise harmful” (Fairclough 2015, p.49). He further emphasizes the normative element that CDA has by noting that it “critically evaluates what is actually ‘there’ by relating it to what could or should be ‘there’” (Fairclough 2015, 50).

By choosing to use CDA as research approach and method we are also acknowledging or being explicit that we are engaging with a critical perspective, along the traditions of ‘critical theory’ that aim to provide a “critique of dominant discourses and genres that affect inequalities, injustices and oppression in dominant society” (Van Leeuwen 2009, 278). This normative aspect needs to be seen from the broader perspective of social constructionist approach to social sciences. This is because in studying policy the tools we use to study it affect our results, and “our understanding of a policy and its outcomes cannot be separated from the ideas, theories, and criteria by which the policy is analyzed and described” (Fischer 2003, p.60). Even my enrollment in, and the very conduct of this research within the School of Environment, Resources and Sustainability (SERS) could be seen as a source of bias on my part in favor of the environment. Baronov (2012) notes that

“the selection of a major will also lock unsuspecting students into a mind-set and a framework of analysis that will tell them, quite literally, what and how to think, the nature of truth, and which questions are permitted and which are not” (Baronov, 2012, p. 1).

It is important here to highlight that without the conscious exercise of reflexivity such kinds of biases could be a major issue in research. Critical awareness of such possible biases can greatly



improve one's research conduct and interpretation of events, which I have tried to do to the best of my capacity.

### 5.4.3 Personal reflections

Throughout the course of conducting this research, certain ideas and themes have been in my mind quite a lot. I have come to believe that in order to have fundamental sustainability transformations we will need change not only in the way we do politics or environmental policy, but also in our economy and more broadly in our ways of living. As many studies have shown, a major factor that is contributing to algal bloom problem in Lake Erie is the effects of climate change. Climate change related uneven precipitation and sudden downpours of heavy rain storms may contribute to large runoffs over a period of short time that may overwhelm any ameliorating structures that may have been put up in the landscape. This may wash away large amounts of phosphorus in the soil and carry it to the lake that would have remained in the soil without such downpours. In addition, the Lake itself is gradually warming up in its temperature, which is more conducive to the growth of large masses of algal bloom. Therefore, it seems that the progress the relevant actors make on Lake Erie eutrophication problem is, over the long term, dependent on the progress that society as a whole makes in addressing climate change. Addressing climate change in turn may need large-scale transformations in our institutions and the political economy. We may need to rethink how we, as a society, relate to our environments. However, this first requires the understanding of “sustainability transformations as shifts in worldviews” (Rigolot, 2018).

The starting point will have to be the realization of the significance of such differences in worldviews, and discourses regarding the very nature of humans' relationship to their environment. Once this realization is in place then the actual process of managing the discourse towards favorable paths to sustainability could start in a more or less decentralized fashion, by geography and by sectors. In the case of energy transitions, for example, the major aspects in such transformations may include (Roberts et al., 2018, p. 304):

- managing the role of various coalitions in supporting or hindering transitions,
- managing the role of feedbacks, through which policies may shape actors' preferences which, in turn, may create favorable policies and,
- enhancing the role of institutions in creating more favorable conditions for deliberate transitions.

However, the question still remains as to who will take the initiative and lead such social-ecological transformations and how. In the context of water and environmental governance, the answer may be found in the role of political and institutional entrepreneurs who frame situations or issues as problems. Here it may be useful to consider the notion of “discourse management” which can be understood as “the overt and intended manipulation of the discussion about policy issues” (Rydin, 1999, p. 474). By deliberately ‘managing’ policy discourse it is hoped that large scale transformations can be achieved in different sectors. Rydin cites the rise of neoliberalism in the late 70s and 80s as an ideological project closely tied with Reaganism in the United States and Thatcherism in the United Kingdom that was practically “an attempt to change hearts and minds, values and norms and not just the policies of government” (Rydin, 1999, p. 474). The ultimate aim of such an exercise would be “to talk ourselves into a new moral commitment to

sustainability and that this should indeed precede government legislative action for sustainability” (Rydin, 1999, p. 475).

If the change in discourse about sustainability is thought to have to precede or parallel institutional changes, then the role of policy and institutional entrepreneurs becomes important. This may be especially significant because any meaningful and enduring change in governance is bound to be political (Smith and Stirling, 2010) with significant challenges around its legitimacy (Cosens and Williams, 2012). The recent examples of Congresswoman Ocasio-Cortez in the United States with the *Green New Deal*<sup>4</sup> initiative and Greta Thunberg<sup>5</sup> in Sweden with youth advocacy for climate action may fit into this understanding. Such actors may have the much-needed capacity to “span and link key individuals operating in multiple arenas of discourse” (Olsson et al., 2006, p. 33). They may also help initiate divergent changes that break with the existing institutionalized template for national and global environmental governance. In this view, the main role that such ‘discursive entrepreneurs’ (Langenohl, 2008) can play becomes the development of alternative ideas and perspectives that could appeal to a ‘critical mass’ of actors needed to initiate and maintain change.

In the context of transitions towards more sustainable energy systems, Scarce and Ockwell (2010) suggest that change agents may succeed in putting their ideas forward if they frame their visions in a way that does not directly challenge the core imperatives of the dominant policy paradigm. Framing the need to act towards climate change in terms of energy efficiency and economic gains is considered to be a more acceptable starting point towards a transition to greener energy systems. With the looming climate crisis this may be an unacceptably low bar. However, transitions may have to do less with developing truly new and novel ideas and more with how meaning is created from drawing on existing discourses that speak to different perspectives and ways of thinking about society-environment interaction in a way that was previously marginalized or absent (Ingram and Lejano, 2009). Such an approach may also help discursive entrepreneurs to build coalitions by recruiting people with only marginally overlapping views around an appealing vision of sustainability with a better chance of actually materializing it.

---

<sup>4</sup> <https://www.npr.org/2019/02/07/691997301/rep-alexandria-ocasio-cortez-releases-green-new-deal-outline>

<sup>5</sup> <https://www.theguardian.com/profile/greta-thunberg>

## Appendix

### 6.1 Semi-structured Interview Guide

The following list of questions are related to the research question that I am addressing as part of my PhD research. They are meant to serve as a guide only and the interviewee is free to skip any questions if they find them to be not very relevant. The aim of my research is to understand the different factors that may affect the effectiveness of implementation of the set target of 40% phosphorus load reduction from the waters entering the western basin of Lake Erie by 2025 with an interim target of 20% by 2020. The specific focus here is on understanding the different views that individuals and groups working in the Lake Erie basin hold regarding this issue and how that might affect the process of translating this broad target into specific plans and consequently the implementation process itself.

#### *Interview Guide A: Generic*

1. What do you think the main problem is with the current issue of nutrient runoff?
  - Is it algal bloom in the lake? Is it pollution of the streams and rivers? Other?
  - How serious is it? Serious enough to commit significant financial resources to address it?
2. When did you/your organization first notice the problem or started paying attention to it?
  - What measures did you/your organization take then to address the issue at that time as a precautionary measure (if any)?
3. [If not already answered in (1) above] What do you think the sources of the problem are?
  - How are the different sources interrelated?
  - Do you think that the level of empathy that people living upstream feel about the effects their actions can produce downstream in the lakes fit into those linkages? How?
4. Do you think that governments at various levels adequately played their role in addressing the problem during the initial stages of the nutrients issue?
5. What do you think the solution to the problem is?
  - Which actors may need to act/act more if this problem is to be addressed?
  - What could be the role of government in this?
6. How important do you think is the role of engineering solutions/technical innovation in addressing this problem?
  - To what extent do you think it can solve the problem? In what ways?
7. What do you think is the role of the market/economic instruments in mitigating this issue?
  - Do you think it could be effective? Do you think we need more of this?

8. What kind of regulations do you think will have a more positive impact in terms of achieving the reduction targets? What about encouraging voluntary measures through different means?
9. What do you think would be the most difficult barrier to overcome in this endeavour?
10. Is there anything else you would like to add in this regard? Any relevant people or documents you can refer me to?

### *Interview Guide B: Farming Organizations/Farms*

1. In what ways do you think this nutrient reduction initiative will impact your farming operations?
2. What do you think the emphasis should be on the role of the government in this nutrient run-off reduction effort (guiding? facilitating? enforcing?... other?)
3. What is your perspective on the government's role in formulating standards to regulate land use decisions by farmers on private lands?
4. What do you think about the possibility of economic benefits being affected in pursuing government mandated programs that have primarily environmental protection as their aim?
5. What effects do you think reducing nutrient application on your farm will have on the health of the Thames River and Lake Erie?
6. What actions do you take when you think that some decisions or programs proposed by different levels of government might negatively affect your farm operations or your financial prospects?
7. In what ways do you think letting the larger public know (e.g. through pamphlets, town hall sessions, advertisements ... etc) of the environmental friendly ways of your farming practices affects proposals for more regulations?
8. Which public outreach methods do you use? Which ones do you find more effective?
9. Do you think that the burden for many landscape wide environmental stewardship efforts has been mainly focused on the agricultural sector? If so, how?
10. Is there any other issue you would like to discuss along the lines of what we have been talking about?

## 6.2 List of Documents Reviewed

Number	Document Name	Document Type	Source	Year
<b><i>Ontario Case</i></b>				
1	A Framework for Local Water-Use Decision-Making on a Watershed Basis.	Plan	Conservation Ontario	2003
2	A Strategy to Reduce Phosphorus Loss in the Thames River Basin	Plan	Ontario Federation of Agriculture	2017
3	Algae Everywhere. Chapter 4 in Good Choices, Bad Choices: Environmental Rights and Environmental Protection in Ontario	Report	Environmental Commissioner of Ontario	2017
4	Back to the Basics - Respecting the Public's Voice on the Environment: 2018 Environmental Protection Report (Vol. 1).	Report	Environmental Commissioner of Ontario	2018
5	Best Management Practices Series.	Pamphlet	OMAFRA	2017
6	Blue green algae.	Pamphlet	OMAFRA	2018
7	Canada-Ontario Action Plan for Lake Erie	Plan	Agriculture and Agri-Food Canada	2017
8	Canada-Ontario Agreement on Great Lakes Water Quality and Ecosystem Health, 2014	Agreement	Ontario Ministry of Environment and Climate Change	2014
9	Canada-Ontario Lake Erie Action Plan: Partnering on Achieving Phosphorus Loading Reductions to Lake Erie from Canadian Sources	Plan	Ontario Ministry of the Environment and Climate Change	2018
10-33	CBC News articles (18 articles)	Newspaper	LexisNexis	2011-2018
34	Clean, Not Green: Tackling Algal Blooms In The Great Lakes	Position paper	Environmental Defense	2014
35	Conservation Ontario Council Report	Report	Conservation Ontario	2016
36	Evaluating Watershed Management Plans: Nutrient Management Approaches in the Lake Erie Basin and Key Locations Outside of the Lake Erie Basin.	Report	International Joint Commission	2016
37-41	Farm and Food Care Ontario - Year in Review	Report	Farm and Food Care Ontario	2013-2017
42	Farm and Food Care Ontario - Report	Report	Farm and Food Care Ontario	2011-2012
43	Farm Source Water Protection. OFEC Framework.	Plan/Policy	Agricultural Adaptation Council	2013
44-69	Globe and Mail (25 articles)	Newspaper	LexisNexis	2011-2018
70	Great Lakes Water Quality Agreement	Agreement	Government of Canada	2012
71	How an Ontario Bill Becomes Law: A Guide for Legislators and the Public.	Bulletin	Government of Ontario	2011

<b>Number</b>	<b>Document Name</b>	<b>Document Type</b>	<b>Source</b>	<b>Year</b>
72	Leadership and Collaboration Equals Action on Phosphorus for Lake Erie	Position paper	Grow Ontario Together	2018
73	Nutrient Management Act	Act/ Regulation	Government of Ontario	2002
74-100	OFA Environment; Water and Phosphorus Issue (27) articles	Bulletin	Ontario Federation of Agriculture	2012-2018
101-104	OFA Today, Annual update from the Ontario Federation of Agriculture.	Report	Ontario Federation of Agriculture	2014-2018
105	OFA: Guiding Principles for Water-Related Policies and Programs.	Plan	Ontario Federation of Agriculture	2018
106	Ontario's Great Lakes Strategy	Plan	Government of Ontario	2012
107	Ontario's Great Lakes Strategy; First Progress Report 2016	Report	Ontario Ministry of the Environment and Climate Change	2016
108	Serving The Public: Annual Report, 2012/2013.	Report	Environmental Commissioner of Ontario	2013
109	The Nutrient Reduction Project Catalogue 2018	Report	Upper Thames Conservation Authority	2018
110-154	Toronto Star (45 articles)	Newspaper	LexisNexis	2011-2018
155	Water Quality Assessment in the Thames River Watershed: Nutrient Trends.	Study/ Report	Upper Thames Conservation Authority	2015
156	Watershed Management Futures for Ontario: Conservation Ontario Whitepaper.	Plan	Conservation Ontario	2012
157	We grow a lot more than you may think.	Report	Agriculture and Agri-Food Canada	2013
	<b><i>Ohio Case</i></b>			
158	2016 Election Guide: Will You Show Up On Election Day?	Bulletin	Ohio Farm Bureau Federation	2016
159	2016 Water Quality Status Report	Report	Ohio Farm Bureau	2016
160	2017 Water Quality Status Report	Report	Ohio Farm Bureau	2017
161	2018 OFBF Water Quality Status Report	Report	Ohio Farm Bureau	2018
162-227	Columbus Dispatch Articles (66 articles)	Newspaper	Dispatch's database	2010-2018
228	Comments on the IJC's draft Triennial Assessment of Progress (TAP) report under the 2012 Great Lakes Water Quality Agreement	Compiled Comments	International Joint Commission	2017
229-260	Compiled comments on Collaborative Plan (31 comments)	Comments on policy	Ohio Environmental Protection Agency	2016
261-292	Compiled comments on Ohio DAP (32 comments)	Comments on policy	Ohio Environmental Protection Agency	2017

<b>Number</b>	<b>Document Name</b>	<b>Document Type</b>	<b>Source</b>	<b>Year</b>
293	Directors' Agricultural Nutrients and Water Quality Working Group Final Report and Recommendations	Study/ report	Ohio Department of Agriculture	2012
294	Effects of Conservation Practice Adoption on Cultivated Cropland Acres in Western Lake Erie Basin, 2003-06 and 2012	Report	U.S. Department of Agriculture	2016
295	Fact and figures about the Great Lakes.	Bulletin	United States	2019
296	Lake Erie Binational Nutrient Management Strategy: Protecting Lake Erie by Managing Phosphorus. Prepared by the Lake Erie LaMP Work Group Nutrient Management Task Group.	Report	US Environmental Protection Agency	2011
297	Lake Erie Protection & Restoration Plan 2008.	Plan	Ohio Lake Erie Commission	2008
298	Lake Erie Protection & Restoration Plan 2013 – Public Comment Response Summary.	Compiled comments	Ohio Lake Erie Commission	2013
299	Lake Erie Protection and Restoration Plan 2008.	Plan	Ohio Lake Erie Commission	2008
300	Lake Erie Protection and Restoration Plan 2016.	Plan	Ohio Lake Erie Commission	2016
301-338	New York Times (38 pieces)	Newspaper	LexisNexis	2010-2018
339	Nutrient Mass Balance Study for Ohio's Major Rivers, 2016.	Study/ report	Ohio Environmental Protection Agency	2016
340	Nutrient Mass Balance Study for Ohio's Major Rivers, 2018.	Study/ report	Ohio Environmental Protection Agency	2018
341-395	OFBF Clean Water Issue articles (54 articles)	Web article	Ohio Farm Bureau Federation	2010-2018
396-420	OFBF Good Government Issue articles (25 Articles)	Web article	Ohio Farm Bureau Federation	2010-2018
421	Ohio 2016 Integrated Water Quality Monitoring and Assessment Report. Final Report	Report	Ohio Environmental Protection Agency	2016
422	Ohio EPA Point Source & Urban Runoff, Nutrient Workgroup Final Report and Recommendations.	Report	Ohio Environmental Protection Agency	2012
423	Ohio Lake Erie Phosphorus Task Force Final Report.	Study/ report	Ohio Environmental Protection Agency	2010
424	Ohio Lake Erie Phosphorus Task Force II Final Report	Study/ report	Ohio Lake Erie Phosphorus Task Force	2013
425	Ohio Nutrient Reduction Strategy.	Plan	Ohio Environmental Protection Agency	2013

<b>Number</b>	<b>Document Name</b>	<b>Document Type</b>	<b>Source</b>	<b>Year</b>
426	Re: Comments for State of Ohio's Draft Domestic Action Plan	Comments on DAP	Ohio Farm Bureau	2017
427	Re: Draft State of Ohio's Western Lake Erie Basin Collaborative Implementation Plan.	Comments on DAP	Ohio Farm Bureau	2016
428	State of Ohio's Domestic Action Plan 1.0: In accordance with the Great Lakes Water Quality Agreement	Plan	Ohio Lake Erie Commission	2018
429	Testimony before The Committee on Agriculture, Nutrition and Forestry of the United States Senate Regarding "Conservation and Forestry: Perspectives on the Past and Future Direction for the 2018 Farm Bill"	Testimony	United States Senate	2017
430-525	Toledo Blade Articles (96 pieces)	Newspaper	Blade's database	2010-2018
526	Transcriptions of Town hall meeting for Oregon, Ohio	Meeting minutes	Ohio Environmental Protection Agency	2017
527	Transcriptions of Town hall meeting for Painesville, Ohio	Meeting minutes	Ohio Environmental Protection Agency	2017
528	U.S. Action Plan for Lake Erie.	Plan	US Environmental Protection Agency	2018
	<b><i>Binational Documents</i></b>			
529	2016 Progress Report Of The Parties: Pursuant to the Canada-United States Great Lakes Water Quality Agreement	Report	Government of Canada	2017
530	A Balanced Diet for Lake Erie: Reducing Phosphorous Loadings and Harmful Algal Blooms.	Study/ Report	International Joint Commission	2014
531	A Joint Action Plan for Lake Erie: A Report of the Great Lakes Commission. Lake Erie Nutrient Targets Working Group	Study/ Report	Great Lakes Commission	2015
532	Economic Benefits of Reducing Harmful Algal: Blooms in Lake Erie Submitted to the International Joint Commission October 2015.	Study	Veritas Economic Consulting	2015
533	Evaluating Watershed Management Plans – Nutrient Management Approaches In The Lake Erie Basin And Key Locations Outside Of The Lake Erie Basin.	Study/ Report	Great Lakes Water Quality Board	2016
534	Expectations for Domestic Action Plans under the Great Lakes Water Quality Agreement.	Position paper	Alliance for the Great Lakes	2016



<b>Number</b>	<b>Document Name</b>	<b>Document Type</b>	<b>Source</b>	<b>Year</b>
535	Fertilizer Application Patterns and Trends and Their Implications for Water Quality in the Western Lake Erie Basin.	Study/ Report	International Joint Commission	2018
536	First Triennial Assessment of Progress on Great Lakes Water Quality - Highlights report.	Report	International Joint Commission	2017
537	First Triennial Assessment of Progress on Great Lakes Water Quality. Final report.	Report	International Joint Commission	2017
538	Lake Erie Lakewide Action and Management Plan: Annual Report 2016.	Plan	US Environmental Protection Agency	2016
539	Nutrient Management: A Summary Of State And Provincial Programs In The Great Lakes – St. Lawrence River Region	Study/ Report	Great Lakes Commission	2012
540	Recommended Binational Phosphorus Targets To Combat Lake Erie Algal Blooms: Great Lakes Water Quality Agreement Nutrients Annex Subcommittee	Study/ Report	Binational.net	2015
541	Recommended Phosphorus Loading Targets For Lake Erie: Annex 4 Objectives and Targets Task Team Final Report to the Nutrients Annex Subcommittee	Study/ Report	Binational.net	2015
542	Revised Great Lakes Water Quality Agreement of 1978.	Agreement	International Joint Commission	1987
543	Western Basin of Lake Erie Collaborative Agreement.	Agreement	Ohio Environmental Protection Agency	2015

## References Cited

- Acheson, J. (2006). Institutional failure in resource management. *Annual Review of Anthropology*, 35, 117-134.
- Agrawal, A. (2001). Common property institutions and sustainable governance of resources. *World Development*, 29(10), 1649-1672.
- Agriculture and Agri-Food Canada. (2013). *We grow a lot more than you may think*.
- Agriculture and Agri-Food Canada. (2017). *Canada-Ontario Action Plan for Lake Erie - Comments Recived on the Draft: Presentation to Agriculture Sector Working Group*.
- Alexander, R. (2009). *Framing Discourse on the Environment: A Critical Discourse Approach*. New York: Routledge.
- Ali, S. H. (2004). A socio-ecological autopsy of the E. coli O157:H7 outbreak in Walkerton, Ontario, Canada. *Social Science and Medicine*, 58, 2601-2612.
- Aligica, P., & Boettke, P. (2009). *Challenging Institutional Analysis and Development: The Bloomington School*. New York: Routledge.
- Ansell, C., & Gash, A. (2007). Collaborative governance in theory and practice. *Journal of Public Administration Research and Theory*, 18(4), 543-571. doi:10.1093/jopart/mum032
- Arts, B., Appelstrand, M., Kleinschmit, D., Pülzl, H., & Visseren-Hamakers, I. (2010). Discourses, actors and instruments in international forest governance. In J. Rayner, A. Buck, & P. Katila (Eds.), *Embracing Complexity: Meeting the Challenges of International Forest Governance* (Vol. 28, pp. 57-73). Vienna: International Union of Forest Research Organizations (IUFRO).
- Arts, B., & Buizer, M. (2009). Forests, discourses, institutions: a discursive-institutional analysis of global forest governance. *Forest Policy and Economics*, 11(5), 340-347.
- Arts, B., & Van Tatenhove, J. (2006). Political modernisation. In B. Arts & P. LeRoy (Eds.), *Institutional Dynamics in Environmental Governance* (pp. 21-44). Dordrecht, The Netherlands: Springer.
- Assche, K. V., Beunen, R., Duineveld, M., & Gruezmacher, M. (2017). Power / knowledge and natural resource management : Foucaultian foundations in the analysis of adaptive governance. *Journal of Environmental Policy & Planning*, 19(3), 308-322.
- Bachrach, P., & Baratz, M. S. (1962). Two faces of power. *The American Political Science Review*, 56(4), 947-952. doi:10.2307/1952796
- Bäckstrand, K. (2003). Civic science for sustainability: reframing the role of experts, policy-makers and citizens in environmental governance. *Global Environmental Politics*, 3(4), 24-41.
- Bäckstrand, K., & Lövbrand, E. (2006). Planting trees to mitigate climate change: contested discourses of ecological modernization, green governmentality and civic environmentalism. *Global Environmental Politics*, 6(1), 50-75.
- Baker, D. B., Confesor, R., Ewing, D. E., Johnson, L. T., Kramer, J. W., & Merryfield, B. J. (2014). Phosphorus loading to Lake Erie from the Maumee, Sandusky and Cuyahoga rivers: the importance of bioavailability. *Journal of Great Lakes Research*, 40(3), 502-517.
- Bakker, K. (2005). Neoliberalizing nature? Market environmentalism in water supply in England and Wales. *Annals of the Association of American Geographers*, 95(3), 542-565.
- Bakker, K., & Cook, C. (2011). Water governance in Canada: innovation and fragmentation. *International Journal of Water Resources Development*, 27(2), 275-289.
- Bakvis, H. (2013). "In the shadows of hierarchy": intergovernmental governance in Canada and the European Union. *Canadian Public Administration*, 56(2), 203-218.

- Baronov, D. (2012). *Conceptual Foundations of Social Research Methods* (2nd ed.). Boulder: Paradigm Publishers.
- Battagello, D. (2018, February 13, 2018). Lake Erie faces deadly decline without immediate cleanup action, study says. *Windsor Star*. Retrieved from <https://windsorstar.com/news/local-news/lake-erie-facing-deadly-decline-unless-actions-taken-ijc-says> on Oct 5, 2018
- Bazeley, P., & Jackson, K. (2013). *Qualitative Data Analysis with Nvivo* (2nd ed.). Los Angeles: Sage.
- Beach, D., & Pedersen, R. (2013). *Process-Tracing Methods: Foundations and Guidelines*. Ann Arbor: The University of Michigan.
- Beck, U. (1992). *The Risk Society: Towards a New Modernity*. New York: Sage Publications.
- Beder, S. (2006). *Free Market Missionaries: The Corporate Manipulation of Community Values*. London: Earthscan.
- Beland, D., & Cox, R. H. (Eds.). (2011). *Ideas and Politics in Social Science Research*. New York: Oxford University Press.
- Belanger, A. (2011). Canadian Federalism in the Context of Combating Climate Change. *Constitutional Forum*, 20(1), 21-31.
- Bellemare, M., & Carnes, N. (2015). Why do members of congress support agricultural protection? *Food Policy*, 50, 20-34.
- Benford, R. D., & Snow, D. A. (2000). Framing processes and social movements: an overview and assessment. *Annual Review of Sociology*, 26, 611-639.
- Benidickson, J. (1997). *Environmental Law*. Concord, ON: Publications for Professionals.
- Berkes, F., Colding, J., & Folke, C. (2003). Introduction. In F. Berkes, J. Colding, & C. Folke (Eds.), *Navigating Social-Ecological Systems: Building Resilience for Complexity and Change* (pp. 1-31). Cambridge, UK: Cambridge University Press. (Reprinted from: Not in File).
- Bernstein, S. (2002). Liberal environmentalism and global environmental governance. *Global Environmental Politics*, 2(3), 1-16.
- Bernstein, S., & Cashore, B. (2012). Complex global governance and domestic policies: four pathways of influence. *International Affairs*, 88(3), 585-604.
- Bingham, M., Sinha, S., & Lupi, F. (2015). *Economic Benefits of Reducing Harmful Algal Blooms in Lake Erie*. Environmental Consulting & Technology, Inc.: International Joint Commission.
- Bisaro, S. (2007, 2007). *Formal and informal institutions in the wetlands of the Lesotho Highlands*. Paper presented at the International Conference on Adaptive and Integrated Water Management: Coping with Complexity and Uncertainty, Switzerland.
- Blatter, J., & Ingram, H. (2001). *Reflections on Water: New Approaches to Transboundary Conflicts and Cooperation*. Cambridge: MIT Press.
- Blau, A. (2010). Rationality and deliberative democracy: a constructive critique of John Dryzek's democratic theory. *Contemporary Political Theory*.
- Blomquist, W., & deLeon, P. (2011). The design and promise of the institutional analysis and development framework. *Policy Studies Journal*, 39(1), 1-6.
- BluMetric Environmental Inc. (2017). Inventory of agri-environmental projects in Ontario addressing phosphorus runoff. In.
- Bocking, S. (2005). Protecting the rain barrel: discourses and the roles of science in a suburban environmental controversy. *Environmental Politics*, 14(5), 611-628.
- Bøgelund, P. (2007). Making green discourses matter in policy-making: learning from discursive power struggles within the policy area of car taxation. *Ecological Economics*, 63(1), 78-92.
- Boonstra, W. J. (2016). Conceptualizing power to study social-ecological interactions. *Ecology and Society*, 21(1).

- Bosch, N. S., Allan, J. D., Selegean, J. P., & Scavia, D. (2013). Scenario-testing of agricultural best management practices in Lake Erie watersheds. *Journal of Great Lakes Research*, 39(3), 429-436.
- Bosch, N. S., Evans, M. A., Scavia, D., & Allan, J. D. (2014). Interacting effects of climate change and agricultural BMPs on nutrient runoff entering Lake Erie. *Journal of Great Lakes Research*, 40(3), 581-589.
- Bosomworth, K. (2018). A discursive–institutional perspective on transformative governance: A case from a fire management policy sector. *Environmental Policy and Governance*, 1-11. doi:<https://doi.org/10.1002/eet.1806>
- Botts, L., & Muldoon, P. (2008). *Evolution of the Great Lakes Water Quality Agreement*. Ann Arbor, MI: Michigan State University Press.
- Bowman, M. (2017). Re: EBR Registry Number 012-9971: Canada-Ontario Action Plan for Lake Erie [Press release]. Retrieved from [http://www.ontariobeef.com/uploads/userfiles/files/2017\\_05\\_23\\_draft%20lake%20erie%20domestic%20action%20plan\\_bfo%20response.pdf](http://www.ontariobeef.com/uploads/userfiles/files/2017_05_23_draft%20lake%20erie%20domestic%20action%20plan_bfo%20response.pdf) on Sept 22 2017
- Brisbois, M. C., & de Loë, R. C. (2015). Power in collaborative approaches to governance for water: a systematic review. *Society and Natural Resources*, online, 1-16. doi:10.1080/08941920.2015.1080339
- Brisbois, M. C., Morris, M., & de Loë, R. (2018). Augmenting the IAD framework to reveal power in collaborative governance – An illustrative application to resource industry dominated processes. *World Development*. doi:10.1016/j.worlddev.2018.02.017
- Brock, K., Cornwall, A., & Gaventa, J. (2001). *Power, Knowledge and Political Spaces in the Framing of Poverty Policy*. Brighton: Institute of Development Studies.
- Bryman, A., Teevan, J. J., & Bell, E. (2009). *Social Research Methods* (Second Canadian Edition ed.). Don Mills, Ontario: Oxford University Press.
- Buhr, N., & Freedman, M. (2001). Culture, Institutional Factors and Differences in Environmental Disclosure Between Canada and the United States. *Critical Perspectives on Accounting*, 12(3), 293-322.
- Buijs, A., Mattijssen, T., & Arts, B. (2014). "The man, the administration and the counter-discourse": an analysis of the sudden turn in Dutch nature conservation policy. *Land Use Policy*, 38, 676-684.
- Burns, N. (1985). *Erie: The Lake that Survived*. New Jersey: Rowman and Allanheld Publishers.
- Burr, V. (1995). *Social Constructionism*. London: Routledge.
- C-SPAN. (2011). Constitutional Role of Judges [Press release]. Retrieved from <https://www.c-span.org/video/?301909-1/constitutional-role-judges>
- Caine, K. J., & Krogman, N. (2010). Powerful or just plain power-full? A power analysis of impact and benefit agreements in Canada's North. *Organization & Environment*, 23(1), 76-98. doi:10.1177/1086026609358969
- Campbell, J. (2004). *Institutional Change and Globalization*. Princeton: Princeton University Press.
- Campbell, M., Cooper, M., Friedman, K., & Anderson, P. (2015). The economy as a driver of change in the Great Lakes–St. Lawrence River basin. *Journal of Great Lakes Research*, 41, 69-83.
- Carstensen, M. B., & Schmidt, V. A. (2016). Power through, over and in ideas: conceptualizing ideational power in discursive institutionalism. *Journal of European Public Policy*, 23(3), 318-337.
- Cascão, A. E., & Zeitoun, M. (2010). Power, hegemony and critical hydropolitics. In A. Earle, A. Jägerskog, & J. Ojendal (Eds.), *Transboundary Water Management: Principles and Practices* (pp. 27-42). London: Earthscan.

- Chhotray, V., & Stoker, G. (2009). Introduction: Exploring Governance. In *Governance theory and practice: a cross disciplinary approach* (pp. 1-15). New York, NY: Palgrave Macmillan.
- Choi, T., & Robertson, P. J. (2013). Deliberation and decision in collaborative governance: a simulation of approaches to mitigate power imbalance. *Journal of Public Administration Research and Theory*, 24, 495-518.
- Clancy, P. (2014). *Freshwater Politics in Canada*. Toronto: University of Toronto.
- Clapp, J., & Fuchs, D. (Eds.). (2009). *Corporate Power in Global Agrifood Governance*. Cambridge, MA: MIT Press.
- Clapp, J., & Meckling, J. (2013). Business as a global actor. In R. Falkner (Ed.), *The Handbook of Global Climate and Environmental Policy* (pp. 286-303). West Sussex: John Wiley & Sons, Ltd.
- Clare, S., Krogman, N., & Caine, K. J. (2013). The "balance discourse": a case study of power and wetland management. *Geoforum*, 49, 40-49.
- Cleaver, F., & de Koning, J. (2015). Furthering critical institutionalism. *International Journal of the Commons*, 9(1), 1-18.
- Clement, F. (2010). Analysing decentralised natural resource governance: proposition for a "politicised" institutional analysis and development framework. *Policy Sciences*, 43(2), 129-156.
- Clement, F. (2012). For critical social-ecological system studies: integrating power and discourses to move beyond the right institutional fit. *Environmental Conservation*, 40(1), 1-4.
- Clement, F., Suhardiman, D., & Bharati, L. (2017). IWRM discourses, institutional holy grail and water justice in Nepal. *Water Alternatives*, 10(3), 870-887.
- Coffey, B., & Marston, G. (2013). How neoliberalism and ecological modernization shaped environmental policy in Australia. *Journal of Environmental Policy and Planning*, 15(2), 179-199.
- Colborn, T. E., Davidson, A., Green, S. N., Hodge, R. A., Jackson, C. I., & Liroff, R. A. (1990). *Great Lakes, Great Legacy?* Washington, DC and Ottawa: The Conservation Foundation and the Institute for Research on Public Policy.
- Cole, D., Epstein, G., & McGinnis, M. (2019). Combining the IAD and SES frameworks. *International Journal of the Commons*, 13(1), 1-32.
- Conley, J. G. (2006). *Environmentalism Contained: A History of Corporate Responses to the New Environmentalism*. Princeton University, New York. Available from Docs
- Conroy, M. (2018). Planning for water quality in OH: What role(s) for planners? *Environmental Science & Policy*, 88, 39-45.
- Conservation Ontario. (2003). *A Framework for Local Water-Use Decision-Making on a Watershed Basis*. Newmarket, ON: Conservation Ontario.
- Conservation Ontario. (2012). *Watershed Management Futures for Ontario: Conservation Ontario Whitepaper*. Newmarket, ON: Conservation Ontario.
- Cook, C. (2014). Governing jurisdictional fragmentation: tracing patterns of water governance in Ontario, Canada. *Geoforum*, 56, 192-200.
- Cook, J. (2015). Who's pulling the fracking strings? Power, collaboration and Colorado fracking policy. *Environmental Policy and Governance*, 25. doi:10.1002/eet.1680
- Corry, R. (2014). Landscapes of intersecting trade and environmental policies: Intensive Canadian and American farmlands. *Landscape Research*, 39(2), 107-122.
- Crane, T. R. (2012). Great Lakes - great responsibilities: History of and lessons in participatory governance. In V. I. Grover & G. Krantzberg (Eds.), *Great Lakes: Lessons in Participatory Governance* (pp. 13-43). Boca Raton, FL: CRC Press.

- Culley, M. R., & Angelique, H. (2011). Participation, power, and the role of community psychology in environmental disputes: a tale of two nuclear cities. *American Journal of Community Psychology*, 47, 410-426.
- Currie, K. (2017). EBR 012-9971: Canada-Ontario Action Plan for Lake Erie [Press release]. Retrieved from <https://ofa.on.ca/resources/ofa-submission-canada-ontario-action-plan-lake-erie/> on Feb 23 2019
- Dahl, R. (1957). The concept of power. *Behavioural Science*, 2(3), 201-215.
- Dang, T. K. P., Turnhout, E., & Arts, B. (2012). Changing forestry discourses in Vietnam in the past 20 years. *Forest Policy and Economics*, 25, 31-41.
- Daniel, M. A., & Sojamo, S. (2012). From risks to shared value? Corporate strategies in building a global water accounting and disclosure regime. *Water Alternatives*, 5(3), 636-657.
- Daugbjerg, C., & Feindt, P. H. (2017). Post-exceptionalism in public policy: transforming food and agricultural policy. *Journal of European Public Policy*, 24(11), 1565-1584.
- Daugbjerg, C., & Swinbank, A. (2012). An introduction to the 'new' politics of agriculture and food. *Policy and Society*, 31, 259-270.
- Dauvergne, P., & LeBaron, G. (2014). *Protest Inc.: The Corporatization of Activism*. Cambridge, MA: Polity.
- Dauvergne, P., & Lister, J. (2013). *Eco-Business: a Big-Brand Takeover of Sustainability*. Cambridge, MA: MIT Press.
- Demeritt, D. (1998). Science, social constructivism and nature. In B. Braun & N. Castree (Eds.), *Remaking Reality: Nature at the Millennium* (pp. 173-193). New York, NY: Routledge.
- Demeritt, D. (2002). What is the 'social construction of nature'? A typology and symathetic critique. *Process in Human Geography*, 26(6), 767-790.
- den Besten, J. W., Arts, B., & Verkooijen, P. (2014). The evolution of REDD+: An analysis of discursive-institutional dynamics. *Environmental Science and Policy*, 35, 40-48.
- Desai, U. (Ed.) (2002). *Environmental Politics and Policy in Industrialized Countries*. Cambridge, MA: The MIT Press.
- Dewulf, A., Mancero, M., Cardenas, G., & Sucozhanay, D. (2011). Fragmentation and connection of frames in collaborative water governance: a case study of river catchment management in Southern Ecuador. *International Review of Administrative Sciences*, 77, 50-75.
- DiCarolus, J., Haab, T., Plakias, Z., Sheldon, I., Sohngen, B., & Trinoskey, K. (2017). *The Economic Contribution of Agricultural and Food Production to the Ohio Economy: The Ohio State University - College of Food, Agricultural, and Environmental Sciences*.
- Dimaggio, P., & Powell, W. W. (1991). *The New Institutionalism in Organizational Analysis*. Chicago: University of Chicago Press.
- Donoghue, E. M. (2018). Beyond hegemony: Elaborating on the use of Gramscian concepts in critical discourse analysis for political studies. *Political Studies*, 66(2), 392-408.
- Dowding, K. (2012). Why should we care about the definition of power? *Journal of Political Power*, 5(1), 119-135. doi:10.1080/2158379X.2012.661917
- Dryzek, J. S. (1997). *Politics of the Earth: Environmental Discourses*. New York: Oxford University Press.
- Dryzek, J. S. (2005). *The Politics of the Earth: Environmental Discourses* (2<sup>nd</sup> edition ed.). Toronto: Oxford University Press.
- Dryzek, J. S. (2013). *The Politics of the Earth: Environmental Discourses* (3rd ed.). Oxford, UK: Oxford University Press.
- Entman, R. M. (1993). Framing: toward clarification of a fractured paradigm. *Journal of Communication*, 43(4), 51-58.
- Environment and Climate Change Canada [ECCC], & Ontario Ministry of the Environment and Climate Change [OMECC]. (2018). *Canada-Ontario Lake Erie Action Plan: Partnering on Achieving Phosphorus Loading Reductions to Lake Erie from Canadian Sources*: Queen's Printer for Ontario.

- Environment Canada, & Ontario Ministry of Environment and Climate Change. (2014). *Canada-Ontario Agreement on Great Lakes Water Quality and Ecosystem Health, 2014*: Queen's Printer for Ontario.
- Environment Canada, & U.S. Environmental Protection Agency. (2016). *Lake Erie Lakewide Action and Management Plan: Annual Report 2016*.
- Environmental Commissioner of Ontario. (2012). Preparing for drought: Ontario's Low Water Response Plan. In *Losing Our Touch, ECO Annual Report, 2011-2012* (pp. 99-105). Toronto, ON: Environmental Commissioner of Ontario. (Reprinted from: Not in File).
- Environmental Commissioner of Ontario. (2013). *Serving The Public: Annual Report, 2012/2013*. Toronto, ON: Environmental Commissioner of Ontario.
- Environmental Commissioner of Ontario. (2017). Algae Everywhere. In *Good Choices, Bad Choices: Environmental Rights and Environmental Protection in Ontario* (pp. 148-165).
- Environmental Commissioner of Ontario. (2018). *Back to the Basics - Respecting the Public's Voice on the Environment: 2018 Environmental Protection Report* (Vol. 1). Toronto, Ontario: Environmental Commissioner of Ontario.
- Epstein, G., Bennett, A., Gruby, R., Acton, L., & Nenadovic, M. (2014). Studying power with the social-ecological system framework. In M. J. Manfredi, J. J. Vaske, A. Rechkemmer, & E. A. Duke (Eds.), *Understanding Society and Natural Resources* (pp. 111-135). Rotterdam: Springer Netherlands.
- Epstein, G., Pittman, J., Alexander, S. M., Berdej, S., Dyck, T., Kreitmair, U., . . . Armitage, D. (2015). Institutional fit and the sustainability of social-ecological systems. *Current Opinion in Environmental Sustainability*, 14, 34-40.
- Ernoul, L., & Wardell-Johnson, A. (2015). Environmental discourses: understanding the implications on ICZM protocol implementation in two Mediterranean deltas. *Ocean and Coastal Management*, 103, 97-108.
- Estrin, D., & Swaigen, J. (1993). *Environment on Trial: A Guide to Ontario Environmental Law and Policy*. Toronto, Ontario: Emond Montgomery Publications Limited.
- Fairbrass, J. (2011). Exploring corporate social responsibility policy in the European Union: a discursive institutionalist analysis. *Journal of Common Market Studies*, 49(5), 949-970.
- Fairclough, N. (1992). *Discourse and Social Change*. Oxford: Polity.
- Fairclough, N. (2003). *Analysing Discourse: Textual Analysis for Social Research*. London: Routledge.
- Fairclough, N. (2015). *Language and Power* (3rd ed.). New York, NY: Routledge.
- Fairclough, N. (2016). A dialectical-relational approach to critical discourse analysis in social research. In R. Wodak & M. Meyer (Eds.), *Methods of Critical Discourse Studies* (3rd Edition ed., pp. 86-108). Los Angeles: SAGE.
- Feindt, P. H., & Oel, A. (2005). Does discourse matter? Discourse analysis in environmental policy making. *Journal of Environmental Policy and Planning*, 7(3), 161-173.
- Fertilizer Canada. (2017). Request for Comments on the Canada-Ontario Draft Action Plan "Partnering in Phosphorus Control: Achieving Phosphorus Reductions in Lake Erie from Canadian Sources." [Press release]. Retrieved from Downloaded from: [https://fertilizercanada.ca/wp-content/uploads/2015/07/FertilizerCanada\\_Canada\\_ON\\_DAP\\_Submission\\_May24.pdf](https://fertilizercanada.ca/wp-content/uploads/2015/07/FertilizerCanada_Canada_ON_DAP_Submission_May24.pdf) on Sept 22 2017
- Fischer, F. (2003). *Reframing Public Policy: Discursive Politics and Deliberative Practices*. New York: Oxford University Press.
- Fischer, F., & Black, M. (Eds.). (1995). *Greening Environmental Policy: The Politics of a Sustainable Future*. New York: St. Martin's Press.
- Fischer, F., & Gottweis, H. (Eds.). (2012). *The Argumentative Turn Revisited: Public Policy as Communicative Practice*. Durham: Duke University Press.

- Fleischman, F. D., Ban, N. C., Evans, L. S., Epstein, G., Garcia-Lopez, G., & Villamayor-Tomas, S. (2014). Governing large-scale social-ecological systems: lessons from five cases. *International Journal of the Commons*, 8(2), 428-456.
- Flyvbjerg, B. (1998). *Rationality and Power*: The University of Chicago.
- Folke, C., Lowell, P., Jr., Berkes, F., Colding, J., & Svedin, U. (2007). The problem of fit between ecosystems and institutions: ten years later. *Ecology and Society*, 12(1).
- Forsyth, T. J. (2003). *Critical Political Ecology: The Politics of Environmental Science*. London: Routledge.
- Foucault, M. (1982). The subject and power. *Critical Inquiry*, 8(4), 777-795.
- Foucault, M. (2002). *The Archaeology of Knowledge* (2 ed.). London: Routledge.
- Freshwater Future. (2016). Re: Comments on Ontario's Proposal on Reducing Phosphorus to Minimize Algal Blooms in Lake Erie (EBR #012-8760) [Press release]. Retrieved from [https://d3n8a8pro7vhmx.cloudfront.net/freshwateralliance/pages/158/attachments/original/1484102974/Comments\\_EBR\\_012-8760.pdf?1484102974](https://d3n8a8pro7vhmx.cloudfront.net/freshwateralliance/pages/158/attachments/original/1484102974/Comments_EBR_012-8760.pdf?1484102974) on 03-12-2017
- Freshwater Future. (2017). Re: Comments on Canada-Ontario Action Plan for Lake Erie (EBR Registry #012-9971) [Press release]. Retrieved from <http://www.cela.ca/sites/cela.ca/files/1117CommentsonCanada-OntarioDraftActionPlan.pdf> on Sept 22, 2017
- Fuchs, D. (2007). *Business Power in Global Governance*. Boulder: Lynne Rienner Publishers Inc.
- Fuchs, D. (2013). Theorizing the power of global companies. In J. Mikler (Ed.), *The Handbook of Global Companies* (pp. 77-98). Chichester, West Sussex, UK: Wiley-Blackwell.
- Fuchs, D., & Glaab, K. (2011). Material power and normative conflict in global and local agrifood governance: The lessons of 'Golden Rice' in India. *Food Policy*, 36, 729-735.
- Fuchs, D., & Kalfagianni, A. (2009). Discursive power as a source of legitimation in food retail governance. *The International Review of Retail, Distribution and Consumer Research*, 19(5), 553-570.
- Fuchs, D., Kalfagianni, A., & Havinga, T. (2009). Actors in private food governance: the legitimacy of retail standards and multistakeholder initiatives with civil society participation. *Agriculture and Human Values*, 28, 353-367.
- Gamson, W. A., Croteau, D., Hoynes, W., & Sasson, T. (1992). Media images and the social construction of reality. *Annual Review of Sociology*, 18, 373-393.
- Gareau, B. J. (2015). Dangerous holes in global environmental governance: the roles of neoliberal discourse, science, and California agriculture in the Montreal Protocol. *Antipode*, 40(1), 102-130.
- Garrick, D., Schlager, E., Stefano, L., & Villamayor-Tomas, S. (2018). Managing the Cascading Risks of Droughts: Institutional Adaptation in Transboundary River Basins. *Earth's Future*, 6.
- Gaventa, J. (1980). *Power and Powerlessness: Quiescence and Rebellion in an Appalachian Valley*. Oxford: Clarendon Press.
- George, A., & Bennett, A. (2005). *Case Studies and Theory Development in the Social Sciences*. Cambridge, Massachusetts: MIT Press.
- Gerlak, A. K., & Schmeier, S. (2014). Climate change and transboundary waters: a study of discourse in the Mekong River Commission. *Journal of Environment & Development*, 23(3), 358-386.
- Gibson, R., Holtz, S., Tansey, J., Whitelaw, G., & Hassan, S. (2005). Sustainability: the essentials of the concept. In *Sustainability Assessment: Criteria and Processes* (pp. 38-65): Routledge.
- Giddens, A. (1976). *New Rules of Sociological Method: A Positive Critique of Interpretative Sociologies*. New York: Basic Books, Inc. Publishers.
- Giddens, A. (1984). *The Constitution of Society: Outline of the Theory of Structuration*. Berkeley: University of California Press.



- Glasbergen, P. (1998). The question of environmental governance. In P. Glasbergen (Ed.), *Co-operative Environmental Governance: Public-Private Agreements as a Policy Strategy* (pp. 1-20). Dordrecht, The Netherlands: Kluwer Academic Publishers.
- Goodwin, M., & Grix, J. (2011). Bringing structures back in: the 'governance narrative', the 'decentered approach' and 'asymmetrical network governance' in the education and sport policy communities. *Public Administration*, 89(2), 537-556.
- Goucher, N., & Maas, T. (2014). *Clean, Not Green: Tackling Algal Blooms in the Great Lakes*. Toronto, Ontario.
- Government of Canada, & Government of the United States of America. (1987). *Revised Great Lakes Water Quality Agreement of 1978*. United States and Canada: International Joint Commission.
- Government of Canada, & Government of the United States of America. (2012). *Great Lakes Water Quality Agreement*.
- Government of Ontario. (2012). *Ontario's Great Lakes Strategy*: Queen's Printer for Ontario.
- Gramsci, A. (1971). *Selections from the Prison Notebooks*. New York: International Publishers Co.
- Great Lakes Protection Act Alliance. (2016). Re: Comments on Ontario's Proposal on Reducing Phosphorus to Minimize Algal Blooms in Lake Erie (EBR #012-8760) [Press release]. Retrieved from [https://www.cela.ca/sites/cela.ca/files/1090-EBR\\_%20012-8760\\_GLPAA\\_comments.pdf](https://www.cela.ca/sites/cela.ca/files/1090-EBR_%20012-8760_GLPAA_comments.pdf) on 29-1-2017
- Great Lakes Water Quality Board. (2016). *Evaluating Watershed Management Plans: Nutrient Management Approaches in the Lake Erie Basin and Key Locations Outside of the Lake Erie Basin*. Retrieved from Windsor, ON:
- Grover, V. I., & Krantzberg, G. (2014). Transboundary water management: lessons learnt from North America. *Water International*, 40(1), 183-198.  
doi:<http://dx.doi.org/10.1080/02508060.2014.984962>
- Grover, V. I., & Krantzberg, G. (Eds.). (2012). *Great Lakes: Lessons in Participatory Governance*: CRC Press - Taylor and Francis Group.
- Grow Ontario Together. (2016). Policy Submission for the development of Ontario's Domestic Action Plan under the Great Lakes Water Quality Agreement [Press release]. Retrieved from <http://www.growontariotogether.ca/GOT-policypaper.pdf> on 20-08-2017
- Grow Ontario Together. (2017). Canada-Ontario Draft Action Plan (DAP) on Lake Erie Phosphorus Reduction: Partnering in Phosphorus Control (EBR Registration Number: 012-9971) [Press release]. Retrieved from <http://growontariotogether.ca/GOT-policypaper.pdf> on 12-07-2017
- Grow Ontario Together. (2018). Leadership and Collaboration Equals Action on Phosphorus for Lake Erie [Press release]. Retrieved from [www.growontariotogether.ca](http://www.growontariotogether.ca)
- Guba, E. G., & Lincoln, Y. S. (1994). Competing paradigms in qualitative research. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of Qualitative Research* (pp. 105-117). London: Sage.
- Guba, E. G., & Lincoln, Y. S. (2005). Paradigmatic controversies, contradictions, and emerging confluences. In N. K. Denzin & Y. S. Lincoln (Eds.), *The Sage Handbook of Qualitative Research* (2nd ed., pp. 191-216). Thousand Oaks, CA: Sage Publications.
- Guber, D., & Bosso, C. J. (2007). Framing ANWR: citizens, consumers, and the privileged position of business. In M. E. Kraft & S. Kamieniecki (Eds.), *Business and Environmental Policy: Corporate Interests in the American Political System* (pp. 35-60). Cambridge: The MIT Press.
- Guo, T., Nisbet, E., & Martin, J. (2019). Identifying mechanisms of environmental decision-making: How ideology and geographic proximity influence public support for managing agricultural runoff to curb harmful algal blooms. *Journal of Environmental Management*, 241, 264-272.

- Gupta, J. (2009). Driving forces in global freshwater governance. In D. Huitema & S. Meijerink (Eds.), *Water Policy Entrepreneurs: A Research Companion to Water Transitions around the Globe* (pp. 37-57). Cheltenham, UK: Edward Elgar Publishing Limited.
- Haas, P. M. (1992). Introduction: epistemic communities and international policy coordination. *International Organization*, 46(1), 1-35.
- Hajer, M. (1995). *The Politics of Environmental Discourse: Ecological Modernization and the Policy Process*. Oxford, UK: Oxford University Press.
- Hajer, M. (2009). *Authoritative Governance: Policy-making in the Age of Mediatization*. Oxford: Oxford University Press.
- Hajer, M., & Versteeg, W. (2005). A decade of discourse analysis of environmental politics: achievements, challenges, perspectives. *Journal of Environmental Policy and Planning*, 7(3), 175-184.
- Hajer, M., & Wagenaar, H. (Eds.). (2003). *Deliberative Policy Analysis: Understanding Governance in the Network Society*. Cambridge, UK: Cambridge University Press.
- Hall, P., & Taylor, R. (1996). Political science and the three new institutionalisms. *Political Studies*, XLIV, 936-957.
- Han, H., Allan, J. D., & Bosch, N. S. (2012). Historical pattern of phosphorus loading to Lake Erie watersheds. *Journal of Great Lakes Research*, 38(2), 289-298.
- Harrington, C. (2017). The political ontology of collaborative water governance. *Water International*, 42(3).
- Harris, L. M., & Roa-García, M. C. (2013). Recent waves of water governance: constitutional reform and resistance to neoliberalization in Latin America (1990-2012). *Geoforum*, 50, 20-30.
- Haugaard, M. (2012). Rethinking the four dimensions of power: domination and empowerment. *Journal of Political Power*, 5(1), 33-54. doi:10.1080/2158379X.2012.660810
- Haugaard, M., & Clegg, S. (2009). Introduction: why power is the central concept of the social sciences. In S. Clegg & M. Haugaard (Eds.), *The Sage Handbook of Power* (pp. 1-24). Thousand Oaks: Sage Publications Inc.
- Hay, C. (2011). Ideas and the construction of interests. In D. Beland & R. H. Cox (Eds.), *Ideas and Politics in Social Science Research* (pp. 65-82). New York: Oxford University Press.
- Heinmiller, B. T. (2017). The Politics of Water Policy Development in Canada. In S. Renzetti & D. Dupont (Eds.), *Water Policy and Governance in Canada* (pp. 215-230): Springer.
- Henry, T. (2014a). Ag group gives \$1M to reduce runoff: Farm Bureau cites landowners' buy-in. *Toledo Blade*. Retrieved from <https://www.toledoblade.com/local/2014/09/13/Ag-group-gives-1M-to-reduce-runoff/stories/20140912216> on Sept 12, 2018
- Henry, T. (2014b, November 14, 2014). Forum debates tougher runoff rules to deal with toxic algae in Lake Erie. *Toledo Blade*. Retrieved from <https://www.toledoblade.com/local/2014/11/14/Forum-debates-tougher-runoff-rules-to-deal-with-toxic-algae-in-Lake-Erie.html> on Sept 12, 2018
- Henry, T. (2016). U.S. gave Chesapeake Bay billions for impaired waters: Is Lake Erie next? *Toledo Blade*. Retrieved from <https://www.toledoblade.com/local/2016/11/17/U-S-gave-Chesapeake-Bay-billions-for-impaired-waters-Is-Lake-Erie-next/stories/> on October 7, 2018
- Herve-Bazin, C. (Ed.) (2014). *Water Communication: Analysis of Strategies and Campaigns from the Water Sector*. London, UK: IWA Publishing.
- Hickmann, T. (2014). Science-policy interaction in international environmental politics: an analysis of the ozone regime and the climate regime. *Environmental Economics and Policy Studies*, 16(1), 21-44.
- Hidding, M., Needham, B., & Wisserhof, J. (2000). Discourse of town and country. *Landscape and Urban Planning*, 48, 121-130.

- Hill, C., Furlong, K., Bakker, K., & Cohen, A. (2008). Harmonization versus subsidiarity in water governance: a review of water governance and legislation in the Canadian provinces and territories. *Canadian Water Resources Journal*, 33(4), 315-332.
- Hill, S. (2018). Point Pelee National Park lifts advisory on blue-green algae. *Windsor Star*. Retrieved from <https://windsorstar.com/news/local-news/point-pelee-national-park-lifts-advisory-on-blue-green-algae> on July 23 2019
- Hirsch, S. (2015). Wildlife Federation blames farmers exclusively [Press release]. Retrieved from <https://ofbf.org/2015/04/03/wildlife-federation-blames-farmers-exclusively/> on April 7, 2019
- Hoberg, G. (1991). Sleeping with an Elephant: The American Influence on Canadian Environmental Regulation. *Journal of Public Policy*, 11(1), 107-131.
- Hoberg, G. (1997). Governing the environment: Comparing Canada and the United States. In K. Banting, G. Hoberg, & R. Simeon (Eds.), *Degrees of Freedom: Canada and the United States in a Changing World* (pp. 341-385). Montreal and Kingston: McGill-Queen's University Press.
- Hollingsworth, J. R. (2000). Doing institutional analysis: implications for the study of innovation. *Review of International Political Economy*, 7(4), 595-644.
- Hoornebeek, J. A., Filla, J., Venkata, A., Kalla, S., & Chiyaka, E. (2016). *Addressing Harmful Algal Blooms: Nutrient Reduction Policies In Ohio's Lake Erie Basin And Other American Water Basins*: Center For Public Policy And Health, Kent State University.
- Hoornebeek, J. A., Filla, J., & Yalamanchili, S. (2017). Watershed Based Policy Tools for Reducing Nutrient Flows to Surface Waters: Addressing Nutrient Enrichment and Harmful Algal Blooms in the United States. *Fordam Environmental Law Review*, 29(1).
- Hoornebeek, J. A., Hansen, E., Ringquist, E. J., & Carlson, R. (2013). Implementing Water Pollution Policy in the United States: Total Maximum Daily Loads and Collaborative Watershed Management. *Society and Natural Resources*, 26, 420-436.
- Hoornebeek, J. A., & Peters, B. G. (2017). Understanding policy problems: a refinement of past work. *Policy and Society*, 36(3), 365-384.
- Hope, M., & Raudla, R. (2012). Discursive institutionalism and policy stasis in simple and compound polities: the cases of Estonian fiscal policy and United States climate change policy. *policy Studies*, 33(5), 399-418.
- Howlett, M., & Ramesh, M. (1995). *Studying Public Policy: Policy Cycles and Policy Subsystems*. Canada: Oxford University Press.
- Howlett, M., & Ramesh, M. (2003). *Studying Public Policy: Policy Cycles and Policy Subsystems*: Oxford University Press.
- Hrudey, S. E. (2008). Safe water? Depends on where you live! *Canadian Medical Association Journal*, 178(8), 975.
- Huiteima, D. (2002). *Hazardous Decisions: Hazardous Waste Siting in the UK, The Netherlands and Canada*. Dordrecht: Kluwer Academic Publishers.
- Huiteima, D., & Meijerink, S. (2009). Transitions in water management: positioning this book. In D. Huiteima & S. Meijerink (Eds.), *Water Policy Entrepreneurs: A Research Companion to Water Transitions around the Globe* (pp. 3-22). Cheltenham, UK: Edward Elgar Publishing Limited.
- Huiteima, D., & Meijerink, S. (2010). Realizing water transitions: the role of policy entrepreneurs in water policy change. *Ecology and Society*, 15(2), 26-36.
- Huiteima, D., Mostert, E., Egas, W., Moellenkamp, S., Pahl-Wostl, C., & Yalcin, R. (2009). Adaptive water governance: assessing the institutional prescriptions of adaptive (co-) management from a governance perspective and defining a research agenda. *Ecology and Society*, 14(1).

- Huiteima, D., & Turnhout, E. (2009). Working at the science-policy interface: a discursive analysis of boundary work at the Netherlands Environmental Assessment Agency. *Environmental Politics*, 18(4), 576-594.
- Imperial, M. T. (1999). Institutional analysis and ecosystem-based management: the institutional analysis and development framework. *Environmental Management*, 24(4), 449-465.
- Imperial, M. T., & Yandle, T. (2005). Taking institutions seriously: using the IAD framework to analyze fisheries policy. *Society and Natural Resources*, 18, 493-509.
- Ingram, H. M. (2013). No universal remedies: design for context. *Water International*, 38(1), 6-16.
- Innes, J. E., & Booher, D. E. (2003). Collaborative policymaking: governance through dialogue. In M. Hajer & H. Wagenaar (Eds.), *Deliberative Policy Analysis: Understanding Governance in the Network Society* (pp. 51-77). Cambridge: Cambridge University Press.
- International Joint Commission. (2014). *A Balanced Diet for Lake Erie: Reducing Phosphorous Loadings and Harmful Algal Blooms*. Ottawa, ON: International Joint Commission.
- International Joint Commission. (2017a). *First Triennial Assessment of Progress on Great Lakes Water Quality - Highlights report*.
- International Joint Commission. (2017b). *First Triennial Assessment of Progress on Great Lakes Water Quality. Final report*.
- International Joint Commission. (2018). *Fertilizer Application Patterns and Trends and Their Implications for Water Quality in the Western Lake Erie Basin*. Washington, DC: International joint Commission.
- Irvine, J. T. (2002, 2002). *Water Law In Canada: Federal and Provincial Jurisdiction*, Saskatoon, Saskatchewan.
- Jack Faucett Associates. (2017). *Renewable Fuel Mandate Project: Final Report*: Prepared for: International Joint Commission, Great Lakes Regional Office.
- Jacobs, K., Kemeny, J., & Manzi, T. (2003). Power, discursive space and institutional practices in the construction of housing problems. *Housing Studies*, 18(4), 429-446.
- Jessup, B. (2010). Plural and hybrid environmental values: a discourse analysis of the wind energy conflict in Australia and the United Kingdom. *Environmental Politics*, 19(1), 21-44.
- Jetoo, S. (2018). Barriers to Effective Eutrophication Governance: A Comparison of the Baltic Sea and North American Great Lakes. *Water*, 10(4), 22. doi:10.3390/w10040400
- Johansson, J. (2014). Towards democratic and effective forest governance? The discursive legitimation of forest certification in northern Sweden. *Local Environment*, 19(7), 803-819.
- Johns, C. (2000). *Non-Point Source Water Pollution Management in Canada and the United States A Comparative Analysis of Institutional Arrangements and Policy Instruments*. (Doctor of Philosophy). McMaster University, Hamilton, ON. Available from Docs
- Johns, C. (2017). The Great Lakes, water quality and water policy in Canada. In S. Renzetti & D. Dupont (Eds.), *Water Policy and Governance in Canada* (Vol. 17, pp. 159-180): Springer.
- Johns, C., & Teare, R. (2015). A review of policy research articles published in the Journal of Great Lakes Research in the past 40 years: Progress at the science-policy interface? *Journal of Great Lakes Research*, 41, 697-706.
- Jones, S. (2002). Social constructionism and the environment: through the quagmire. *Global Environmental Change*, 12, 247-251.
- Jørgensen, M., & Phillips, L. J. (2002). *Discourse Analysis as Theory and Method*. London: SAGE.
- Kamieniecki, S. (2006). *Corporate America and Environmental Policy: How Often Does Business Get Its Way?* Stanford, California: Stanford University Press.

- Kamieniecki, S., & Kraft, M. E. (Eds.). (2013). *The Oxford Handbook of U.S. Environmental Policy*. Toronto: Oxford University Press.
- Kane, D. D., Conroy, J. D., Richards, R. P., Baker, D. B., & Culver, D. A. (2014). Re-eutrophication of Lake Erie: correlations between tributary nutrient loads and phytoplankton biomass. *Journal of Great Lakes Research*, 40(3), 496-501.
- Kashwan, P. (2016). Integrating power in institutional analysis: A micro-foundation perspective. *Journal of Theoretical Politics*, 28(1), 5-26.
- Kay, A. (2009). Understanding Policy Change as a Hermeneutic Problem. *Journal of Comparative Policy Analysis: Research and Practice*, 11(1), 47-63.
- Kelly, B. (2017). Canada-Ontario Draft Action Plan (DAP) on Lake Erie Phosphorus Reduction: Partnering in Phosphorus Control (EBR Registration Number: 012-9971) [Press release]. Retrieved from <http://www.farmfoodcareon.org/wp-content/uploads/2016/04/Lake-Erie-EBR-POST-012-9971.pdf> on sept 22 2017
- Kemp, C., & Graham, A. (2016). Organizations' joint statement on U of M nutrient management study. Retrieved from <http://www.ohiowaterquality.org/wp/2016/03/24/organizations-joint-statement-on-u-of-m-nutrient-management-study/> on June 6, 2018
- Kern, F. (2011). Ideas, institutions, and interests: explaining policy divergence in fostering 'system innovations' towards sustainability. *Environment and Planning C: Government and Policy*, 29, 1116-1134.
- Kerr, J., DePinto, J., McGrath, D., Sowa, S., & Swinton, S. (2016). Sustainable management of Great Lakes watersheds dominated by agricultural land use. *Journal of Great Lakes Research*, 42(6), 1252-1259.
- Kilbert, K., Tisler, T., & Hohl, M. Z. (2012). *Legal Tools for Reducing Harmful Algal Blooms in Lake Erie*: The University Of Toledo - College Of Law.
- Kingdon, J. W. (1984). *Agendas, alternatives and public policies*. New York: Harper Collins.
- Kiser, L. L., & Ostrom, E. (1982). Three worlds of action: a metatheoretical synthesis of institutional approaches. In *Strategies of Political Inquiry* (pp. 179-222). Beverly Hills, CA: Sage.
- Klyza, C. M., & Sousa, D. J. (2013). *American Environmental Policy: Beyond Gridlock*. Cambridge, MA: The MIT Press.
- Koelble, T. A. (1995). Review: the new institutionalism in political science and sociology. *Comparative Politics*, 27(2), 231-243.
- Kooiman, J. (2003). *Governing as Governance*. London, United Kingdom: SAGE Publications Ltd.
- Kraft, M. E. (2011). *Environmental Policy and Politics* (5th ed.). Boston, MA: Longman.
- Kraft, M. E., & Furlong, S. R. (2007). *Public Policy: Politics, Analysis, and Alternatives* (2 ed.). Washington: CQ Press.
- Kraft, M. E., & Kamieniecki, S. (Eds.). (2007). *Business and Environmental Policy: Corporate Interests in the American Political System*. Cambridge, Massachusetts: The MIT Press.
- Krantzberg, G. (2017). Governance and the Great Lakes Guardians' Council: Who are We and What should We be Doing? *Journal of Aquatic Pollution and Toxicology*, 1(12), 1-8.
- Laclau, E., & Mouffe, C. (2001). *Hegemony and Socialist Strategy: Towards a Radical Democratic Politics* (2nd ed.). London: Verso.
- Lake Erie LaMP Work Group. (2011). *Lake Erie Binational Nutrient Management Strategy: Protecting Lake Erie by Managing Phosphorus*. Prepared by the Lake Erie LaMP Work Group Nutrient Management Task Group. Retrieved from <https://www.epa.gov/greatlakes/lake-erie-binational-nutrient-management-strategy>
- Lauber, V., & Schenner, E. (2011). The struggle over support schemes for renewable electricity in the European Union: a discursive-institutionalist analysis. *Environmental Politics*, 20(4), 508-527.

- Legislative Research Service. (2011). *How an Ontario Bill Becomes Law: A Guide for Legislators and the Public*.
- Lehrer, N. (2010). (Bio)fueling farm policy: the biofuels boom and the 2008 farm bill. *Agricultural and Human Values*, 27, 427-444.
- Leipold, S. (2014). Creating forests with words — A review of forest-related discourse studies. *Forest Policy and Economics*, 40, 12-20.
- Leipold, S., & Winkel, G. (2017). Discursive Agency: (Re-)Conceptualizing Actors and Practices in the Analysis of Discursive Policymaking. *The Policy Studies Journal*, 45(3), 510-534.
- Lejano, R. P., Ingram, M., & Ingram, H. (2013). *The Power of Narrative in Environmental Networks*. Cambridge, MA: The MIT Press.
- Lemos, M. C., & Agrawal, A. (2006). Environmental governance. *Annual Review of Environment and Resources*, 31, 297-325.
- Lemos, M. C., & De Oliveira, J. L. F. (2004). Can water reform survive politics? Institutional change and river basin management in Ceara, Northeast Brazil. *World Development*, 32(12), 2121-2137.
- Lenihan, M., & Brasier, K. (2010). Ecological modernization and the US Farm Bill: The case of the Conservation Security Program. *Journal of Rural Studies*, 26, 219-227.
- LeRoy, P., & Arts, B. (2006). Institutional dynamics in environmental governance. In B. Arts & P. LeRoy (Eds.), *Institutional Dynamics in Environmental Governance* (pp. 1-19). Dordrecht, The Netherlands: Springer.
- Levy, D. L., & Newell, P. (2005). A neo-Gramscian approach to business in international environmental politics: an interdisciplinary, multilevel framework. In D. L. Levy & P. Newell (Eds.), *The Business of Global Environmental Governance* (pp. 47-69). Cambridge: Massachusetts Institute of Technology.
- Levy, D. L., & Newell, P. J. (2002). Business strategy and international environmental governance: toward a neo-Gramscian synthesis. *Global Environmental Politics*, 2(4), 84-101.
- Library of Parliament. (2002). *Inside Canada's Parliament: An Introduction to How the Canadian Parliament Works*.
- Linton, J., & Hall, N. (2013). The Great Lakes: a model of transboundary cooperation. In E. S. Norman, A. Cohen, & K. Bakker (Eds.), *Water Without Borders: Canada, the United States, and Shared Waters* (pp. 221-243). Toronto, ON: University of Toronto Press.
- Lipset, S. M. (1990). *Continental Divide: The Values and Institutions of the United States and Canada*. New York: Routledge.
- Litfin, K. (1994). *Ozone Discourses: Science and Politics in Global Environmental Cooperation*. New York: Columbia University Press.
- Litfin, K. (1995). Framing science: precautionary discourse and the Ozone treaties. *Millennium: Journal of International Studies*, 24(2), 251-277.
- Lowndes, V., & Roberts, M. (2013). *Why Institutions Matter: The New Institutionalism in Political Science*. Basingstoke, Hampshire: Palgrave Macmillan.
- Lubell, M., Schneider, M., Scholz, J. T., & Mete, M. (2002). Watershed partnerships and the emergence of collective action institutions. *American Journal of Political Science*, 46(1), 148-163.
- Lukes, S. (2005). *Power: A Radical View* (2nd edition ed.). Basingstoke: Palgrave Macmillan.
- Maaskant, J. (2014). *Farm and Food Care Ontario: Year in Review, 2014 - Chairman's Message*: Farm and Food Care Ontario.
- Maaskant, K. (2015). *Water Quality Assessment in the Thames River Watershed: Nutrient Trends*. Upper Thames River Conservation Authority. Retrieved from <https://www.thamesrevival.ca/wp-content/uploads/2015/12/ThamesWQAssess-Oct2015-LkStClairConf-MaaskantUTRCA.pdf>

- Maccoux, M. J., Dove, A., Backus, S. M., & Dolan, D. M. (2016). Total and soluble reactive phosphorus loadings to Lake Erie: A detailed accounting by year, basin, country, and tributary. *Journal of Great Lakes Research*, 42(6), 1151-1165.  
doi:<https://doi.org/10.1016/j.jglr.2016.08.005>
- MacDonald, D. (2007). *Business and Environmental Politics in Canada*. Peterborough: Broadview Press.
- MacIvor, H. (2010). *Parameters of Power: Canada's Political Institutions* (5th ed.). Toronto: Nelson Education.
- Maddock, T. (2004). Fragmented regimes: how water quality regulation is changing political-economic landscapes. *Geoforum*, 35, 217-230.
- Maguire, S., & Hardy, C. (2009). Discourse and deinstitutionalization: the decline of DDT. *Academy of Management Journal*, 52(1), 148-178.
- Makarewicz, J., & Bertram, P. (1991). Evidence for the Restoration of the Lake Erie Ecosystem. *BioScience*, 41(4), 216-223.
- Mander, S. (2008). The role of discourse coalitions in planning for renewable energy: a case study of wind-energy deployment. *Environment and Planning C: Government and Policy*, 26(3), 583-600.
- March, J., & Olsen, J. (1989). *Rediscovering institutions : the organizational basis of politics*. New York: Free Press.
- Mattheis, A. (2017). A mashup of policy tools and CDA as a framework for educational policy inquiry. *Critical policy studies*, 11(1), 57-78.
- Matthews, C. E., Gibson, R., & Mitchell, B. (2007). Rising waves, old charts, nervous passengers: Navigating toward a new water ethic. In K. Bakker (Ed.), *Eau Canada: The Future of Canada's Water* (pp. 335-358). Vancouver: University of British Columbia Press.
- Mayr, A. (Ed.) (2008). *Language and Power: An Introduction to Institutional Discourse*. London: Continuum International Publishing Group.
- McCabe, D. (2016). EBR #012-8760: Reducing Phosphorous to Minimize Algal Blooms in Lake Erie [Press release]. Retrieved from <https://ofa.on.ca/resources/ofa-submission-on-reducing-phosphorus-to-minimize-algal-blooms-lake-erie/> on Feb 23, 2019
- McCarthy, G. (2015). *Great Lakes Restoration Initiative: Report to Congress and the President, Fiscal Years 2010–2014*.
- McClure, T. (2016). Testimony before The Subcommittee on Conservation and Forestry House Committee on Agriculture Regarding “Focus on the Farm Economy: Impacts of Environmental Regulations and Voluntary Conservation Solutions”. In.
- McCord, P., Dell'Angelo, J., Baldwin, E., & Evans, T. (2017). Polycentric Transformation in Kenyan Water Governance: A Dynamic Analysis of Institutional and Social-Ecological Change. *Policy Studies Journal*, 45(4), 633-658. doi:10.1111/psj.12168
- McGinnis, M. D. (2011). Networks of adjacent action situations in polycentric governance. *Policy Studies Journal*, 39(1), 51-78.
- McGinnis, M. D., & Ostrom, E. (2014). Social-ecological system framework: initial changes and continuing challenges. *Ecology and Society*, 19(2), 30.
- McIntyre, L., Patterson, P., & Mah, C. (2018). A framing analysis of Canadian household food insecurity policy illustrates co-construction of an intractable problem. *Critical policy studies*, 12(2), 149-168.
- McLaughlin, C., & Krantzberg, G. (2012). An appraisal of management pathologies in the Great Lakes. *Science of the Total Environment*, 416, 40-47.
- Mendes, W. (2007). Negotiating a place for 'sustainability' policies in municipal planning and governance: the role of scalar discourses and practices. *Space and Polity*, 11(1), 95-119.
- Metze, T., & Dodge, J. (2016). Dynamic Discourse Coalitions on hydro-fracking in Europe and the United States. *Environmental Communication*, 10(3), 365-379.

- Meyer, K., Davis, C., & Fleisher, M. (2017). RE: Comments on Ohio's draft Domestic Action Plan [Press release]
- Michalak, A. M., Anderson, E. J., Beletsky, D., Boland, S., Bosch, N. S., Bridgeman, T. B., . . . Zagorski, M. A. (2013). Record-setting algal bloom in Lake Erie caused by agricultural and meteorological trends consistent with expected future conditions. *Proceedings of the National Academy of Sciences*, *110*(16), 6448-6452.
- Miller, B. (1992). Collective action and rational choice: place, community, and the limits to individual self-interest. *Economic Geography*, *68*(1), 22-42.
- Mills, S. (1997). *Discourse*. New York: Routledge.
- Molle, F. (2009). Water, politics and river basin governance: repoliticizing approaches to river basin management. *Water International*, *34*(1), 62-70.
- Mollinga, P. P., Meinen-Dick, R. S., & Merrey, D. J. (2007). Politics, plurality and problems: a strategic approach for reform of agricultural water resources management. *Development Policy Review*, *25*(6), 699-719.
- Morrison, T., Adger, W., Brown, K., Lemos, M., Huitema, D., Phelps, J., . . . Hughes, T. (2019). The black box of power in polycentric environmental governance. *Global Environmental Change*, *57*.
- Mukhtarov, F., & Gerlak, A. K. (2014). Epistemic forms of integrated water resources management: towards knowledge versatility. *Policy Sciences*, *47*(2), 101-120.
- Müller, M. (2008). Reconsidering the concept of discourse for the field of critical geopolitics: towards discourse as language and practice. *Political Geography*, *27*(3), 322-338.
- Munro, B. (2015). *The Lost Innocence of Ethanol: Power, Knowledge, Discourse, and U.S. Biofuel Policy*. (Doctoral). Kansas State University, Manhattan, Kansas, USA. Available from docs
- Murdoch, J. (2004). Putting discourse in its place: planning, sustainability and the urban capacity study. *Area*, *36*(1), 50-58.
- Nagendra, H., & Ostrom, E. (2014). Applying the social-ecological system framework to the diagnosis of urban lake commons in Bangalore, India. *Ecology and Society*, *19*(2), 67-84.
- (2015). Retrieved from <http://blog.nwf.org/wp-content/blogs.dir/11/files/2015/02/Protect-our-drinking-water-60.mp3> on April 7, 2019
- Newell, P., & Levy, D. L. (2006). The political economy of the firm in global environmental governance. In C. K. May (Ed.), *Global Corporate Power* (pp. 157-178). Boulder, Co.: Lynne Rienner.
- North, D. C. (1990). *Institutions, Institutional Change and Economic Performance*. Cambridge: Cambridge University Press.
- Nürnberg, G., & LaZerte, B. (2015). *Water Quality Assessment in the Thames River Watershed - Nutrient and Sediment Sources*. Baysville, Ontario: The Upper Thames River Conservation Authority.
- Nywening, C. (2017). EBR 012-9971 Canada-Ontario Domestic Action Plan for Lake Erie [Press release]. Retrieved from <http://christianfarmers.org/wp-content/uploads/2017/06/2017-05-24-CFFO-DAP-Lake-Erie.pdf> on Sept 22 2017
- O'Mahoney, J. (2011). Embracing essentialism: A realist critique of resistance to discursive power. *Organization*, *19*(6), 723-741.
- Objectives and Targets Task Team. (2015). *Recommended phosphorus loading targets for Lake Erie, Annex 4 Objectives and Targets Task Team Final Report to the Nutrients Annex Subcommittee*.
- OFA. (2014). OFA Today. In O. F. o. A. (OFA) (Ed.), *Annual update from the Ontario Federation of Agriculture*.
- OFA. (2015). OFA Today. In O. F. o. Agriculture (Ed.), *Annual update from the Ontario Federation of Agriculture*.



- OFA. (2016). OFA Today. In O. F. o. Agriculture (Ed.), *Annual update from the Ontario Federation of Agriculture*.
- OFA. (2018a). Guiding Principles for Water-Related Policies and Programs. Retrieved from <https://ofa.on.ca/issues/water/>
- OFA. (2018b). OFA Today. In O. F. o. Agriculture (Ed.), *Annual update from the Ontario Federation of Agriculture*.
- Ohio Environmental Protection Agency. (2018). Nutrient Mass Balance Study for Ohio's Major Rivers. In D. o. S. W. M. a. A. Section (Ed.), (pp. 83).
- Ohio Farm Bureau Federation. (2017). Re: Comments on the IJC's draft Triennial Assessment of Progress (TAP) report under the 2012 Great Lakes Water Quality Agreement [Press release]. Retrieved from [https://ijc.org/sites/default/files/2018-08/Amalgamated%20Public%20Submissions%20to%20the%20draft%20TAP%20report\\_0.pdf](https://ijc.org/sites/default/files/2018-08/Amalgamated%20Public%20Submissions%20to%20the%20draft%20TAP%20report_0.pdf) on Feb 25, 2019
- Ohio Farm Bureau Federation Agriculture for Good Government Political Action Committee. (2018). AGGPAC's Purpose. Retrieved from <https://www.farmvotesmatter.org/SitePages/Homepage.aspx> on July 18, 2018
- Ohio Lake Erie Commission. (2008). *Lake Erie Protection and Restoration Plan 2008*. Ohio Lake Erie Commission. Toledo, Ohio.
- Ohio Lake Erie Commission [OLEC]. (2018). *State of Ohio's Domestic Action Plan 1.0: In accordance with the Great Lakes Water Quality Agreement*: Ohio Lake Erie Commission.
- Ohio Lake Erie Phosphorus Task Force. (2010). *Ohio Lake Erie Phosphorus Task Force Final Report*: Ohio Environmental Protection Agency.
- Ohio Lake Erie Phosphorus Task Force. (2013). *Ohio Lake Erie Phosphorus Task Force II Final Report*: Ohio Environmental Protection Agency.
- Ontario Federation of Agriculture. (2018). Ontario Federation of Agriculture: About Us. Retrieved from <https://ofa.on.ca/about-ofa/> on June 5, 2018
- Ontario Ministry of Agriculture Food and Rural Affairs [OMAFRA]. (2017, 12-04-2018). Best Management Practices Series. Retrieved from <http://www.omafra.gov.on.ca/english/environment/bmp/series.htm>
- Oosthoek, S. (2011). Great Lakes phosphorus levels rising, report warns: Lake Erie is the 'poster child' for eutrophication, says IJC U.S. co-chair. *Canadian Broadcasting Corporation (CBC) News*. Retrieved from <https://www.cbc.ca/news/technology/great-lakes-phosphorus-levels-rising-report-warns-1.1049751> on Oct 5, 2018
- Ostrom, E. (1990). *Governing the Commons: The Evolution of Institutions for Collective Action*. Cambridge: Cambridge University Press.
- Ostrom, E. (2005). *Understanding Institutional Diversity*. Princeton, NJ: Princeton University Press.
- Ostrom, E. (2006). Institutional Rational Choice: An assessment of the Institutional Analysis and Development Framework. In P. Sabatier (Ed.), *Theories of the Policy Process* (2nd Ed. ed., pp. 21-64). Boulder, Co.: Westview Press.
- Ostrom, E. (2007). Institutional rational choice: an assessment of the Institutional Analysis and Development Framework. In P. A. Sabatier (Ed.), *Theories of the Policy Process* (2nd Edition ed., pp. 21-64). Cambridge, MA: Westview Press.
- Ostrom, E. (2008a). Doing institutional analysis: digging deeper than markets and hierarchies. In C. Menard & M. Shirley (Eds.), *Handbook of New Institutional Economics* (pp. 819-848). Berlin: Springer.
- Ostrom, E. (2008b). Institutions and the environment. *Economic Affairs*, 28(3), 24-31.
- Ostrom, E. (2009). A general framework for analyzing sustainability of social-ecological systems. *Science*, 325(4), 419-422.

- Ostrom, E. (2011). Background on the Institutional Analysis and Development framework. *Policy Studies Journal*, 39(1), 7-27.
- Ostrom, E., & Cox, M. (2010). Moving beyond panaceas: a multi-tiered diagnostic approach for social-ecological analysis. *Environmental Conservation*, 37(4), 451-463.
- Paehlke, R. (2005). Democracy and environmentalism: opening a door to the administrative state? In R. Paehlke & D. Torgerson (Eds.), *Managing Leviathan: Environmental Politics and the Administrative State* (pp. 25-46). Peterborough: Broadview Press.
- Pagnucco, K., Maynard, G., Fera, S., Yan, N., Nalepa, T., & Ricciardi, A. (2015). The future of species invasions in the Great Lakes-St. Lawrence River basin. *Journal of Great Lakes Research*, 41(1), 96-107.
- Partelow, S. (2018). A review of the social-ecological systems framework: applications, methods, modifications, and challenges. *Ecology and Society*, 23(4).
- Peters, B. G. (2005). The problem of policy problems. *Journal of Comparative Policy Analysis*, 7(4), 349-370.
- Peters, B. G. (2012). *Institutional Theory in Political Science: The New Institutionalism* (3rd ed.). London: Continuum International Publishing.
- Petridou, E. (2014). Theories of the policy process: Contemporary scholarship and future directions. *Policy Studies Journal*, 42(S1), 12-32.
- Phillips, N., Lawrence, T. B., & Hardy, C. (2004). Discourse and institutions. *Academy of Management Review*, 29(4), 635-652.
- Plummer, R., Spiers, A., FitzGibbon, J., & Imhof, J. (2005). The expanding institutional context for water resources management: the case of the Grand River watershed. *Canadian Water Resources Journal*, 30(3), 227-244.
- Polski, M., & Ostrom, E. (1999). *An institutional framework for policy analysis and design*. Paper presented at the Workshop on Political Theory and Policy Analysis, Indianapolis, IN.
- Porter, J., & Birdi, K. (2018). 22 reasons why collaborations fail: Lessons from water innovation research. *Environmental Science & Policy*, 89, 100-108.
- Powers, L. (2015, Jun 18, 2015). Toxic algae blooms: What you should know about the mysterious phenomena. Retrieved from <https://www.cbc.ca/news/technology/toxic-algae-blooms-what-you-should-know-about-the-mysterious-phenomena-1.3117687>
- Province of Ontario. (2002). *Bill 81*. Ontario: Legislative Assembly of Ontario.
- Prudham, S. (2004). Poisoning the well: neoliberalism and the contamination of municipal water in Walkerton, Ontario. *Geoforum*, 35, 343-359.
- Purdy, J. M. (2012). A framework for assessing power in collaborative governance processes. *Public Administration Review*, 72(3), 409-417. doi:10.1111/j.1540-6210.2011.02525.x
- Radin, B. A., & Boase, J. P. (2000). Federalism, political structure and public policy in the United States and Canada. *Journal of Comparative Policy Analysis*, 2, 65-89.
- Raitio, K. (2012). New institutional approach to collaborative forest planning on public land: methods for analysis and lessons for policy. *Land Use Policy*, 29, 309-316.
- Rantala, S., & Gregorio, M. (2014). Multistakeholder environmental governance in action: REDD+ discourse coalitions in Tanzania. *Ecology and Society*, 19(2), 66-72.
- Reimer, A. (2015). Ecological modernization in U.S. agri-environmental programs: Trends in the 2014 Farm Bill. *Land Use Policy*, 209-217.
- Rein, M., & Schön, D. (1996). Frame-critical policy analysis and frame-reflective policy practice. *Knowledge, Technology, and Policy*, 9(1), 85-104.
- Renzetti, S., & Dupont, D. (2017). *Water Policy and Governance in Canada*: Springer.
- Rigolot, C. (2018). Sustainability transformations as shifts in worldviews: a dynamic view of complementarity issues. *Ecology and Society*, 23(2), 22-25.
- Roberts, C., Geels, F., Lockwood, M., Newell, P., Schmitz, H., Turnheim, B., & Jordan, A. (2018). The politics of accelerating low-carbon transitions: Towards a new research agenda. *Energy Research and Social Science*, 44, 304-311.

- Rockström, J., Steffen, W., Noone, K., Persson, A., Chapin III, F. S., Lambin, E., . . . Foley, J. (2009). Planetary boundaries: exploring the safe operating space for humanity. *Ecology and Society*, 14(2), 32.
- Rosenbloom, D. (2018). Framing low-carbon pathways: A discursive analysis of contending storylines surrounding the phase-out of coal-fired power in Ontario. *Environmental Innovation and Societal Transitions*, 27, 129-145.
- Rumble, J., Holt, J., & Irani, T. (2014). The power of words: exploring consumers' perceptions of words commonly associated with agriculture. *Journal of Applied Communications*, 98(2), 1-14.
- Runhaar, H., van Laerhoven, F., Driessen, P., & Arts, J. (2013). Environmental assessment in The Netherlands: effectively governing environmental protection? A discourse analysis. *Environmental Impact Assessment Review*, 39, 13-25.
- Rydin, Y. (1999). Can we talk ourselves into sustainability? The role of discourse in the environmental policy process. *Environmental Values*, 8(4), 467-484.
- Rydin, Y. (2003). *Conflict, consensus, and rationality in environmental planning: An institutional discourse approach*. Oxford: Oxford University Press.
- Rydin, Y., & Ockwell, D. G. (2010). Analysing dominant policy perspectives: the role of discourse analysis. In J. C. Lovett & D. G. Ockwell (Eds.), *A Handbook of Environmental Management* (pp. 168-197). Northampton, MA: Edward Elgar Publishing.
- Sabatier, P. (1988). An advocacy coalition framework of policy change and the role of policy-oriented learning therein. *Policy Sciences*, 21(2), 129-168.
- Sabatier, P. (Ed.) (2007). *Theories of the Policy Process*. Cambridge, MA: Westview Press.
- Sabatier, P., Focht, W., Lubell, M., Trachtenberg, Z., Vedlitz, A., & Matlock, M. (Eds.). (2005). *Swimming Upstream: Collaborative Approaches to Watershed Management*. Cambridge, MA: The MIT Press.
- Sabatier, P., Leach, W. D., Lubell, M., & Pelkey, N. (2005). Theoretical frameworks explaining partnership success. In P. Sabatier, W. Focht, M. Lubell, Z. Trachtenberg, A. Vedlitz, & M. Matlock (Eds.), *Swimming Upstream: Collaborative Approaches to Watershed Management* (pp. 173-200). Cambridge, MA: MIT Press.
- Saldaña, J. (2009). *The Coding Manual for Qualitative Researchers*. Thousand Oaks, CA: SAGE.
- Saldaña, J. (2013). *The Coding Manual for Qualitative Researchers* (2nd ed.). Los Angeles: Sage.
- Sarewitz, D. (2004). How science makes environmental controversies worse. *Environmental Science and Policy*, 7(5), 385-403.
- Scavia, D., Kalcic, M., Muenich, R., Aloysius, N., Arnold, J., Boles, C., . . . Yen, H. (2016). *Informing Lake Erie Agriculture Nutrient Management via Scenario Evaluation*. Ann Arbor, Michigan: University of Michigan.
- Schlager, E. (2007). A comparison of frameworks, theories, and models of policy processes. In P. Sabatier (Ed.), *Theories of the Policy Process*. Cambridge, MA: Westview Press.
- Schlager, E., & Blomquist, W. (2008). *Embracing Watershed Politics*. Boulder, Colorado: University Press of Colorado.
- Schlager, E., & Weible, C. (2013). New theories of the policy process. *The Policy Studies Journal*, 41(3), 389-396.
- Schmidt, V. A. (2000). Values and discourses in the politics of adjustment. In F. W. Scharpf & V. A. Schmidt (Eds.), *Welfare and Work in the Open Economy: From Vulnerability to Competitiveness* (Vol. 1, pp. 229-309). New York: Oxford University Press.
- Schmidt, V. A. (2002). *The Futures of European Capitalism*. New York: Oxford University Press.
- Schmidt, V. A. (2003). How, where and when does discourse matter in small states' welfare state adjustment? *New Political Economy*, 8(1), 127-146.
- Schmidt, V. A. (2008). Discursive institutionalism: the explanatory power of ideas and discourse. *Annual Review of Political Science*, 11, 303-326.

- Schmidt, V. A. (2010). Taking ideas and discourse seriously: explaining change through discursive institutionalism as the fourth 'new institutionalism'. *European Political Science Review*, 2(1), 1-25.
- Schmidt, V. A. (2011). Speaking of change: why discourse is key to the dynamics of policy transformation. *Critical policy studies*, 5(2), 106-126.
- Schmidt, V. A., & Radaelli, C. M. (2004). Policy Change and Discourse in Europe: Conceptual and Methodological Issues. *West European Politics*, 27(2), 183-210.
- Schon, D., & Rein, M. (1994). *Frame Reflection: Toward the Resolution of Intractable Policy Controversies*. New York: BasicBooks, A Division of HarperCollins Publishers, Inc.
- Scott, R. W. (2014). *Institutions and Organizations: Ideas, Interests, and Identities* (4th ed.). Los Angeles: SAGE.
- Scrase, J. I., & Ockwell, D. G. (2010). The role of discourse and linguistic framing effects in sustaining high carbon energy policy - an accessible introduction. *Energy Policy*, 38(5), 2225-2233.
- Self, J., & Penning-Rowsell, E. (2017). Power and policy in floodplain management, drawing on research in Alberta, Canada. *Water Policy*, wp2017043.
- Sharp, A. (2016). *Re: Draft State of Ohio's Western Lake Erie Basin Collaborative Implementation Plan*. Ohio Farm Bureau.
- Sharp, A. (2017a). *Re: Comments for State of Ohio's Draft Domestic Action Plan (August 2017 Draft)* [Press release]
- Sharp, A. (2017b). Testimony before The Committee on Agriculture, Nutrition and Forestry of the United States Senate Regarding "Conservation and Forestry: Perspectives on the Past and Future Direction for the 2018 Farm Bill" [Press release]. Retrieved from [https://www.agriculture.senate.gov/imo/media/doc/Testimony\\_Sharpe.pdf](https://www.agriculture.senate.gov/imo/media/doc/Testimony_Sharpe.pdf) on Feb 25, 2019
- Sheingate, A., Scatterday, A., Martin, B., & Nachman, K. (2017). Post-exceptionalism and corporate interests in US agricultural policy. *Journal of European Public Policy*, 24(11), 1641-1657.
- Sherren, K., Beckley, T., Greenland-Smith, S., & Comeau, L. (2017). How Provincial and Local Discourses Aligned Against the Prospect of Dam Removal in New Brunswick, Canada. *Water Alternatives*, 10(3), 697-723.
- Skogstad, G. (1987). *The Politics of Agricultural Policy making in Canada*. Toronto: University of Toronto Press.
- Skogstad, G. (1998). Ideas, paradigms and institutions: agricultural exceptionalism in the European Union and the United States. *Governance: An International Journal of Policy and Administration*, 11(4), 463-490.
- Smith, A., & Kern, F. (2009). The transitions storyline in Dutch environmental policy. *Environmental Politics*, 18(1), 78-98.
- Smith, D., King, K., & Williams, M. (2015). What is causing the harmful algal blooms in Lake Erie? *Journal of Soil and Water Conservation*, 70(2), 27A-29A.
- Smith, Z. (2013). *The Environmental Policy Paradox* (6th ed.). Boston: Pearson.
- Sonnett, J., Morehouse, B. J., Finger, T. D., Garfin, G., & Rattray, N. (2006). Drought and declining reservoirs: comparing media discourse in Arizona and New Mexico, 2002-2004. *Global Environmental Change*, 16(1), 95-113.
- Sørensen, E., & Torfing, J. (2007). Governance network research: towards a second generation. In E. Sørensen & J. Torfing (Eds.), *Theories of Democratic Network Governance* (pp. 1-24). New York, USA: Palgrave Macmillan.
- Sproule-Jones, M., Johns, C., & Heinmiller, T. (Eds.). (2008). *Canadian Water Politics: Conflicts and Institutions*. Montreal and Kingston: McGill-Queen's University Press.
- Sracic, P., & Binning, W. (2016). *Ohio Government and Politics*. Los Angeles: SAGE Publications. Kindle Edition.

- Stammler, K., Taylor, W., & Mohamed, M. N. (2017). Long-term decline in stream total phosphorus concentrations: Apervasive pattern in all watershed types in Ontario. *Journal of Great Lakes Research*, 43, 930-937.
- Statistics Canada. (2018). *Annual Demographic Estimates: Canada, Provinces and Territories*. Ottawa: Statistics Canada.
- Steffek, J. (2009). Discursive legitimation in environmental governance. *Forest Policy and Economics*, 11(5), 313-318.
- Stevenson, R. (2009). Discourse, power, and energy conflicts: understanding Welsh renewable energy planning policy. *Environment and Planning C: Government and Policy*, 27(3), 512-526.
- Stibbe, A. (2015). *Ecolinguistics: Language, Ecology and the Stories We Live By*. London: Routledge.
- Stone, D. (2002). *The Policy Paradox: The Art of Political Decision Making*. New York: W. W. Norton and Company.
- Strayer, D. L. (2009). Twenty years of zebra mussels: lessons from the mollusk that made headlines. *Frontiers in Ecology and the Environment*, 7(3), 135-141.
- Streeck, W., & Thelen, K. (Eds.). (2005). *Beyond Continuity: Institutional Change in Advanced Political Economies*. Oxford: Oxford University Press.
- Sturzaker, J., & Shucksmith, M. (2011). Planning for housing in rural England. *Town Planning Review*, 82(2), 169-193.
- Sucee, D. (2017). Subject: Canada-Ontario Action Plan for Lake Erie - EBR 012-9971 [Press release]. Retrieved from <https://www.ofah.org/wp-content/uploads/2015/01/CanON-ActionPlanforLakeErieEBR0129971.pdf> on Sept 22 2017
- Sussman, G., Daynes, B., & West, J. (2002). *American Politics and the Environment*. New York: Addison Wesley Longman, Inc.
- Swartz, D. (2007). Recasting power in its third dimension: Review of Steven Lukes, *Power: A Radical View*. New York: Palgrave Macmillan, 2005. *Theory and Society*, 36, 103-109.
- Szollosi, F., Flanagan, M., Taylor-Miesle, H., Bihn, S., Pachowski, P., Ryan, J., . . . Fleisher, M. (2015). Objection to U.S. Environmental Protection Agency Determination regarding Ohio Environmental Protection Agency's 2014 303(d) List. In: National Wildlife Federation.
- Takahashi, B., & Meisner, M. (2012a). Environmental discourses and discourse coalitions in the reconfiguration of Peru's environmental governance. *Environmental Communication*, 6(3), 346-364.
- Takahashi, B., & Meisner, M. (2012b). Environmental discourses and discourse coalitions in the reconfiguration of Peru's environmental governance. *Environmental Communication*, 6(3), 346-364.
- Termeer, C. J. A. M., Dewulf, A., Breeman, G., & Stiller, S. J. (2015). Governance capabilities for dealing wisely with wicked problems. *Administration & Society*, 47(6), 680-710.
- Theesfeld, I. (2011). Perceived power resources in situations of collective action. *Water Alternatives*, 4(1), 86-103.
- Torfin, J. (2005). Discourse theory: achievements, arguments, and challenges. In D. R. Howarth & J. Torfin (Eds.), *Discourse Theory in European Politics : Identity, Policy, and Governance*. New York: Palgrave Macmillan.
- Torgerson, D. (1995). The uncertain quest for sustainability: public discourse and the politics of environmentalism. In F. Fischer & M. Black (Eds.), *Greening Environmental Policy: The Politics of a Sustainable Future* (pp. 3-20). New York: St. Martin's Press.
- Torgerson, D. (2005). The ambivalence of discourse: beyond the administrative mind? In R. Paehlke & D. Torgerson (Eds.), *Managing Leviathan: Environmental Politics and the Administrative State* (pp. 97-124). Peterborough: Broadview Press.

- Toronto Star. (2016, Feb 28, 2016). Take firm steps to cut phosphorus in Lake Erie: Editorial. *Toronto Star*. Retrieved from <https://www.thestar.com/opinion/editorials/2016/02/28/take-firm-steps-to-cut-phosphorus-in-lake-erie-editorial.html> on Oct 5, 2018
- Tortajada, C. (2014). IWRM revisited: from concept to implementation. *International Journal of Water Resources Development*, 30(3), 361-363.
- Tuholske, J., & Kilbert, K. (2015). *Moving Forward: Legal Solutions To Lake Erie's Harmful Algal Blooms - Report Commissioned by Lucas County, Ohio Board of County Commissioners*: Vermont Law School - Water and Justice Program and The University of Toledo- College of Law.
- Turner, C., & Morris, B. (2018). *Ohio Agricultural Statistics - 2017-2018 Annual Bulletin*.
- U.S. Department of Agriculture, N. R. C. S. (2016). *Effects of Conservation Practice Adoption on Cultivated Cropland Acres in Western Lake Erie Basin, 2003-06 and 2012*: U.S. Department of Agriculture, Natural Resources Conservation Service.,
- United States Environmental Protection Agency. (2019). Fact and figures about the Great Lakes. Retrieved from <https://www.epa.gov/greatlakes/facts-and-figures-about-great-lakes> on March 29, 2019
- United States Environmental Protection Agency [USEPA]. (2018). *U.S. Action Plan for Lake Erie*.
- United States Environmental Protection Agency. Great Lakes National Program Office. (2017). *U.S. Action Plan for Lake Erie: Commitments and Strategy for Phosphorous Reduction (Draft)*. Retrieved from Chicago, IL:
- Van den Brink, M., & Metze, T. (Eds.). (2006). *Words Matter in Policy and Planning: Discourse Theory and Method in the Social Sciences*: Netherlands Graduate School of Urban and Regional Research.
- van Hulst, M., & Yanow, D. (2016). From policy "Frames" to "Framing": Theorizing a more dynamic, political approach. *American Review of Public Administration*, 46(1), 92-112.
- van Leeuwen, T. (2008). *Discourse and Practice: New Tools for Critical Discourse Analysis*. New York, New York: Oxford University Press.
- VanNijnatten, D. L., & Boardman, R. (Eds.). (2002). *Canadian Environmental Policy* (2nd edition ed.). Don Mills: Oxford University Press.
- Verschuren, P., & Doorewaard, H. (2010). *Designing a Research Project* (2nd ed.). The Hague: Eleven International Publishing.
- Verweij, M. (2000). Why is the River Rhine cleaner than the Great Lakes (despite looser regulation)? *Law and Society Review*, 34(4), 1007-1054.
- Villamayor-Tomas, S., Fleischman, F. D., Ibarra, I. P., Thiel, A., & van Laerhoven, F. (2014). From Sandoz to salmon: conceptualizing resource and institutional dynamics in the Rhine watershed through the SES framework. *International Journal of the Commons*, 8(2), 361-395.
- Viresco. (2015). Enabling Offsets at scale in Ontario's Agricultural Sector. In.
- Vollmer-Sanders, C., Allman, A., Busdeker, D., Moody, L., & Stanley, W. (2016). Building partnerships to scale up conservation: 4R Nutrient Stewardship Certification Program in the Lake Erie watershed. *Journal of Great Lakes Research*, 42, 1395-1402.
- Ward, K. G., & Jones, M. (1999). Researching local elites: reflexivity, 'situatedness' and political-temporal contingency. *Geoforum*, 30(4), 301-312.
- Watts, R., & Kaza, S. (2013). Planning for power: frame production in an environmental conflict over the siting of a high-voltage transmission line. *Journal of Environmental Studies and Sciences*, 3, 247-258.
- Wesselink, A., Buchanan, K., Georgiadou, Y., & Turnhout, E. (2013). Technical knowledge, discursive spaces and politics at the science-policy interface. *Environmental Science & Policy*, 30, 1-9.

- Whaley, L. (2018). The Critical Institutional Analysis and Development (CIAD) Framework. *International Journal of the Commons*, 12(2), 137-161.
- Whaley, L., & Weatherhead, E. K. (2014a). Competition, conflict, and compromise: three discourses used by irrigators in England and their implications for the co-management of water resources. *Water Alternatives*, 8(1), 800-819.
- Whaley, L., & Weatherhead, E. K. (2014b). An integrated approach to analyzing (adaptive) comanagement using the "politicized" IAD framework. *Ecology and Society*, 19(1), 10.
- White, L. (1994). Policy Analysis as Discourse. *Journal of Policy Analysis and Management*, 13(3), 506-525.
- Williamson, O. E. (1998). The institutions of governance. *American Economic Association*, 88(2), 75-79.
- Winchester, H. P. M. (2000). Qualitative research and its place in human geography. In I. Hay (Ed.), *Qualitative Research Methods in Human Geography* (pp. 1-22): Oxford University Press.
- Wines, M. (2014). Behind Toledo's Water Crisis, a Long-Troubled Lake Erie. *The New York Times*. Retrieved from <https://www.nytimes.com/2014/08/05/us/lifting-ban-toledo-says-its-water-is-safe-to-drink-again.html> on October 5, 2018
- Winfield, M. (2012). *Blue-Green Province*. Vancouver: UBC Press.
- Wodak, R. (2009). The semiotics of racism: A Critical Discourse-Historical Analysis. In J. Renkema (Ed.), *Discourse, Of Course: An Overview of Research in Discourse Studies* (pp. 311-326). Amsterdam: John Benjamins Publishing Company.
- Wodak, R., & Meyer, M. (Eds.). (2001). *Methods of Critical Discourse Analysis*. London: SAGE.
- World Commission on Environment and Development. (1987). *Our Common Future*. London, ON: Oxford University Press.
- Wozniak, T., Gerken, P., & Contrada, C. (2016). Comments from the Board of Lucas County Commissioners [Press release]
- Yin, R. K. (2009). *Case Study Research: Design and Methods* (4th edition ed. Vol. 5). Thousand Oaks, California: Sage Publications.
- Yoshida, Y., Flint, G., & Dolan, M. (2018). Farming between love and money: US Midwestern farmers' human-nature relationships and impacts on watershed conservation. *Journal of Environmental Planning and Management*, 61(5-6), 1033-1050.
- Young, O. R. (2002a). *The Institutional Dimensions of Environmental Change: Fit, Interplay, and Scale*. London, England: The MIT Press.
- Young, O. R. (2002b). Institutional interplay: the environmental consequences of cross-scale interactions. In E. Ostrom (Ed.), *The Drama of the Commons* (pp. 263-292). Washington: National Academy Press. (Reprinted from: Not in File).
- Young, O. R. (2008). Institutions and environmental change: the scientific legacy of a decade of IDGEC research. In O. R. Young, L. A. King, & H. Schroeder (Eds.), *Institutions and Environmental Change: Principal Findings, Applications, and Research Frontiers* (pp. 3-45). Cambridge, Massachusetts, USA: The MIT Press. (Reprinted from: Not in File).
- Zehringer, J., Nally, S., & Daniels, D. (N.D.). Directors' Agricultural Nutrients and Water Quality Working Group: Final Report and Recommendations. In O. D. o. Agriculture (Ed.).
- Zeitoun, M., & Allan, J. A. (2008). Applying hegemony and power theory to transboundary water analysis. *Water Policy*, 10(Supplement 2), 3-12.
- Zelli, F., Nielsen, T., & Dubber, W. (2019). Seeing the forest for the trees: identifying discursive convergence and dominance in complex REDD+ governance. *Ecology and Society*, 24(1), 10-36.
- Zittoun, P. (2009). Understanding Policy Change as a Discursive Problem. *Journal of Comparative Policy Analysis*, 11(1), 65-82.