

Environmental and Resource Conflicts and Conflict Resolution Practices
in Coastal Areas of the North American Great Lakes:
Towards an Integrated Approach for Policymaking

by

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Abbreviations

ADR	Alternative Dispute Resolution
CBA	Cost-Benefit Analysis
CBC	Community-Based Conservation
CDEC	Cornwall and District Environmental Committee
CR	Conflict Resolution
DNR	Department of Natural Resources
ECAR	Environmental Conflict Analysis and Resolution
ECR	Environmental Conflict Resolution
EPA	Environmental Protection Agency
EPS	Environment, Population and Security
ESSIM	Eastern Scotian Shelf Integrated Management
EU	European Union
GLIN	Great Lakes Information Network
GLRI	Great Lakes Restoration Initiative
GLWQA	Great Lakes Water Quality Agreement
ICZM	Integrated Coastal Zone Management
IJC	International Joint Commission
MAE	Multiple Attribute Evaluation
MDEQ	Michigan Department of Environmental Quality
MDNRE	Michigan Department of Natural Resources and Environment
NATO	North Atlantic Treaty Organization
NEORSO	Northeast Ohio Regional Sewer District
NGO	Non-Governmental Organization
NYP&A	New York Power Authority
OCMD	Oceans and Coastal Management Division
PACS	Peace and Conflict Studies
RAP	Regional Action Plan
RSPT	Regional Stormwater Protection Team
SLRIES	St. Lawrence River Institute of Environmental Sciences
TRIP	Topic, Relationship, Identity, Process
UN	United Nations
UNCED	United Nations Conference on Environment and Development
UNCLOS	United Nations Convention on the Law of the Sea
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
US	United States
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey

Guiding thoughts

If we can translate some of the important conceptual questions being asked in the critical literature into more rigorous research designs and make better use of the data, then we will move scholarship and the field forward. If we can make better use of the findings in a variety of other disciplines and produce truly interdisciplinary approaches to [environmental conflict resolution] ECR research, the field will benefit. Herein lies the promise of environmental conflict resolution.

(O'Leary and Bingham 2003, 22-23)

We can teach ourselves to stop trying to control conflict and to start trying to communicate about it.

(Costantino and Merchant 1996, 228)

This work is all about problem solving in a context of finding the balance among environmental, economic, and social concerns. Because many of the problems are so large and complex, and because there are vested interests, it is difficult to solve them. There is room for creative, alternative dispute resolution, but I have not seen it used effectively to date. What usually is required is several forceful, committed people who take leadership responsibility to bring the necessary parties together until they reach a consensus.

(Respondent AV)

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Abstract

Environmental conflicts are multi-dimensional. Individual components of environmental and resource-related conflicts are closely interlinked with other structural societal elements, including economic, social, political and cultural developments. Coastal areas are significant for people's subsistence, as well as industrial development, cultural heritage, and waterways; therefore, they require integrated research approaches and the implementation of comprehensive strategies of resource management, dispute resolution and conflict prevention. This qualitative exploratory study contributes to the development of the field of environmental conflict resolution (ECR) by examining the perceptions and experiences of 52 key stakeholders from the coastal areas of the Great Lakes region of Canada and the United States (US) with regards to environmental and resource conflicts and conflict resolution approaches. The study invited coastal stakeholders such as environmental policymakers, researchers, academics, educators and NGO members to share their perceptions, images, experiences and knowledge about environmental and resource conflicts and conflict resolution practices in the coastal areas of the Great Lakes. The framework of this holistic study integrates public policy, alternative dispute resolution, conflict analysis, project evaluation, dialogue and public participation, education and other creative interventions into an inclusive strategy of integrated environmental and resource management of coastal areas. Analysis of the study participants' responses revealed several key findings. First, the multi-dimensional character of environmental and resource conflicts and the wide range of coastal stakeholders involved necessitate creating spaces for dialogue and communication among coastal stakeholders, which may facilitate relationship building and encourage collaborative problem solving and constructive conflict resolution. Second, establishing

links between science and policymaking within environmental and resource management, as well as introducing conflict resolution education for coastal stakeholders, may significantly enhance the capacity of coastal stakeholders in ECR. Third, coastal stakeholders in the Great Lakes have an extensive and wide-ranging existing local knowledge, experience and expertise in resolving environmental and resource conflicts. Fourth, a conflict resolution system's design developed in this study may serve as an integrated framework for the analysis and resolution of environmental and resource conflicts. This ECR system design involves such important components as conducting conflict and stakeholder analysis; identifying the root causes of conflict; bringing conflict participants together to discuss resolution options; and building in continuous evaluation of environmental conflict resolution processes.

Chapter 1: Introduction. Environmental and resource conflicts and conflict resolution practices in the coastal areas of the North American Great Lakes

Introduction

This exploratory, integrative, and holistic study examines the perceptions and images of 52 key stakeholders from the coastal areas of the Great Lakes region of Canada and the United States (US) with regards to environmental and resource conflicts and conflict resolution practices. This study is qualitative and aims to explore the following research question: what are the perceptions and experiences of Canadian and US respondents (environmental policymakers, researchers, academics, educators and NGO members) about environmental and resource conflicts and conflict resolution practices in the coastal areas of the Great Lakes?

Coastal areas have traditionally attracted people all over the world and are used to establish villages, towns and cities, construct harbors and ports, explore and develop natural resources, establish recreational facilities, promote tourism, and much more (Armitage et al. 2007a). Coastal resources, including land, water, minerals, beaches, waterways, fish, sea products and aquaculture provide space, food and subsistence for peoples around the world.

While water, land and their resources often “belong” to their owners – countries, companies, or individuals – the environment as a whole is a combination of livelihood systems in the natural world (Odum 1993). At the same time the environment represents a free common resource (the Global Commons), which transcends national borders and is unaware of such phenomena as power differentials, privileges, property or ownership rights (Harrison and McIntosh Sundstrom 2010). Consequently, making use of

environmental resources depends on goodwill, responsibility and coordination among its 'users'.

Global environmental issues that may cause conflicts and may require intervention with dedication and cooperation, include the protection of the ozone layer, the reduction of global warming, the conservation of wildlife and biodiversity, as well as curbing population growth, addressing energy vulnerability, promoting sustainable economic development and ensuring the comprehensive management of the global commons (Jeong 2000, 269-279; Hart 2006). Moreover, while the term *environmental conflicts* includes a broad scope of potential conflicts related to the environment, there are also numerous conflicts linked to specific resources, such as water, land or fisheries. These conflicts may be referred to as *resource conflicts*.

Ecological security and environmental sustainability have been recognized as significant challenges that need to be addressed in the multidimensional framework of peace and conflict studies (PACS) (Byrne and Senehi 2009, 529; Diamond and McDonald 1996, 137; Dunn 2005, 78; Klare 2001; Galtung and Webel 2007, 398; Homer-Dixon 1991, 1994; Homer-Dixon and Blitt 1998). However, environmental conflict resolution is still a new PACS sub-field, and requires further theoretical formulation as well as the development of practical approaches and methodologies. This study contributes to defining the sub-field of environmental conflict resolution (ECR) theoretically, and seeks to identify practical approaches for intervention into environmental coastal area conflicts, by focusing on dispute resolution, conflict analysis and conflict transformation in coastal zones.

This research was outlined as an integrative and holistic study (see Lederach 1995, 1997) in which an elicitive approach is used to identify how the respondents perceive environmental conflicts and what their experiences are in environmental conflict

resolution. This type of qualitative research method, which is based on in-depth interviews of a particular sample of respondents, is an established and credible approach to research in conflict resolution and peace and conflict studies (Lederach 1997; Byrne and Keashly 2000; Byrne et al. 2009; Byrne et al. 2010; Flaherty 2012; Standish 2012; Askerov 2011; Rocke 2012).

The framework of this study is designed to integrate public policy, alternative dispute resolution, conflict analysis, project evaluation, dialogue and public participation, environmental and conflict resolution education and other creative interventions into a comprehensive strategy of the integrated environmental and resource management of coastal areas of seas and large lakes. The research took place in the Great Lakes area and was largely based on qualitative interviews of coastal stakeholders from both Canada and the US. Secondary sources, including policy documents, reports and academic publications were also analyzed.

This study has **three research objectives** based on the perceptions, images and experiences of 52 key stakeholders: (1) what type of environmental and resource conflicts are relevant for the Great Lakes area; (2) which stakeholders (groups) are involved in these issues; and (3) which conflict resolution approaches are applied to address these issues. This study also focuses on several specific environmental conflict resolution processes practiced by the coastal groups of the Great Lakes region, including the role of public policy, public participation, alternative dispute resolution (ADR) methods, environmental and conflict resolution education and creativity in addressing coastal conflicts. Moreover, the challenges and opportunities provided by sharing coastal space and the actions required to support sustainable development in the Great Lakes, are also discussed. Finally, I explored the respondents' perceptions about the most effective ways

(best practices) to address environmental and resource conflicts in coastal areas (see Appendix 1: Interview Schedule).

This exploratory, integrative and holistic study draws on a large variety of information and resources including, but not limited to respondent interviews, the reference documents provided by study participants, scholarly research articles and books, policy reports and legal documentation. There are so many relevant components in the framework of this broad topic that makes it challenging to cover them all within a single study of environmental and resource conflicts and conflict resolution practices. The purpose of this research project, however, was not to provide a complete overview of the issues, practices and approaches to environmental and resource conflict resolution in the Great Lakes area or to compare and contrast local projects or towns. Rather, the research purpose was to reach out to the North American Great Lakes area and study as many of the issues as possible, explore as many conflict resolution approaches as possible, and then attempt to integrate them together in order to visualize and conceptualize the scope and the essence of environmental conflict resolution practices in the Great Lakes area. This study makes contributions to both the theoretical and practical knowledge in the area of environmental conflict resolution as well as environmental and resource management and provides information for future, localized comparative case studies of specific projects. It can also be used for education and training purposes, in designing project evaluations and in policymaking. Further, this study aims to be informative and practical for the field of environmental and resource management, while at the same time contributing to theoretical developments in the framework of conflict resolution studies.

1.1. What is a coastal zone and why are coastal zones important

Throughout the past decades human activities have seriously threatened the state of the environment and have applied considerable pressure on it in terms of industrialization, overpopulation, pollution, toxic waste, and depletion of natural resources (see Brown et al. 2002, 1-16; Homer-Dixon 1994; Klare 2001; Lyons 2007). Specifically, urban development and growth, constantly increasing industrial demands, as well as the consequences of violent ethnic conflicts, often have adverse irreversible effects on the environment (Homer-Dixon 1991). Coastal areas are especially vulnerable to such pressure because they are often highly populated, convenient for different industries to use (including oil and gas exploration, extraction, processing, and transportation), and great for tourism and recreation.

Coastal zones can be broadly defined as areas that link land and marine ecosystems, and may include inland areas, coastal lands, coastal waters, and off-shore waters (see Cicin-Sain and Knecht 1998, 43-46; Brown et al. 2002, 3). Definitions of coastal zones vary and range from adopting scientific to legal, administrative and political classifications reflecting the specific context to which coastal zones are referred (Brown et al. 2002, 3).

The coastal areas in a broad sense are the regions of transition between land and water bodies of different types, for example, seas, freshwater and saline lakes, brackish-water semi-closed seas, estuaries and reservoirs (Wetzel 2001; McLusky and Elliott 2004; Schiewer 2008). Coastal areas (zones, regions) have conventional boundaries, which include both aquatic and terrestrial environments and are marked by above-average concentrations of people and economic activity (Elliott and McLusky 2002; Skarlato 2002; Telesh and Khlebovich 2010). Coastal areas are unique and vital because they host structural diversity within the integrity of coastal ecosystems and are generally

highly productive. “The coastal margins constitute just 8 percent of the world’s surface but provide 25 percent of global primary productivity” (Brown et al. 2002, 2). The ecological, economic, social and cultural value of coastal zones is significant, not only to coastal communities and local industries, but also to persons, groups, institutions, and organizations outside of coastal areas. Seaport harbors, shipyards and city construction, oil and gas exploration, tourism, waste disposal, residence, transportation, fisheries, aquaculture and the coast guard are just a few examples of activities and developments in coastal zones.

Coastal areas provide a wide range of ecosystem services and have long been important to mankind, either as places of navigation or as locations for towns on their banks (McLusky and Elliott 2004). Today these areas are under pressure due to climate change, global warming, carbon emissions and other anthropogenic stresses, either as repositories for the effluent of industrial processes and domestic wastes, or as prime sites for land-claim to create sites for industry, urban development, parks, recreation and retail spaces (McLusky and Elliott 2004; Stocker 2013). These examples are potential sources for social and environmental conflicts. Pollution from oil and oil products, heavy metals and pesticide effluents deteriorate water quality in coastal areas, which perform important filter and buffer functions for the open waters of seas and large lakes by retaining the land-borne pollutants in the coastal ecosystems (Schiewer 2008).

Such diversity of issues, developments, stakeholders and interests within coastal zones creates the potential for multiple conflicts and disputes. Conflicts and disputes over natural resources and environmental issues may have different degrees of intensity, from violent conflicts and civil war (see Bannon and Collier 2003) to a dispute over a local construction development. This study adopts the definition of *conflict* suggested by Franklin Dukes (1996, 188-189) who argues that *conflict* is understood as “the opposition

of two or more parties [who] have or perceive incompatibility of values, interests or goals ... There is also a special meaning of conflict where it refers to fundamental, deep, and widespread societal and inter-societal divisions over issues such as distribution of resources, values and behavior". For example, in this study a dispute over a dam construction may be perceived as one manifestation of a deeper conflict over natural resource use and human-environment interaction. Access to natural resources and land is one of the causes of environmental conflicts. According to Michael Ross (2003) oil and hard-rock minerals (including coltan, diamonds and gold) cause most of the resource-related conflicts, followed by other resources such as timber and illicit drugs.

The influence of human activities on the coastal environment (air, soil and water pollution, overfishing, resource depletion and scarcity, erosion and changes in landscape) is another potential source of conflict. For example, in the Baltic Sea Region, the two main threats to the sustainable development of coastal areas are conflicting interests and environmental pollution (Wennersten 2008, 32). Brown and co-authors (2002) note that such issues as property rights, inadequate management strategies, the lack of institutional capacity and insufficient participation in resource management may cause conflicts in coastal areas. Among resource and environmental conflicts occurring specifically in coastal zones are conflicts related to: marine transportation, coastal land reclamation (such as filling in wetlands, building dikes and dams), offshore oil development, threats to coral reefs, and tourism (Cicin-Sain and Knecht 1998, 23-31) as well as the connection between coastal ecosystem development and human health (Ommer 2007). Furthermore, conflicts occur over intangible issues including spiritual, cultural and traditional perceptions and relations to the environment among communities around the world (Casimir 2008b; Haenn and Wilk 2006; Schwartz 2006). For example, such conflicts may develop over the opposition of indigenous people to market-oriented resource-based

development of the modern global economy, which does not follow the principles of sustainable development, and which is deteriorating the world's environment, including its coastal ecosystems (Rice 2011; Babe 2006).

Coastal conflicts are affected by a multitude of interconnected factors and processes (see Figure 1). Resolving environmental problems and resource conflicts in coastal areas requires an integrated approach, the consideration of multiple interests and positions of various stakeholders and a long-term commitment to the resolution of conflicting issues. Coastal areas may serve as informative areas of study because they are dynamic, complex and, at the same time, vital regions, which are located all around the world. They provide resources, space, subsistence and links between the land and sea and between people and nature. Coastal areas connect people within communities and connect communities with their environment.

Figure 1: Factors influencing environmental and natural resource conflicts in coastal zones



Developed from the work of: Cicin-Sain and Knecht 1998; Brown et al. 2002; Leal Filho et al. 2008; Byrne and Carter 1996

1.2. Interdisciplinary nature of environmental and resource conflicts

There are multiple stakeholders and numerous issues over which disputes may occur in coastal areas in any given part of the world. Because of the significance of coastal areas for subsistence, industrial development, cultural heritage and waterways, they require special approaches and the implementation of comprehensive strategies of conflict prevention and dispute resolution. This study seeks to understand some of the underlying

causes of conflict in coastal areas and discusses practical interventions for addressing coastal conflicts that involve stakeholders' interests, needs, rights and responsibilities, which are linked to their unique geographical location, environment and natural resources.

The report on 'Linking Environment and Conflict Prevention' (Centre for Security Studies 2008) identified three types of environment-related conflicts. First, the 'Resource Curse', or indirect use of natural resources, includes conflicts that involve the extraction and trading of valuable natural resources that are globally scarce but naturally abundant, for instance, oil or diamonds. Second, the 'Local and Regional Resource Scarcity', or direct use of natural resources includes conflicts that involve water and land as part of livelihood systems. They are usually at a low escalation level but, in the aggregate, they can be a key factor in a detrimental destabilization process. Third, 'Hot Spots' are a complex type of conflict where both aforementioned types of conflict appear in addition to the prevailing dynamics of intense escalated conflicts.

The relationship between natural resources and violent conflict was studied by a number of scholars who attempted to determine the links between environmental problems (including resource scarcity) and the breaking out of violence and civil wars (see Homer-Dixon 1991, 1994; Berdal and Malone 2000; Polkinghorn 2000; Klare 2001; Ross 2004). The central thesis of Michael Klare's *Resource Wars*, is that wars over resources will in the future become "the most distinctive feature of global security environment" (Klare 2001, 213). The scarcity of critical resources and materials, such as water, petroleum, diamonds, timber and fisheries and its links to violent conflict have been popularized in terms of 'resource wars' (Le Billon 2009, 213). Michael Ross (2004, 338) also summarizes his research results in this area by drawing out four conclusions: (1) oil increases the likelihood of conflict; (2) 'lootable' commodities like gemstones and

drugs tend to lengthen existing conflicts; (3) there is no apparent link between legal agricultural commodities and civil war; and (4) the association between primary commodities and the onset of civil war is not robust. Ross (2004, 340) also finds that while there appears to be a wealth of data on casual links in specific conflicts, these connections are difficult to generalize. In this context, Le Billon (2009, 214-219) suggests that the links between resource scarcity and conflict should be analyzed from historical and geographical viewpoints and proposes three perspectives of analysis: (1) geopolitical framework, (2) political economy and (3) political ecology.

Thomas Homer-Dixon, one of the leading Canadian researchers working in environmental and resource conflicts, along with his colleagues investigated the links between increasing scarcity of renewable resources (*environmental scarcity*) and the rise of violent conflicts in the framework of the project Environment, Population, and Security (EPS) in 1994-96 (see Homer-Dixon and Blitt 1998). The case studies included cropland and forest materials acute scarcity in Chiapas (Mexico); water scarcity and aggravated socioeconomic conditions in Gaza; resource scarcity and population growth in South Africa; environmental scarcities and increasing ethnic, communal, and class-based rivalries in Pakistan; and the links between genocide, severe demographic stress, shortage of food and limited resources in Rwanda. The general conclusion of the EPS Project was that severe environmental scarcities often contribute to major civil violence, especially in poor countries that are more vulnerable to violence and are often unable to adapt to environmental scarcity (Ibid.).

In addition to the aforementioned resource-related conflicts, coastal stakeholders may dispute over the issues related to pollution and climate change, the possibility of nuclear disasters or chemical spills, noise pollution or the environmental consequences of violent conflicts. For example, a deadly tsunami triggered by an enormous earthquake in

Japan in March 2011 caused a nuclear disaster at the Fukushima I Nuclear Power Plant when a nuclear power station exploded and radiation leaked into the air, water and the environment.

Moreover, conflicts may occur over intangible resources that are linked to the environment and nature, for example, the cultural heritage and identity of coastal communities, people's spiritual relationship to land and animals, traditions and rituals that may go beyond legal commitments and property rights (see Pearson d'Estree 1999). Sjöstedt (2009, 227-229) also suggests the following classification for distinguishing between ecological conflicts in which environmental components are linked to other contentious issues to varying degrees: "*pure*" ecological conflicts, *embedded* ecological conflicts and *embracing* ecological conflicts. "*Pure*" ecological conflicts are dominated by a particular environmental issue (for example, a dispute over the future of a particular nuclear facility). *Embedded* ecological conflicts represent multiple disputed environmental and other related issues in conflicts (for instance, pollution of the Caspian Sea). *Embracing* ecological conflicts also involve multiple issues, but they are dominated and embraced by a significant environmental issue (such as, climate change negotiations) (Ibid, 228).

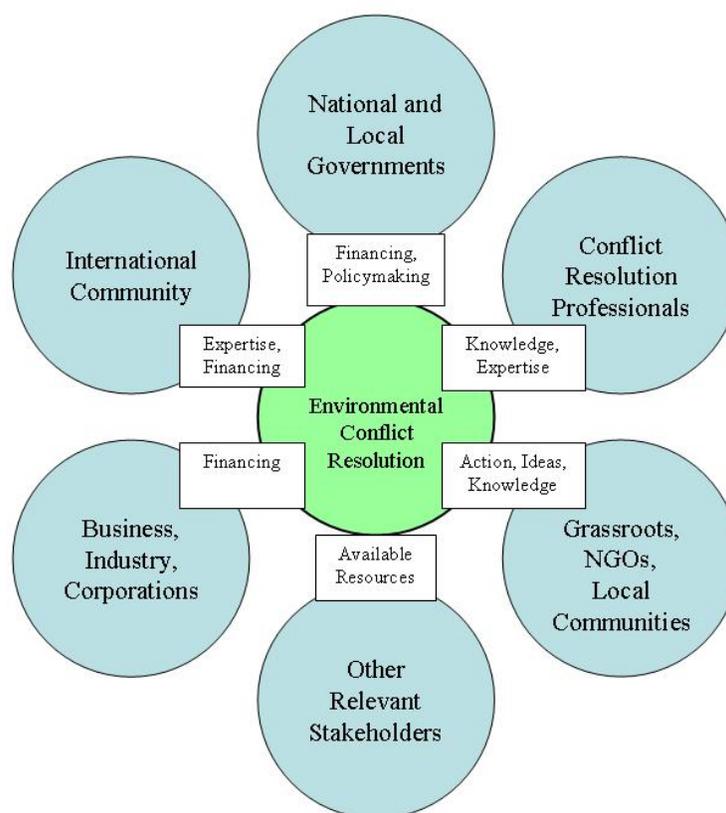
Coastal zones experience conflicts on different levels such as international disputes (for example, over coastal resources use or transit); conflicts between local coastal users (for example, over coordinating resource and space use by various coastal stakeholders); between a local or national authority and coastal stakeholders (for example, due to the lack of clear policies and regulations concerning their rights and responsibilities) (Brown et al. 2002, 111).

1.3. Identifying coastal ‘stakeholders’

The implementation of policies that address environmental threats requires the participation of various actors, ranging from non-governmental organizations (NGOs) and national governments to international organizations and individual activists (Jeong 2000, 267). In this study the term *stakeholder* refers to any individual, group, organization or agency that has an interest in coastal zones, due to their location or their direct or indirect influence on coastal areas. The term *participant* is used in this study to refer to any respondents who participated in this research.

Stakeholders in coastal conflicts need to be carefully identified to ensure that each individual, group, organization, company and agency has a chance to be heard, to contribute to planning and the implementation of coastal resource management policies and procedures. At the same time, power differentials between stakeholders affect their capacity to influence policymaking and their participation in conflict management processes (Stoll-Kleemann and Welp 2006, 96-99). Figure 2 presents a general overview of coastal stakeholders and their potential contributions to ECR.

Figure 2: Stakeholders' contributions to resolving environmental conflicts



1.4. The North American Great Lakes

The North American Great Lakes and their drainage basin form an enormous and unique area of utmost and manifold importance for the North American continent and the entire world. The Great Lakes are the largest surface freshwater system on the earth. They contain about 84 percent of North America's surface fresh water and about 21 percent of the world's supply, while only the ice caps contain more fresh water (US Environmental Protection Agency n.d.). Shared with Canada, these "freshwater seas" boast more than 10,000 miles of varied coastline and 30,000 islands and provide drinking water, transportation, power, spaces for homes and cottages, and a wide array of recreational opportunities such as boating, fishing, diving, and beach enjoyment (Action Plan 2010, 6). The basin of five interconnected Great Lakes (Superior, Michigan, Huron, Erie and

Ontario) is home to about 40 million people, making up about 30 percent of the Canadian population and about 13 percent of the US population (Miller 1994). The lakes supply drinking water for millions of inhabitants of their basin, and water for industry in the US and Canada located in the watershed of these lakes, while also providing significant opportunities for tourism and sport fishing.

In spite of their enormous size, the Great Lakes are sensitive to various natural and human-induced threats such as pollution from diffused and point sources including agricultural, municipal and industrial wastes, acidification, pesticides and atmospheric deposition of toxic substances, which in many cases are blown in from far distances, up to thousands of kilometers away. Due to both countries' growing economic and industrial demands in the twentieth century the pressure on the Great Lakes kept consistently rising, and by the early 1970s they were heavily polluted and Lake Erie was "declared dead" (Environment Canada n.d.). Urgent action was required to address the air pollution and the deterioration of the water quality of the Great Lakes. The most serious pollution problems are the deterioration of water quality and contamination of fish in the lakes, (especially Lake Erie and Lake Ontario) due to toxic wastes from land runoff as well as from inflowing streams and atmospheric depositions.

A new kind of danger arose in the 1980s. The worldwide intensification of shipping caused an increasing inflow of non-indigenous species (aliens) to the freshwater ecosystems of the North American Great Lakes. Alien species first populated coastal waters and sometimes even substituted or eliminated the native species, enhancing eutrophication and secondary (biological) pollution (Laxson et al. 2003; Telesh et al. 2008).

Because of the Great Lakes' unique position on the border between Canada and the United States, both countries benefit from its resources (see Appendix 3: The Map of

the Great Lakes). Disputes and conflicts over resource management, pollution and access to resources occur in the region, as both countries affect and are affected to a certain degree by the quality of the environment in the region of the Great Lakes (Kiy and Wirth 1998).

1.5. Conflict resolution: Environmental and natural resource issues

There are a number of possible directions to be taken to address conflicts in coastal areas, including legal mechanisms, public policy, alternative dispute resolution methods and other creative interventions. For example, public policy has the potential to establish practices of preventing conflict and creating models for conflict resolution within the process of policymaking (Pearson d'Estree and Colby 2004, 285-290). At the same time, ADR provides ways to reconcile and resolve disputes between actors non-violently through dialogue, conversation, learning, negotiating and building relationships (Ury et al. 1988; O'Leary and Bingham 2003; Fisher 2009).

While addressing conflicts through court-related legal mechanisms may be considered one of the best known environmental practices, these methods are not the focus of this study. Instead, I focus on the participants' discussion of ADR methods, as well as constructive approaches to prevent, manage, resolve and transform conflicts related to environmental and natural resource issues.

One of the first recorded cases of environmental dispute resolution in the US was an effort to mediate a dispute over the construction of the Snoqualmie River dam in 1973-74 (Bingham 1986, 14-15). In the framework of national policy, one of the first formal efforts to introduce a national coastal management strategy was the *Coastal Zone Management Act* (1972) in the US (Cicin-Sain and Knecht 1998, 32-33). The *Coastal Zone Management Act* (1972, 2) recognized the need for addressing "serious conflicts

among important and competing uses and values in coastal and ocean waters” due to “new and expanding demands for food, energy, minerals, defense needs, recreation, waste disposal, transportation, and industrial activities in the Great Lakes, territorial sea, exclusive economic zone, and Outer Continental Shelf [which] are placing stress on these areas”.

Taking into consideration that coastal conflicts usually involve multiple actors and issues that are at stake, there is a need for an integrated and holistic framework that would incorporate such approaches as ADR, the education of the public on environment and natural resource use issues, the training of conflict resolution professionals and mediators, as well as a public policy that promotes integrated models of natural resource and environmental management. Other possibilities may include approaching coastal conflicts creatively and using art, storytelling, and local people’s imagination in designing appropriate local interventions (Senehi 2009).

1.6. Research on environmental and resource conflicts in coastal areas

While the field of conflict resolution is still developing and building up a theoretical and practical foundation (Dunn 2005), the application of conflict resolution in coastal zones is at a very early stage of development, and the data and knowledge about coastal conflicts and their resolution are still rare. Individual case studies of coastal conflicts are sometimes included in publications on dispute resolution (Sobel 2000), and there are a number of publications that focus on environmental and resource conflicts and ways to resolve them (Crowfoot and Wondolleck 1991; Manring et al. 1991; Susskind and Cruikshank 2000; Pearson d’Estree and Colby 2004; O’Leary and Bingham 2003; Polkinghorn 2000). However, there are only a few studies that focus specifically on the theory and practice of environmental conflict resolution in coastal zones. One significant

publication that presents both a theoretical background on environmental conflict resolution and illustrates the theory through analyzing a set of comprehensive case studies in the Baltic coastal areas is the volume entitled *Conflict Resolution in Coastal Zone Management* (Leal Filho et al. 2008).

1.7. Thesis structure

Environmental and resource issues and conflicts are interdependent and often overlap. The 52 study participants shared with me a variety of issues related to conflicts and conflict resolution practices in many different forms and contexts, and I examined them from different angles in relation to other important issues and factors relevant to the coastal areas of the Great Lakes. In an attempt to introduce structure to this complex, dynamic and multidimensional topic, I have chosen the following outline to present this research.

Chapter 1 introduces environmental conflict resolution and resource management in the coastal areas of the North American Great Lakes. Moreover, it defines coastal areas, outlines different types of environmental and natural resource conflicts typical to coastal areas, presents a brief introduction to the Great Lakes and discusses the coastal ‘stakeholders’ including individuals, groups, organizations and companies whose subsistence and work is tied to coastal areas.

Next, Chapter 2 comprises a comprehensive literature review that provides a theoretical framework for the sequential Chapters with qualitative data. It covers a discussion of the theoretical background for developing conflict resolution strategies in coastal zones and reveals the multidimensional and cross-disciplinary character of the ECR field. This integrative and holistic study is informed by the following theoretical considerations: (1) the multidisciplinary nature of conflict and conflict resolution; (2)

human security and environmental security; (3) sustainable development; and (4) constructive approaches to conflict resolution (stakeholder dialogue and participation, policymaking, ADR, education and creative interventions). First, the multidisciplinary nature of environmental and resource conflicts is discussed through mapping the issues, and identifying stakeholders, their interests and needs. In this multidisciplinary context integrated approaches to environmental and resource management are discussed, including numerous stakeholders recognizing their needs as well as identifying their responsibilities. Second, human security and environmental security are applied as a framework for analyzing the root causes and the dynamics of environmental and resource conflicts. Along with other theoretical and practical considerations, this framework is also used to identify or develop approaches to resolving these types of conflicts. Third, the concept of sustainable development is applied in this study. Along with a general interpretation of sustainable development as balancing economic development and environmental quality, political, social and cultural frameworks within the ethics of sustainable development are also discussed. Finally, constructive approaches to resolving environmental and resource conflicts, which include stakeholder dialogue and participation, policymaking, ADR, education and other creative interventions are also discussed.

The methodology applied in this study is discussed in Chapter 3. Furthermore, the data from the qualitative interviews are presented in a way that attempts to facilitate addressing the three objectives posed at the beginning of this study.

Chapter 4 discusses a number of environmental and resource conflicts that are relevant to the Great Lakes area and presents the analysis of the stakeholders who are involved in these issues.

Chapter 5 focuses on the participants' perceptions of environmental conflict resolution practices in the Great Lakes region in the areas of public policy, cross-border environmental and resource management, legal mechanisms, as well as third party interventions and ADR approaches to resolving environmental conflicts.

Chapter 6 discusses the participants' images of collaborative environmental conflict resolution practices that are applied to address environmental and resource management conflicts in the Great Lakes. These practices include: public participation and governance; resource management plans and advisory groups; environmental and conflict resolution education; dialogue and communication; creativity; collaboration; working with Aboriginal communities; exploring directions for sustainable development in the Great Lakes; and the best practices for managing environmental and resource conflicts.

Following the discussion and analysis of the participants' perceptions of environmental and resource conflicts and conflict resolution practices, Chapter 7 addresses the potential gaps in resolving disputes and conflicts in coastal areas of the Great Lakes. This Chapter attempts to integrate existing knowledge, theory and practical experience in resolving environmental and natural resource conflicts as a step towards designing a conflict analysis and resolution framework for coastal areas. In particular, a Conflict Resolution System Design is compiled based on the data analysis conducted in the framework on this study. The implications for environmental policymakers and resource managers are also presented in this Chapter.

This study is concluded by Chapter 8, which formulates a number of key overall findings regarding ECR practices in the coastal areas of the Great Lakes. It discusses the challenges that coastal stakeholders face in the process of resolving environmental and resource conflicts and also focuses on the opportunities that coastal stakeholders create to

resolve these conflicts and prevent them from happening in the future. Finally, this Chapter includes a discussion of recommendations for future research projects that are aimed at developing and strengthening the ECR field with a specific focus on resolving resource and environmental conflicts in coastal areas.

1.8. Conclusions

Today the world faces serious global challenges and pressures, including climate change and global warming, intensifying natural disasters, food scarcity, natural resource scarcity, water shortage, population growth, poverty and migrations of people, loss of biodiversity and pollution, as well as the global economic crisis (see Snarr and Snarr 1998; Human Development Reports 1992-2010¹). In these circumstances it is especially important to recognize our responsibility to respect the environment as a key factor in present and future international economic development. Indigenous people believe that the environment and the people are inextricably intermixed (Rice 2011). Further, there is also a need to address serious environmental disasters, which happen around the world and have an especially significant effect on coastal areas (such as the recent Hurricane Sandy on the Eastern Seaboard of the US), as well as environmental conflicts ranging from disputes over natural resources and resource scarcity, negotiating coastal property rights, or acknowledgements of the cultural and spiritual significance of the environment for various coastal communities. The interdisciplinary nature of environmental conflicts calls for an integrated and inclusive approach to address, manage and resolve these conflicts. The next Chapter focuses on a comprehensive literature review that presents a

¹ United Nations Development Program (UNDP) Human Development Reports are published yearly and reflect the global challenges and critical issues that are faced by the countries of the world; see <http://hdr.undp.org/en/reports/research/>.

theoretical framework for this study and provides context for further discussion of environmental conflicts and conflict resolution practices in the Great Lakes.

Chapter 2: Literature review. Laying a foundation for environmental conflict resolution in coastal areas

Introduction

Analyzing environmental conflicts and designing intervention strategies requires an integrated approach that draws on different disciplines and incorporates a number of different aspects related to a particular conflict, participants, stakeholders and factors affecting the process. The purpose of this Chapter is to present the theoretical background and practical approaches relevant to the study of environmental and resource conflicts and conflict resolution practices through the lenses of three theoretical frameworks.

First, the framework of *conflict resolution and peacebuilding* provides a lens for the analysis of peace and conflict studies theory, as well as alternative conflict resolution methods and practices that are essential for designing interventions into environmental and resource conflicts. Furthermore, this framework allows one to explore conflict transformation, conflict prevention and peacebuilding as a response to emerging environmental conflicts and threats.

Second, the framework that embraces *environment and security issues* is also applied in this study. While this framework is critical for the discussion of a theoretical background of environmental and resource conflicts, it also serves as a basis for developing intervention and prevention mechanisms. Within this framework, human security and environmental security are discussed alongside eco-violence, environmental justice and sustainable development.

The third framework applied in this study is *policymaking*, which includes public policy in natural resources and the environment at the local, national, regional, and global

levels. The examples include the policies applied in the coastal areas around the world that may contribute to creating models of integrated coastal resource management.

In addition to the aforementioned frameworks the following issues relevant to ECR are also discussed throughout Chapter 2: (1) culture and the environment; (2) education, training and capacity-building in peace and environmental studies; (3) stakeholder dialogue and collaboration techniques; and (4) creativity in addressing environmental conflicts.

2.1. Conflict resolution and peacebuilding

The word *conflict* has two general meanings: one referring specifically to fighting or war (*armed conflict*), the other meaning incompatible, opposing or competing positions, interests or demands (*antagonistic state or action*) (Kriesberg 1998). In the peace and conflict studies (PACS) field the second definition is usually adopted: conflict is seen as contradictory and/or competitive interests, positions, values and/or goals of parties (see Galtung 2002a, 3; Bercovitch et al. 2009, 3; Jeong 2008, 5). Power dynamics among parties and between parties and intervening outsiders underlie conflict and affect conflict resolution processes (Jeong 2008, 5). Further, conflict is perceived as a challenge to address the existing contradictions nonviolently (Graf et al. 2007, 131). Nonviolence can be perceived as a strategy to struggle against injustices to bring about constructive change, and as a way of life and everyday practice (see Jeong 2000, 319-335). Gene Sharp (1973) distinguishes between three categories of pragmatic nonviolent action: protest and persuasion, non-cooperation and nonviolent intervention. In contrast, the Gandhian conception of principled nonviolence incorporates the use of power (but not violence) to resolve conflicts in a highly effective and highly ethical manner (Burrowes 1996, 123).

It is important to understand the typology of violence in order to analyze conflicts constructively and build peace (Kriesberg 1998). In particular, Galtung (1996, 31) suggests that violence can be understood as *direct violence* (direct acts of violence by an individual, group or organization), *structural violence* (indirect violence that is built into an individual organization and is unintended), and *cultural violence* (which “serves to legitimize direct and structural violence or to omit counteracting structural violence”). Moreover, peace is perceived as a combination of direct peace, structural peace and cultural peace; peace is also seen as a dynamic, non static, process in which “conflict transformation takes place nonviolently” (Galtung 1996, 265).

Conflicts happen on different levels – interpersonal (see Umbreit 1995), inter-group (see Lederach 1995, 1997), and global (see Jeong 2000; Hauss 2001). It is important to consider the *interests*, *values* and *needs* of parties in the context of conflict analysis and resolution. For example, Ho-Won Jeong (2008, 26-27) defines *interests* as “political, economic, occupational, and social aspirations of individuals or groups”, and refers to *values* as “a scale of beliefs [that] is adopted to define a range of acceptable and unacceptable behaviors with the creation of rules that constitute the basis for mutual expectations”. Ho-Won Jeong (2010, 133) also discusses a *needs-based approach* to conflict resolution, which is conceptualized through the realization by all parties of the conflict “of self-interests embedded in a shared future”. In particular, Jeong (Ibid.) emphasizes that the needs to address global warming and other environmental problems are “essential to the well-being of the current and future generations of humans”.

Conflict is part of a normal dynamic within human relationships and can have potential for constructive change, innovation and growth (Lederach 2003, 15; see also Kriesberg 1998; Johnson et al. 2006). Conflict can also be constructive in “stimulating interparty communication and problemsolving in a collaborative manner”; however,

when conflict involves violence it “tends to be considered destructive” (Pearson and Lounsbury 2009, 72). Respecting human rights and basic human needs provide the “standards to assess constructiveness” (Kriesberg 2009b, 157).

The term *peacebuilding* may be understood as a process aimed at addressing underlying causes of direct, structural and cultural violence to transform conflicts and achieve positive peace (see Galtung 1996, 2007); as well as reconciliation and building trustworthy relationships between parties in conflict (see Lederach, 1995, 1997)². *Conflict resolution* may be conceptualized both as an independent process aimed at resolving a specific conflict or as an integral part or strategy within a broader peacebuilding process framework.

Peace research has evolved throughout the past 50 years; it emerged as an approach to identify and study the causes of war and the conditions for peace (Dunn 2005, 35). It has further developed into an endeavor to “analyze the origins and nature of conflict within and between societies and the efforts to build peaceful and equitable forms of social and peaceful coexistence” (UNESCO 2000, 182, cited in Dunn 2005). In addition, one of the crucial points about peace research is that it is aimed at opening “new spaces for peace action, often done through reconceptualization” (Galtung 2007, 31). The tools for building peace have also evolved reflecting a variety of disciplines involved in this process: such mechanisms and concepts as *diplomacy* and *balance of power* have been transformed and partly supplemented by *collective security*, *arms control*, and *peacekeeping*, taking into account the significance of *self-determination*, *human rights*, *development*, *economic equity* and *ecological balance* (Alger 2007, 301-305). As a result, the more recent developments in peace studies practice include *governance for the global*

² See the discussion of the terms *peacebuilding* and *conflict resolution* in Byrne et al. 2009, and in Buchanan 2008, 389-392.

commons, humanitarian interventions and preventive diplomacy (Ibid, 304-305). The field of peace studies today goes beyond the narrow definition within international relations, and “well into a nascent human science of well-being, one in which handling conflict plays a major role” (Galtung and Webel 2007, 397). At the same time, the field of conflict resolution continues to evolve and grow (Kriesberg 2009a, 30). The scholarship in the PACS field presents a number of theoretical concepts and practical approaches for peaceful conflict resolution, which may be relevant for addressing environment and resource-related disputes in coastal areas. These concepts and approaches include (but are not limited to): conflict resolution through third party intervention (Ury et al. 1988; Dukes 1996; Schellenberg 1996; Zartman 2009; Bercovitch 2009a; Matyok et al. 2011); peace and conflict theory that reflects the multidisciplinary character of the field (Jeong 2000; Barash and Webel 2009; Zartman 2006; Deutsch et al. 2006; Webel and Galtung 2007; Sandole et al. 2009; Bercovitch et al. 2009); designing integrated frameworks for conflict analysis, peacebuilding and conflict resolution (Lederach 1997; Diamond and McDonald 1996; Ury et al. 1988; Druckman 2003b; Byrne et al. 2001); conflict resolution and peace education and training (Lederach 1995; Meerts 2009; Fisher 1997b; Raider et al. 2006); conflict transformation (Lederach 2003; Galtung 2004; Ryan 2007); the critique of the liberal peacebuilding approach (Mac Ginty 2006, 2011); and post-accord peacebuilding (Rothstein 1999; Forman and Patrick 1999; Jeong 2005; Darby 2006).

2.1.1. The multidisciplinary nature of peace and conflict studies and integrated approaches to peacebuilding and conflict resolution

The multidisciplinary nature of the PACS field poses a challenge for peace workers and conflict resolution practitioners. In particular, they need to consider the multiple issues,

positions and interests of parties to the conflict. As well, factors, structures and conditions that affect the conflict need to be integrated into a comprehensive strategy for addressing the particular conflict or dispute. Approaching this task with an aspiration to learn, and with a motivation to assist parties resolve the conflict and move beyond conflict resolution towards building peaceful and constructive relationships, is critical for individuals and groups who work to resolve conflicts and to build peace. In this context Costantino and Merchant (1996) discuss the importance of adopting a systems perspective on conflict analysis and management. Creativity in discovering available peacebuilding resources, and in developing and applying new approaches to resolve conflicts within specific contexts is critical but often overlooked (see Gruber 2006; Coleman and Deutsch 2006; Carnevale 2006). In addition, Chadwick Alger (2007) examined various themes and issues within peace research including its multidisciplinary character, the peacekeeping activities of NGOs and civil society, post-conflict peacemaking, local conflict resolution, as well as long-term peacebuilding and concluded that “virtually all organizations have peacemaking and peacebuilding potential: governmental, NGO/civil society and business” (Alger 2007, 316).

Lederach’s *Building Peace* (1997) presents a conceptual framework that suggests a comprehensive approach to conflict transformation. It addresses structural issues and the dynamics and progression of conflict through reconciliation, building relationships, using available resources, institutions and the coordination of these efforts. An integrated peacebuilding framework designed by Lederach (1997), which incorporates consideration for the root causes of conflict, performing crisis management tasks, as well as having a prevention strategy and a vision aimed at conflict transformation may be helpful in developing an integrated and holistic approach for resolving specific environment-related conflicts. In the context of resolving environmental and resource conflicts a number of

suggestions made by Lederach (1997) are especially important. First, the significance of middle-range actors (leaders in respected sectors, ethnic/religious leaders, academics, intellectuals, and NGO leaders) for constructing the infrastructure for peace and sustainable conflict transformation, as these middle-range leaders have the potential and the capacity to reach out to and impact both the top leadership and the grassroots (Lederach 1997, 39, 151). Second, the importance of linking immediate issues (a dispute over access to drinking water or over a proposal for constructing a dam) to broader systematic dynamics within which these issues occur (the need to address poverty in a particular region or the efforts of a local government to respond to the effects of the global economic crisis). Third, the significance of seeking innovative approaches to deep-rooted conflicts is outlined aimed at building relationships, providing the space where parties feel safe and where dialogue is encouraged and cooperation is needed to seek constructive change.

Another comprehensive framework for conflict resolution and peacebuilding is multi-track diplomacy – a conceptual framework designed by Louise Diamond and John McDonald (1996) who present a systems approach to resolving conflicts. This approach is an expansion of Track One diplomacy (formal government diplomatic actions) and Track Two diplomacy (non-governmental informal diplomatic actions or “citizen diplomacy”) which, according to the authors no longer covers the variety, scope and depth of citizen involvement in peacebuilding (Diamond and McDonald 1996, 4). The multi-track diplomacy approach consists of “nine tracks in conceptual and practical framework for understanding [the] complex system of peacebuilding activities” (Ibid.). The following nine tracks are interrelated and interact within one whole system of peacemaking with their relationship being the heart of this system: (1) *government*, or peacemaking through *diplomacy*; (2) *non-governmental/professional*, or peacemaking

through *conflict resolution*; (3) *business*, or peacemaking through *commerce*; (4) *private citizen*, or peacemaking through *personal involvement*; (5) *research, training and education*, or peacemaking through *learning*; (6) *activism*, or peacemaking through *advocacy*; (7) *religion*, or peacemaking through *faith in action*; (8) *funding*, or peacemaking through *providing resources*; and (9) *communications and media*, or peacemaking through *information* (Ibid, 4-7). While this framework is comprehensive and multidisciplinary, a number of other possible peacebuilding “tracks” may be added, including culture (art, music, sports, literature, film, etc.), traditional knowledge, as well as women, children and youth initiatives and activities.

Following the analysis of the aforementioned components of peacebuilding activities, Diamond and McDonald (1996, 162-165) share their recommendations with peacebuilding strategists and practitioners. They suggest that it is important to take a systems view, to build relationships, to work with internal conflicts, to create work models that reflect the vision, to create new resources, to share knowledge, to explore systematic peacemaking, to create multi-track institutions, to work to legitimate the field, to take care of ourselves, to take responsibility, and to realize our power.

In addition, Galtung, Jacobsen and Brand-Jacobsen (2002, xvii-xix) outlined the following approaches that make a “model for a peaceful world”: the peace movement; abolition of war; global governance; peace education; peace journalism; non-violence; peacemaking/conflict transformation; a peace culture; basic needs; a peace structure; peacebuilding; peacekeeping; peace zones; reconciliation; peace business; peace, women and men; peace and development analysis; peace and the arts; peace museums; peace tourism; and peace at the personal level. These approaches may be seen as components of a comprehensive framework of building and maintaining peaceful environments.

While resource and environmental problems may cause disputes or play a significant role in conflicts, it is essential to analyze these issues in the framework of general political, economic, social and cultural factors, all of which influence the dynamics and the outcome of the conflict. For example, Anthony Nyong (2007) discusses resource conflicts and environmental insecurity in Rwanda and Darfur in the context of the underlying structural issue – poverty. In this context it is important to consider the analytical concept of Social Cubism that uses the cube structure to provide a three dimensional analytical framework for examining six inter-related social forces – demographics, economics, history, politics, psychoculture, and religion – to illustrate and analyze the complexities and the dynamics of social conflicts, as well as to determine suitable approaches to conflict resolution (Byrne and Carter 1996; Byrne, Carter and Senehi 2001). A Social Cubism analytical model provides a holistic historical and, at the same time, interactive framework to analyze issues, events, and relationships between actors in conflict and conflict resolution (Byrne, Carter and Senehi 2001, 731). A Social Cubism methodology can be applied in the analysis of environmental conflicts as well as in designing intervention strategies, specifically because it may assist in analyzing the political, economic, social and cultural background of environmental conflicts and integrating these issues into a comprehensive analytical and intervention framework for addressing environmental conflicts (Byrne and Keashly 2000).

The guiding principles and considerations outlined above contribute to forming the foundation for designing interventions into conflicts and disputes, including environmental and natural resource conflicts. It is important to acknowledge the presence and the significance of the environment that influences and is influenced by all activities, including both conflict resolution and peacebuilding efforts. Furthermore, there is a need for strategic planning and formulation of clear frameworks of intervention into

environment-related conflicts that would allow for effective use of available resources and for performing adequate practices.

2.1.2. Conflict prevention

The importance of identifying and preventing potentially disruptive conflicts is emphasized in peace research (see Lund 1996). For example, Louis Kriesberg (1998) stresses the importance of preventing potentially violent and disruptive conflicts while distinguishing them from constructive conflicts. Moreover, John Burton (1990b) discusses conflict *provention*³ that involves longer-term policies and more comprehensive and systematic measures than conflict resolution. In addition, Brand-Jacobsen and Jacobsen (2002, 73) emphasize the need to not only develop effective mechanisms and institutions for preventing violence and war, but also to use “creativity and imagination” to develop alternatives that would transform the underlying structure and causes of all forms of violence (direct, structural and cultural), and that would empower people and communities “for peace by peaceful means”. Davies and Gurr (1998) also present an edited volume on conflict prevention through early warning and risk assessment tools. The early warning methodology is also critical in environmental conflict management as it allows predicting and potentially preventing environmental threats (see McLusky and Elliott 2004). However, such methodologies need to be carefully considered and applied only after comprehensive research and modeling based on long-term observations to ensure accuracy (Schiewer 2008).

Despite the tendencies of including conflict preventative measures into the policy agenda (both internationally through the UN and on the national level of different

³ A term *provention* was invented by Burton (1990b) to avoid the connotation of containment associated with the term *prevention*, and to signify the necessity for removing the sources of conflict, as well as to emphasize collaboration and building valued relationships.

countries) conflict prevention is still a “relatively marginal international concern” due to the multitude of possible instruments and agents, the lack of a theoretical framework that would conceptualize and direct the process of conflict prevention, and the lack of structure and coordination between researchers, practitioners and activists working in this area (Lund 2009, 307). Moreover, Michael Lund (2009, 307-308) suggests that three essential steps are required to develop the unfulfilled potential of conflict prevention: (1) consolidation of available knowledge in this field, (2) focusing the knowledge on emerging conflicts and (3) conducting more basic prevention research. Overall, conflict prevention is an important step of addressing conflicts, especially violent conflicts, and it requires specific focus on both the existing knowledge and the emerging factors and developments in each particular conflict situation.

2.1.3. Conflict transformation: Bringing about change constructively

The concept of conflict transformation has its roots in an Anabaptist, Quaker, Mennonite religious-ethical background, which is based on the principles of justice, nonviolence as a way of life, and “building right relationships and social structures through radical respect of human rights and life” (Lederach 2003, 4). The definition of conflict transformation was proposed by John Paul Lederach (2003, 14) as follows: “Conflict transformation is to envision and respond to the ebb and flow of social conflict as life-giving opportunities for creating constructive change processes that reduce violence, increase justice in direct interaction and social structures, and respond to real-life problems in human relationships.” Conflict transformation is a process that focuses on addressing the *content*, *context* and *structure* of relationships, and that views peace as a “continuously evolving and developing quality of relationship” (Lederach 2003, 12, 20). Stephen Ryan (2007, 32) also emphasized the importance of considering conflict transformation not as a

single characteristic, but in terms of “a dynamic view of conflict, an emphasis on long-term change and grass-roots empowerment, and a desire to focus on the wider and deeper contexts from which conflicts emerge”. Moreover, Adam Curle (1990) argued that the critical “tools for transformation” include: (1) peacemaking and mediation; (2) social change and development; and (3) education.

Conflict transformation should not be regarded as an alternative to conflict resolution, but rather as a framework or a systematic approach that goes beyond resolving specific disputes (Körppen et al. 2008; see also a comparison of conflict resolution and conflict transformation approaches in Lederach 2003, 33). Conflict transformation, as a peacebuilding strategy, can be regarded as a long-term multi-dimensional commitment that is aimed at building peace through seeking change constructively by the means of mutual learning, dialogue, respect for human rights, accompanied by an aspiration to fulfill basic human needs (Miall 2004; Bloomfield et al. 2006). Within the arena of environmental and resource conflicts that would mean not only resolving a dispute between an oil company and local communities over exploration activities or a conflict between various stakeholders in a coastal zone over a proposed port construction development. Conflict transformation would also imply designing a framework that would integrate the processes of stakeholder trust-building through dialogue, sharing and discussing their interests and needs, analysis of existing alternatives for transforming a conflict constructively towards mutually acceptable solutions, and the implementation of such solutions and further evaluation and adaptation to change and evolution.

2.2. Security of people and the environment

2.2.1. *Human security*

The theory of human needs suggests that humans have a number of fundamental universal needs that have to be satisfied: along with basic “survival” and subsistence needs that includes the needs for personal security, welfare, identity, freedom, recognition, and protection, etc. (Galtung 1990, 305-309; see also Burton 1990a). Moreover, failure to satisfy human needs can lead to conflict, while fulfilling these needs is a critical component of conflict resolution and prevention initiatives (Burton 1990b). The theory of human needs may be tied to that of *human security* that was introduced in the UN Human Development Report (1994). It emphasized human development and concerns with the security needs of people, rather than the security of nations and the proliferation of arms. The Report states that “the concept of security has for too long been interpreted narrowly: as security of territory from external aggression, or as protection of national interests in foreign policy or as global security from the threat of a nuclear holocaust ... Forgotten were the legitimate concerns of ordinary people who sought security in their daily lives. For many of them, security symbolized protection from the threat of disease, hunger, unemployment, crime, social conflict, political repression and environmental hazards” (Human Development Report 1994, 22).

Further, the Report outlines four key characteristics of human security: (1) human security as a *universal* concern that is relevant to people around the World; (2) the components of human security are *interdependent* (the consequences of local threats like famine, disease, pollution, terrorism, etc. are not isolated but are spread around the globe); (3) human security is easier to ensure through *prevention* rather than later intervention (for example, investment in health care and family planning education can help contain the spread of the deadly HIV/AIDS virus); and (4) human security is *people-*

centered and is concerned with how people live their lives in conflict or peace (Human Development Report 1994, 22-23). All of the above characteristics are important in the analysis of conflicts that involve human-environment interaction and in developing appropriate interventions.

Finally, the report outlines seven categories of threats to human security including: (1) economic security, (2) food security, (3) health security, (4) environmental security, (5) personal security, (6) community security and (7) political security (Human Development Report 1994, 24-25). Even though environmental security represents a separate category, the remaining six categories are also relevant for understanding and analyzing environmental conflict resolution and prevention. Disputes over natural resources, for example, may threaten the economic security of individuals and whole communities. It can lead to food insecurity and can possibly result in political insecurity in the case where given natural resource (such as water or oil) is the main source of economic stability in a particular region or country (for example, in Sudan, Iraq and Nigeria). Similarly, resource scarcity may lead to the insecurity of individuals and communities, and it can result in local food insecurity and the economic insecurity of the whole region. Moreover, eco-violence threatens personal and health security, and can lead to political insecurity.

According to a 2005 Human Security Report (viii) there is a debate within the academic community concerning defining the threats to human security. It can be defined both narrowly as protection of individuals and communities from violence, and broadly as protection of individuals and communities from hunger, disease and natural disasters. This Human Security Report adopts the narrow definition, and refers to the fact that the broad conception of human security outlined in the 1994 Human Development Report has “limited utility for policy analysis... and has rarely been used to guide research

programs” (Human Security Report 2005, viii). Moreover, in recent years, there have been a number of critiques of human security: its effectiveness has been questioned and it has been criticized for being too general and vague for concrete policy formulation (see Paris 2001; Smith 2005; Tadjbakhsh and Chenoy 2006). For example, Smith (2005, 54-55) concludes that security today is genuinely contested, there is no agreement on the meaning of human security, and it is unclear how this concept can be operationalized.

Despite the concerns of some scholars and practitioners that human security is overly general and ineffective for policymaking, I am adopting the broad definition of human security outlined in the 1994 UN Human Development Report because it reflects the complexity and multidimensional character of security, the safety of people around the world and outlines critical components that form the foundation of human security. The narrow definition of human security as protection of individuals and communities from violence is regarded in this study as an integral component of human security along with the other threats to human security discussed above. Overall, human security is an important theoretical framework that can contribute to understanding the root causes of environmental conflicts and can provide the foundation for their peaceful resolution, as well as for designing conflict prevention strategies.

2.2.2. Environmental security

Environmental security is perceived in a variety of ways by different scholars, ranging from regarding it as safety of people from ecological threats to emphasizing the security of the environment from human-induced dangers like pollution, deforestation and resource depletion (see Skarlato and Telesh 2008). The traditional meaning of ‘security’, which primarily addressed military and nuclear threats, has undergone transformation. Security today has a broader meaning, and includes such components as economic and

social (in)stability, natural resource scarcity, and environmental degradation (Jeong 2000; Dalby 2002a; Homer-Dixon 1991; Booth 2005; Nyong 2007).

In the 1970s, the debate was started in the academic community, and among practitioners, about including environmental threats into the category of threats to national security (Brown 1977). In the framework of this debate some scholars argued that in the contemporary world there are new unconventional threats to the security of countries, which include natural resources depletion, the failure to respect human rights, the outbreaks of infectious diseases, global warming and population growth (Conca 1994; Levy 1995). The other group of scholars argued that the security of a country as a whole has become obsolete and requires redefinition (Dalby 2002b; Mathews 1991).

Further, during the 1980s, the international community started addressing the issues of security in the broader context of new global issues and threats (Ullman 1983). The UN Commission on Disarmament and Security issues, chaired by the late Olof Palme, defined the terms *collective security* and *common security*. *Collective security* refers to traditional interstate military security matters, and *common security* means new nonmilitary issues of security related to economic development, natural resource degradation, population growth and environmental pollution (Lonergan 1999). Moreover, Westing (1989) expanded the concept of *comprehensive security* and identified its two main components: political security that includes military, economic and human factors, and environmental security that includes utilization and protection of the environment.

Today the world is facing new dangers and security threats, including the evolving nature of the nuclear balance, changes in global energy markets, advances in genetic engineering, trans terrorist movements, and the transnational character of violent conflicts and resource conflicts (see Brown 2007). By the end of the 20th century the new

security concept has placed more emphasis on the security of people and their overall well-being and needs than on the security of states. As opposed to a traditional narrow notion of national security, the broader concept of security and safety from new local and global threats was defined as human security (Human Development Report 1994). In this theoretical framework, environmental security is regarded as one of the components of human security. This approach to defining the security of individuals, communities and their environment is important for conflict resolution professionals working on resolving environmental resource disputes because it helps to illustrate, analyze and address the complexity and interdependence of human-environment interactions.

The concept of positive peace (Just Peace) and negative peace (the absence of war) (see Galtung 1996, 31-33) can be applied in the context of environmental security. Positive peace would reflect the state of the environment and the life of people, animals, and plant life that is safe, healthy and sustainable. Negative peace would involve achieving the security of the environment and people against environmental threats, resource scarcity and pollution.

2.2.3. Eco-violence: Violent conflicts and the environment

It may be helpful to approach the analysis of eco-violence by acknowledging the connection between ecological safety and peace. According to Anita Wenden (2004, 47), “ecological security is essential to world peace, [that is] ecological security is a prerequisite for peace, and peace is a prerequisite for ecological security. The two must be pursued as an inseparable whole”. Using this statement as a starting point may further guide the identification and research of specific links between eco-violence, ecological safety and peace.

Ecological violence may be interpreted in terms of violence against environmentalists. For example, the “Wise Use” movement active in the US during the 1980-90s was a coalition of commodity producers – ranchers, loggers, and miners – who have long had privileged access to federally owned land and whose goal was to destroy environmentalism and to promote the “wise use” of natural resources they considered as development, and not conservation (Peluso and Watts 2001, 122-129). Another example of environment-related violence is the actions of a radical environmental movement “Earth First!” in the US, who advocated “ecotage” and what critics have labeled “eco-terrorism”: direct, covert sabotage of development projects that affect currently undeveloped land (Ibid.). The risks associated with the functioning of nuclear facilities, transportation of chemicals, disposal of nuclear waste and handling other nuclear related projects remains a source of conflict and may potentially lead to violence, even though some institutionalized international cooperation does evolve around these issues (Pursiainen 2005). The most serious risks are associated with the possibility of the malfunction of nuclear reactors or power plants (for example, the nuclear disaster in Japan caused by a deadly tsunami in March 2011), and with the possibility that international terrorist groups will be able to access these reactors. Furthermore, eco-violence may be interpreted more broadly as violence against the environment through pollution, resource depletion and the unsustainable use of natural resources and the environment (see Alao 2007; Vaughn 2007).

2.2.4. Environmental justice

The struggle for environmental justice and equity is another important issue in the context of environmental conflict resolution (see Wilkinson and Freudenburg 2008; Buzzelli 2008; Hill 2009). Environmental justice can be defined as the “fair treatment and

meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies ... It will be achieved when everyone enjoys the same degree of protection from environmental and health hazards and equal access to the decision-making process to have a healthy environment in which to live, learn, and work” (US Environmental Protection Agency 2012). However, “justice, like love and freedom, has an elusive utopian context. Beyond all definition, it acquires its features more from concrete histories of bitterness and suffering, resistance and counterforce” (Sachs and Santarius 2007, 119). Environmental justice may be addressed through the analysis of inequalities in accessing environmental resources or in experiencing damaging effects from environmental threats. For example, the exclusion of Aboriginal people from their traditional lands and limiting their access to their traditional resources (McGregor 2009; Menzies 2006) may be perceived as an environmental justice issue.

Environmental justice issues are multidisciplinary and include civil rights, distributive justice and ethics, public participation, social justice and ecological sustainability (Bryner 2002, 36-37). For example, Schmitz et al. (2012) discuss the potential of the social work field to engage in an interdisciplinary practice that integrates environmental sustainability, human rights, as well as environmental and social justice.

2.2.5. Sustainable development

The concept of sustainable development suggests the necessity of using resources in a manner that “implies meeting the needs of the present without compromising the ability of future generations to meet their own needs” (Report of the World Commission on Environment and Development 1987). Sustainable development seeks the balance between economic development and environmental quality to a large extent (see Danilov-

Danil'yan 2009, 61-70). Sustainability may also be interpreted as a broader concept that covers not only economic and ecological discourse, but also political and cultural frameworks, which imply “handing over a world in a good shape”, a world culture where people are less traumatized by violence and where conflicts are being transformed nonviolently and creatively (see Galtung 2002b, 293-294; Galtung 2004, 126).

In terms of managing, resolving and preventing environmental and resource conflicts “sustainable resource management requires maintaining environmental quality and ecological integrity for future generations” (Herath and Prato 2006, 3). Michael Casimir (2008a, 35-36) also discusses global concerns and human behavior and notes that the increasing environment-related problems over the last few decades have sparked the overall interest in Human Ecology. Moreover, promoters of nature conservation and sustainability “often find themselves in opposition to local communities of land users” (Ibid, 42). For example, Casimir (2008a, 43) concludes that “if we wish to preserve ourselves and as many of the millions of other species living on our planet as possible, we must take into account ‘human nature’ and the necessary fulfillment of our basic needs, as well as our culture-specific wants”. Further, according to Eugene Odum (1993, 273), “the overly narrow economic theories and policies that dominate world politics are major obstacles to achieving a reasonable, commonsense balance between our need for nonmarket as well as market goods and services”.

An important idea about the linkages between sustainability, the environment and peace is discussed by Roger Mac Ginty (2006, 22-23) who emphasized that taking into consideration ecological and developmental perspectives on sustainability in the twentieth century and beyond led to the emergence of a more holistic approach to conflict and peace. Moreover, Schmitz et al. (2012, 279) highlight that building a future that

would be environmentally sustainable requires an “interdisciplinary response that engages both the social and physical sciences.”

While sustainable development may be criticized for its ambiguity and for being too broad, the rational in it may also be seen in its general direction towards sustainable use of resources and in protecting the environment in all spheres of life and work. The present day economic crisis has forced many countries, organizations, companies, groups and individuals to downsize and to seek ways to restructure their activities to cut costs and find new sources/ways of making profit. While the economic crisis has caused bankruptcies and increased unemployment, this situation may also be seen as an opportunity to develop more sustainable economic practices and accept an ethics of sustainable development as a way of life.

2.2.6. Culture, peace and the environment

A peace culture is a culture that promotes peaceable diversity. Such a culture includes lifeways, patterns of belief, values, behavior, and accompanying institutional arrangements that promote mutual caring and well-being as well as an equality that includes appreciation of difference, stewardship, and equitable sharing of earth’s resources among its members and with all living beings
(Elise Boulding 2000, 1)

The concept of culture may be considered broad or vague, but it is also critical in the field of conflict resolution and peacebuilding (Avruch 1998). One way of defining culture is as “a system of widely accepted beliefs and assumptions that are transmitted from one generation to the next through a learning process” (Faure 2009, 507). Culture has the potential to impact the process of conflict resolution on different levels, such as behaviors, beliefs, cognition and identity (Faure 2009, 509). Such practices as intercultural communication, raising cultural awareness, intercultural exploration and

learning contribute to conflict resolution through offering an opportunity for constructive controversies and peacebuilding (Kimmel 2006). Further, a multicultural perspective reveals multicultural complexity as well as the range of culturally different approaches to explaining the causes, process and effects of conflict (Pederson 2006, 649).

According to Douglas Fry (2007, 229) anthropology demonstrates that “warfare is not a natural, inevitable part of human nature”. Fry (2007, 233) suggests that anthropology provides various constructive approaches of resolving conflicts without resorting to violence, such as cooperation, relationship building, global interdependence, nonviolent conflict resolution and effective governance among others. However, it is important to note that no culture can be characterized as entirely peaceful or entirely violent: “just as there are elements of *cultures of violence* within almost every culture in the world, so there are elements of *peace culture*” (Brand-Jacobsen 2002, 18). Brand-Jacobsen suggests that the Chinese concept of ying and yang is more appropriate for illustrating the relationship between cultures of peace and cultures of violence (Ibid.). Therefore, when analyzing specific cultures of people and communities to develop an approach to resolve and transform an environmental or natural resource conflict, it is essential to seek the connection between the notions of peace and environment within their particular culture and lifestyle. Such analysis can assist in understanding the origins of the conflict and can assist in providing possible conflict resolution and transformation alternatives towards building a more peaceful reality.

For example, Robert Babe (2006) suggests that humanity has to reformulate its thinking concerning the human’s place in nature, especially with respect to destroying the life-support system provided by the environment, and economics is a good place to start this process. According to Babe (2006, xii), “as a term *culture of ecology* may make apparent, reformulating economics in order to make that discipline become more

environmentally friendly is but a component of a much larger task entailing nothing less than a shift in our entire cultural paradigm”. Thus, Babe (2006, 157) calls for the unified action of governments, businesses and communities to shift their current economic practices towards a culture of ecology.

The study of culture and the traditions of peoples around the world reveals connections and interdependence between their geographical location, environment, and cultural heritage; while the environment may be influenced by culture, culture can also be affected by the environment/nature (see Altman and Chemers 1984; Croll and Parkin 1992; Crumley 2001; Ellen and Fukui 1996; Mulder and Coppolillo 2005; Haenn and Wilk 2006; Casimir 2008b). The debate about environment/nature being socially/culturally constructed runs throughout the scholarship on culture and environment. For example, Altman and Chemers (1984, 6) adopt a social perspective in the framework of ‘cultural ecology’. They examine interpersonal relations and social interaction in the context of physical environment – the view that emphasizes the “role of physical environment as one powerful determinant of customs, life-style, and behaviors in different cultures”. Tim Ingold (1996, 117) further questions the general claim that nature is a cultural construction. Moreover, Ingold (1996, 122) discusses the hunters’ and gatherers’ approach to viewing nature and their environment as an alternative to the Western approach of dominating the environment, and concludes by showing “how anthropological attempts to depict the mode of practical engagement of hunter-gatherers with the world as a mode of cultural construction of it have had the effect of perpetuating a naturalistic vision of hunter-gatherer economy”. On the other hand, presenting a discussion of the strategies and approaches that people around the world use to adapt to their environment, Daniel Bates (1998, viii) develops the idea that “individuals are active decision-makers, continually involved in creating and using their cultural and material

environments”. The thesis that the environment and nature are human constructions is also developed through exploring the connections between environment and cultural identity (Schwartz 2006), and through presenting the discursive analysis of post-structural political economy and ecology (Escobar 1996).

The analysis of various strategies and approaches that peoples around the world use to perceive and cope with environmental threats and problems is another important area to explore when developing an integrated framework for resolving environmental disputes (see Bates 1998; Nerb et al. 2008; Casciarri 2008; Schlehe 2008). For example, the contribution of traditional knowledge about Earth and ecology to understanding the relationship between nature and culture is a crucial area for understanding and addressing environmental and resource conflicts. Furthermore, most indigenous societies have a holistic worldview in which all components are perceived to be interrelated, and maintaining a balance within the society is considered necessary (Rice 2011). Moreover, indigenous peoples have a special relation to the environment, as it does not only provide natural resources and land, but also serves as a source of spiritual strength and cultural identity (McLeod 2007; Cruikshank 1998; Smith 1999; Dei et al. 2000). Indigenous societies perceive the Planet as mother, universe and caretaker because earth, air, fire and water are sacred; and humans are also caretakers, who take care of the world and of each other (Brand-Jacobsen and Jacobsen 2002, 82-83). Indigenous cultures exercise traditional ecological use of forests, fuel, water, medicinal plants, animal fur and skin (Jeong 2000, 285-291; Oaks and Riewe 1997; Abele 2007). Conflicts arise among indigenous communities and between indigenous and non-indigenous communities, corporations and governments concerning land ownership, extraction and use of natural resources, environmental pollution, and the building of roads, dams, and transmission lines across Aboriginal lands (for example, the Iroquois land claims dispute in upstate

New York) (Pearson d'Estree 1999; Manno and Chief Irving Powless Jr. 2008). Indigenous peoples seek reintegration with the lands that “belonged” to them traditionally, and they regard this process as an essential step in the fulfillment of their responsibilities and rights to manage land under their own government (Wolfe-Keddie 2004). These environment-related conflicts are especially complex because they involve both tangible and intangible issues. However, according to Hamdesa Tusso (2011) Western scholarship in the field of conflict analysis and resolution has largely neglected indigenous processes of conflict resolution that have been successfully practiced in traditional societies for many generations.

I would argue that the links between culture, traditions, and environment are relevant to PACS as both culture and the environment cause disputes and conflicts around the world and at the same time provide resources for conflict resolution and peacebuilding. Specific examples of such links within PACS include connections between cultural identity and environment (such as Small Island culture, urban culture or coastal culture), gender and the environment, rituals and ecological knowledge, as well as the ethical and spiritual dimensions of environmental policymaking (Burrowes 1996). Therefore, investigating the links between the environment and culture contributes to one's understanding of the root causes of some environmental, social and cultural conflicts, assists in finding ways to deal and cope with these problems, and helps design appropriate intervention strategies and mechanisms.

2.3. Practical approaches to conflict resolution and peacebuilding: Developing practice for addressing environmental conflicts in coastal areas

The scholars and practitioners in the PACS field have developed, analyzed and used a number of approaches to conflict resolution in the past decades. These intervention

approaches have different backgrounds, structures and processes. For example, negotiation is sometimes considered the most common form of “preventing, managing, resolving, and transforming conflicts” (Zartman 2009, 322; see also Zartman 1994; Zartman and Rubin 2000). Third-party interventions (mediation, arbitration, facilitation, fact finding, adjudication) can be widely used in resolving international, national, group and interpersonal conflicts (Ury 2000). Policymaking is another approach that may be capable of addressing conflicts on the structural level. Some other creative conflict resolution and peacebuilding initiatives aimed at building relationships and trust, as well as encouraging cooperation and dialogue, include peace education and training, humanitarian and development assistance, cultural events, sports competitions and nature camps for youth.

A number of studies were produced in recent years that address resource management issues and provide guidelines, strategies and approaches to managing natural environmental resources in a sustainable manner (see Stoll-Kleemann and Welp 2006; Pound et al. 2003; Herath and Prato 2006). In particular, a number of scholars have addressed and analyzed approaches to designing and implementing specific environmental conflict resolution and prevention practices (see O’Leary and Bingham 2003; Pearson d’Estree and Colby 2004; Crowfoot and Wondolleck 1991; Diehl and Gleditsch 2001; Vaughn 2007; Alao 2007). This scholarship addresses the key developments in the field of resolving environmental conflicts including the use of ADR methods (mediation, facilitation, dialogue and negotiations) as opposed to resolving these issues in court. While the significance of the legal framework and the importance of court procedures in resolving environmental disputes cannot be underestimated, ADR methods provide an opportunity to move beyond management or resolution of a particular conflict towards prevention and conflict transformation. Moreover, ADR methods provide

interactive, inclusive, interdisciplinary and creative approaches to resolving environmental conflicts.

ECR scholarship provides examples and studies that present successful processes and actions that resulted in resolving environmental disputes such as consultations with local communities, problemsolving and consensus-building activities, and drawing on traditional knowledge in resolving disputes (O’Leary and Bingham 2003; Berkes et al. 2005). The concept of *environmental peacemaking* may serve as an analytical framework for addressing resource conflicts and disputes internationally (Conca and Dabelko 2002a; Centre for Security Studies 2008). Thus, Conca and Dabelko (2002b, 230) conclude that “certain forms of environmental cooperation could be extremely useful tools in the hands of peacemakers” as they contribute to building a habit of cooperation to “transform interstate bargaining dynamics and deepen peaceful trans-societal linkages”.

Preventing resource and environmental conflicts at the local, national and international levels is essential for the comprehensive environmental policymaking of any country. However, until now there have been few scholarly publications addressing this issue. There are multiple opportunities for prevention and early intervention into environmental conflicts, including designing appropriate resource policies, supporting constructive dialogue between stakeholders, encouraging environmental and peace education, and conducting environmental awareness campaigns. Table 1 presents an overview of resources available for addressing environment-related conflicts.

Table 1: Potential resources for resolving environmental conflicts

Legal: Laws, Regulations, Rights and Responsibilities	Conflict Resolution Practitioners: Third Party Intervention	Academic: Research, Education, Training	Creative: Art	Policy making: Government, Authority	International Cooperation	Education: Schools, Universities, Stakeholders,	Information: Media, Internet	
- National and international law; - National and international courts; - Environmental justice	- Mediation; - Negotiation; - Facilitation; - Expertise; - Environmental peacekeeping	- Universities; - Institutes; - Specific projects	- Cinema; - Theater; - Books; - Storytelling; - Shows; - Paintings; - Children's books and cartoons	- Policies; - Regulations; - National, regional and local priorities; - Budget	- conferences; - Joint projects and programs; - UN on the global level; - EU, etc. on the regional level	- K-12 and college, integrated into various programs and classes; - Specific university programs linking environmental problems and conflict resolution	- All media as a source of information, tool for public participation and means of influence	
Personal	Activists	Grassroots	Traditional Knowledge	Culture	Religion	Leadership	Children and Youth Initiatives	Spaces for Dialogue
- Vision - Motivation - Commitment	- NGOs - Lobbying - Advocacy	- Local communities - Livelihoods	- Indigenous approaches to environment - Spiritual vs. natural view on resources	- Local traditions - Culture-specific views - Rituals	- Religious views of environment - Beliefs	- Elected leaders - "Natural" leaders - community leaders	- Sports competitions - Role-plays - Field trips - Innovative ideas by youth	- Community/ Stakeholder dialogue; - Citizen involvement in decision making

2.3.1. Public policy: Natural resources and the environment

The definition of public policy is both straightforward and broad. For example, Klein and Marmor (2006, 892) define public policy as “what governments do and neglect to do” and specify that public policy is “about politics, resolving (or at least attenuating) conflicts about resources, rights, and morals”. Another definition was provided by Kerr and Seymour (2010, 5) who define public policy as “the ordinary laws and programmes – laid down, within a framework of constitutional rules, by the arms of government (parliament, the executive and the judiciary) – that regulate the economy and wider social interactions.” Adie and Thomas (1987, 191-195) also stress the importance of conceptualizing policymaking as a long-term process, which involves a wide range of decision points rather than individual decisions or acts. Public policy may be perceived as the activities of government that include policy goals and government legislation, as well as the implementation of this legislation, and the ways of reaching a government’s goals. Depending on the political system and the degree of democratization of a particular

country, its public policy is influenced to a certain degree by various policy actors, including public interest (for instance, through public opinion polls or media), political parties, pressure groups, NGOs, businesses, commodity producers, and labor unions (see Hessing and Howlett 1997, 73-91; Stern et al. 1992, 147-152). Public policy has the potential to both aggravate conflicts (for example, through its ambiguous provisions) and to “prevent and manage conflicts through encouraging alternative dispute resolution, through clarity in the processes used to set policies and in the material content of the policies themselves” (Pearson d’Estree and Colby 2004, 285).

The distinction can be made between specific policies (such as laws and regulations), general policy directions and policy frameworks enacted by a particular government. Al Gore’s *Inconvenient Truth* (2006) may serve as an example of a policy direction toward addressing the Global Warming crisis. General policy directions in managing natural resources and the environment may include promoting the use of renewable energy or encouraging the sustainable use of water country-wide. Governments may have the policy aimed at promoting citizen involvement and public participation in decisionmaking, co-management, and governance of natural resources (see Dorsey and McDaniels 2001). An example of a regional policy direction is the *Declaration of Commitment* (2009) signed by the heads of governments at the Fifth Summit of the Americas in Port-of-Spain, Trinidad, which reaffirmed their commitment to secure the future of the peoples in the Americas by promoting human prosperity, energy security and environmental sustainability.

In my understanding, policy frameworks are integrated programs and initiatives that are aimed at addressing a particular issue, conflict or development on a national, regional or international level. For example, a European Union (EU) initiative to implement an Integrated Coastal Zone Management in Europe may serve as an example

of a policy framework in coastal resource management that provides guidance for EU countries to develop and implement local integrated coastal management programs (Integrated Coastal Zone Management in Germany 2006; Schernewski and Schiewer 2002a; Schernewski 2008). Another example is the adoption of a water framework directive by the EU aimed at establishing a consistent and integrated water management in the EU region (Louka 2008, 37).

By combining environmental, developmental and peace-related concerns, environmental cooperation may offer a new approach to *international* policymaking (Conca and Dabelko 2002a, 232). Furthermore, conflicts of interest may “stimulate increased collaboration in order to regulate the use of contested resources” as, for example, in the case of the peaceful process of “privatization” of the sea territory in the framework of the *Law of the Sea Treaty* (Gleditsch 2007, 189). The *Law of the Sea* can be described as “the embodiment of ocean security policy” since it addresses economic, military and resource based goals both on the national and international levels (Jacques and Smith 2003, 84).

A comprehensive public policy in natural resources and environmental issues (such as integrated coastal management programs) may serve as a link between theory, scientific research and practical initiatives of conflict resolution interventions⁴. Overall, the significance of public policy in ECR may be perceived as creating opportunities and providing resources for designing and implementing effective conflict prevention and resolution practices through developing integrated policy frameworks and by enacting specific policies.

⁴ For a discussion of science-policy interface see Cicin-Sain and Knecht 1998, 191-196.

2.3.2. Alternative dispute resolution

In broad terms alternative dispute resolution (ADR) includes processes and measures for resolving disputes that fall outside judicial procedures (Boudreau 2009). Such measures include facilitation, negotiation, mediation, and arbitration (see Schellenberg 1996; Druckman 2003a; Cheldelin 2003). For example, Jacob Bercovitch (2009b, 343) defines mediation as “a process of conflict management, related to but distinct from the parties’ own negotiations, where those in conflict seek the assistance of, or accept an offer of help from, an outsider (whether an individual, an organization, a group or a state) to change their perceptions or behavior, and to do so without resorting to physical force or invoking the authority of law.” This definition, while it may seem broad, combines essential elements, actors and criteria for inclusion in the process of mediation. Mediation involves an intervention of an outsider into the conflict management process, which is non-coercive, non-violent, non-binding and voluntary for the parties to conflict (Bercovitch 2009b, 343). The third-parties, or outsiders, may play direct and indirect roles in managing conflicts (Ury 2000). Interactive conflict resolution generally involves problemsolving discussions between unofficial representatives of conflicting parties (Fisher 1997a, 142). Problemsolving approaches are specific intervention methodologies that may be regarded as ‘independent’ activities (for example, problemsolving workshops) or as an integral part of negotiation processes (Pearson d’Estree 2009).

ECR may take the form of a consensus-building process such as conflict assessment, facilitation, mediation, conciliation, negotiated rule-making and policy dialogues (Emerson et al. 2003, 10-13). Citizen involvement at the early stages of resource management planning, and in addressing conservation, the use and development of shared space, as well as in promoting community-oriented neighborhoods (see Mallet 2005) is a potential preventative approach to environmental and resource dispute

resolution. Another ECR option is through quasijudicial processes like early neutral evaluation, mini-trials and summary jury trials, settlement judges, fact finding and arbitration (Ibid, 14-15). “Advocates of environmental conflict resolution generally find fault with traditional modes of environmental policymaking and dispute resolution” (Ibid, 6). However, incorporating the principles of environmental governance, public participation and stakeholder dialogue into the policymaking process may address this gap between policymaking and alternative environmental dispute resolution practices (see Beierle and Cayford 2003). Moreover, ECR may benefit from using a dispute system design, for example, a framework for resolving disputes in various organization and settings developed by Ury, Brett and Goldberg (1988).

2.3.3. Stakeholder dialogue and communication: Building relationships and trust

Communication is a critical component for stakeholders to participate in collaborative decisionmaking that would encourage “establishing productive linkages between decision makers and the public” (Herath and Prato 2006, 3). All stakeholders should be given an opportunity to contribute to the discussion and share their views, interests and needs. The implementation of collaborative decisionmaking, however, brings forward the dilemma of power differentials between decisionmakers and other stakeholders (Stoll-Kleemann and Welp 2006, 67).

It is important to define the terms dialogue and relationship in the context of conflict resolution and peacebuilding. Dialogue is a “distinctive way of communicating that is the essence of relationship” and when sustained and practiced as a carefully designed process it can become a “systematic instrument for transforming conflictual, dysfunctional, or disruptive relationships” (Saunders 2009, 376). The concept of relationship can be understood through a combination of identity, interests, power,

perceptions (and misperceptions), and patterns of interaction (Saunders 2009, 380; see also Voorhees 2002).

The importance of trust and distrust and the critical role these concepts play in relationships is discussed by Roy Lewicki (2006). While trust and distrust coexist in relationships, creating trust and managing distrust is critical for managing relationships (Lewicki 2006, 113). “In the field of conflict resolution... trust at a system level is not only instrumental in building an effective working relationship among the parties in a specific context but is also one of the cornerstones in searching for a sustained, justice solution among those parties” (Yang 1998, 20). In addition, “trust is shaped and defined in social circumstances and cultural contexts” because it takes different forms, contents, structure and meaning according to different cultural, historical and social perspectives (Ibid, 23).

2.3.4. Building awareness and education

Education in a broad sense is a critical component of addressing a conflict as it helps raise awareness about the issue at stake, suggests possible approaches for conflict resolution, provides a mechanism for sharing knowledge and ideas, and thus facilitates the development of appropriate intervention strategies. For example, the education component of Multi-Track Diplomacy is primarily aimed at generating and transferring “information about issues of peace and conflict, peacemaking and conflict resolution, and [suggesting] policy or action implications arising from that information” (Diamond and McDonald 1996, 70). In this framework, education is seen as a “large subsystem” with two structural components – research (think tanks, analysis, and study programs), and educational institutions (K-12, colleges, and universities) – which offer instruction in conflict resolution and peacebuilding (Ibid.). Moreover, peace and conflict resolution

education is perceived as a participatory and dialogical process where the voice of both learners and teachers is heard, and which originates not from abstract categories but from the needs of the people “captured in their own expressions” (Cabezudo and Haavelsrud 2007, 285-288). It is also important that participation in peace education is encouraged by an inclusive approach; while not mandatory, participation is “expected and provided for” (Ibid, 293).

There are a number of links between environmental and peace education, including sustainability, global environmental issues, environmental justice, legal rights and responsibilities as well as an ethic of interdependence (Wenden 2004). In addition, planetary stewardship, global citizenship and humane relationships have been identified as the common themes throughout the curricula in peace education for both social and ecological peace (Ibid, 10). Finally, peace and environmental education at all levels (including curricula in schools, higher education studies and research, and raising awareness through media and arts) is critical for achieving the long-term goals of sustainable development, and it represents an important contribution to preventing environmental conflicts and in addressing environmental threats. While peace and environmental education is a broad concept that can be applied in different ways to a large audience, training courses and seminars in specific areas of ECR and peacebuilding provide a more explicit approach to resolving and preventing environmental conflicts and disputes.

Moreover, James and Schmitz (2011) suggest a multidisciplinary learning approach that integrates sustainability, ethics and social justice within community engagement, education and practice. This interdisciplinary community-based education approach is based on integrating research, knowledge and practice within such fields as

social work, environmental science, social entrepreneurship and social justice (Schmitz et al. 2010).

2.3.5. Capacity-building and empowerment

A capacity-building approach in conflict resolution is an “approach designed specifically to prepare parties, enhancing their motivation, skills, and resources so they can interact in CR [conflict resolution] processes more constructively” (Barsky 2009, 215). In this capacity this approach can be used prior to various conflict resolution processes (such as, negotiation, mediation, and healing circles) as well as a means for trust-building among conflicting parties (Ibid.). It is also important for conflict resolution professionals and peace workers to develop capacity and strength for resolving conflicts and building peace through acquiring skills, knowledge and practice. In this regard, Lederach (2003, 48-60) discusses the significance of building the following capacities: (1) an ability to look beyond the immediate conflict situation; (2) empathy towards other individuals or groups; (3) an ability to integrate multiple time frames and issues; (4) posing conflicts as dilemmas and seeking interdependent goals within their complexity; as well as (5) learning to hear and engage the voices of people and groups. The agenda for transformative public conflict resolution practices developed by Franklin Dukes (1996) suggests that it is critical to incorporate an engaged community, responsive governance, and develop capacity for problemsolving and conflict resolution.

Capacity-building may serve as a means of empowerment. “The aim of conflict transformation, peacebuilding, counseling and training initiatives is to empower participants to be able to escape [the] vicious cycle [of violence] by reframing their goals. This should occur at the level of positions, at the level of interests, at the level of basic human needs, in order to overcome the incompatibility of goals” (Graf et al. 2007, 135).

Learning about, measuring and analyzing successful cases of resolving environmental conflicts can serve as a source of knowledge and empowerment (see Pearson d'Estree and Colby 2004, 3-5).

2.3.6. Envisioning: Exploring the paths towards transforming environmental conflicts

Envisioning the future without conflict is an important initial step in the process of designing a conflict resolution strategy. Discussing approaches to peacebuilding, Lederach (1997, 152) notes, “We are not impaired by a lack of resources, if we choose to invest wisely and practically in peace. We are limited only by how far we are willing to cast our vision.” In an extension of that idea, Neal McLeod (2007, 98-99) views Cree narrative imagination as “a visionary process of imagining another state of affairs” and as a way of conceiving indigenous theory, and he emphasizes the importance of envisioning: “We must attempt to dream and have visions. Without dreams and idealism, we will truly be a conquered people. But with vision, we may offer ourselves and the rest of the world solutions to the crisis of the modern age.” Linda Tuhiwai Smith (1999, 152) also notes that “sometimes the visions which bind people were set a long time ago and have been passed down the generations as poems, songs, stories, proverbs, or sayings.” These ‘historical’ messages may offer guidance for addressing today’s challenges.

Visions are important both at the personal and at the group level, so that individuals and communities can envision a better future, formulate their vision, and work collectively to realize their vision. An example of such collective vision is the Vision 2020 Statement, which sets far-reaching, but critical goals for Trinidad and Tobago to become “a united, resilient, productive, innovative and prosperous nation by the year 2020” (Vision 2020 Statement, n.d.). This Statement further outlines the individual components of the vision, including quality of life, healthcare, stability,

respect for the law and human rights, democracy, diversity, creativity, as well as a safe, peaceful and environmentally-friendly community (Ibid.). Various government documents and policies in Trinidad, including those in the areas of national security, education and environment, refer to respective sections of the Vision 2020 Statement and build on them in developing specific policies and regulations. This is an example of a collective vision shared by the people and their government that forms the foundation for developing policies, projects and initiatives.

Lester Brown (2008) in his book *Plan B* provides a vision of a multidisciplinary development framework. It is a plan of hope for addressing the challenges of modern civilization through eradicating poverty, stabilizing population and restoring the natural systems of the earth. In the context of ECR it is important to envision the future that includes such practices as sustainable economic development, rational use of natural resources, respect and caring for the environment, as well as peaceful relations between the peoples of the world, respect for human rights and diversity, and nonviolent dispute resolution practices.

2.3.7. Creativity and environmental conflict resolution

Creativity has been discussed as one of the key components of conflict resolution interventions and peacebuilding practices both by scholars and practitioners (see Galtung 1996; Costantino and Merchant 1996; Lederach 2005; Coleman and Deutsch 2006). Some of the ways creativity can be expressed in conflict resolution and peacebuilding are through workshops and training activities (see Lederach 1995); through using art, music, or stories in addressing conflict (see Senehi 2009; Rice 2009); through the use of ritual and symbol (see Schirch 2005), or through building a 'moral imagination' (Lederach

2005). Morrill and Owen-Smith (2002) also discuss storytelling and explore the role of political narratives in the context of ECR.

Nature and the environment provide a significant potential for creative interventions into environmental and resource conflicts. An inclusive storytelling and narrative approach (Senehi 2000, 2009) can be effective in raising awareness about critical environmental issues and can suggest possible interventions. Examples of such narratives include *The Tragedy of the Commons* by Garreth Hardin (1968), and *Silent Spring* by Rachel Carson (1962).

2.3.8. Evaluation of environmental conflict resolution interventions

Evaluation is a guide for improvement
(Carol Weiss 2004, 153)

Evaluation of a conflict resolution initiative is an important part of planning, designing and improving an intervention. “As a primary method of feedback, evaluation is the means by which the system clarifies its goals and measures progress toward achievement of those goals” (Costantino and Merchant 1996, 168). Moreover, Joseph Folger (1999) discusses three themes that run through research and practice of evaluation: (1) the role of theories of conflict and conflict resolution in guiding evaluation process; (2) the role of evaluation in assessing adaptability and suitability of different intervention approaches for various conflict settings; and (3) the role of documentation in the evaluation process. The significance of evaluation is in its transformational power (Preskill 2004) and in its potential for improving performance and supporting policy decisions (Wholey 2004). Gürkaynak et al. (2009, 297) also see evaluation as the key to building a more professional field of conflict resolution and peacebuilding in terms of both building theory and its practical application.

John Paul Lederach dedicates a chapter of his book *Building Peace* (1997) to the analysis of strategic and responsive evaluation. While Lederach refers to the field of peacebuilding and conflict resolution in general and doesn't specifically concentrate on ECR, the reflections about the dilemmas and challenges of evaluation in peacebuilding presented by Lederach make an important contribution to the methodology and practice of evaluating interventions into environmental conflicts. For example, Lederach (1997, 130-133) outlines a number of dilemmas in peacebuilding funding and evaluation including the 'Project Dilemma' (projects as concrete measurable units vs. a deep-rooted process of building peace, relationship, and trust); the 'Time Dilemma' (projects that are time-bound vs. lengthy, complex, and dynamic processes of peacebuilding); the 'Reporting Dilemma' (a sensitive, delicate and often confidential process vs. the transparency and accountability of reporting); and the 'Institutional Capacity Dilemma' (individual high-profile peacemakers vs. institutional capacity-building).

Furthermore, John Owen (2004, 357) distinguishes between five general forms of evaluation based on its purpose: (1) *proactive* evaluation (at the stage of planning a program or intervention); (2) *clarification* evaluation (at the early stages of a program); (3) *participatory/interactive* evaluation (during the delivery of the program); (4) *monitoring* evaluation (over the life of an established and ongoing initiative); and (5) *impact* evaluation (with a purpose of assessing the impact of an intervention). An alternative classification includes *summative* evaluations that assist in assessing the effects or effectiveness of interventions, and *formative* evaluations that foster the development of further interventions or programs (see Druckman 2005, 296). The practical significance of evaluation research, including evaluations of coastal resource management and ECR interventions, is in "its goal of being used by decisionmakers

responsible for the implementation of programs” (Druckman 2005, 296), and in the possible implications for resource use and distribution among various stakeholders.

Based on the approaches outlined above the key principles of evaluation of environmental conflict interventions can be summarized in Table 2 as follows:

Table 2: Key principles of evaluation of ECR initiatives

Key principles of evaluation of ECR initiatives
<ul style="list-style-type: none"> ➤ Defining success, clarifying goals and articulating values; ➤ Recognition that evaluation may further clarify and change goals; ➤ Conducting evaluation with participation of the people/groups engaged in conflict resolution and peacebuilding; ➤ Developing and applying techniques for assessing both tangible (measurable) and intangible outcomes; ➤ Using evaluation results constructively by sharing them with all stakeholders and using them to improve existing policies/projects/initiatives.

2.4. Existing practices of integrated management of coastal areas: Some examples

There are a number of existing models of coastal resource and environmental management around the world that provide guidelines or specific mechanisms of conflict resolution in such areas. While the aim of most of these models is designing cross-disciplinary programs for managing a large variety of activities and developments in coastal areas, conflict resolution components are usually integrated into these programs to some extent, whether they are spelled out straightforwardly or can be recognized as part of other coastal management processes.

Various environmental and resource conflict resolution approaches and comprehensive efforts aimed at preventing and resolving conflicts in coastal areas can be

found in different parts of the world. Such efforts may manifest themselves through developing and implementing policies at the local, state/provincial, federal and international levels of government. Integrated coastal management programs are designed in some countries and regions in order to address multiple issues and potential conflicts among various coastal stakeholders. However, specific coastal resource disputes and conflicts may also be addressed through the efforts of ADR (for example, environmental mediation) in countries and regions where such practices are common. In traditional societies, village leaders or elders may play the key role in addressing coastal disputes (Cicin-Sain and Knecht 1998, 235).

This section (2.4.1.-2.4.4.) discusses the efforts of individual countries (Germany, Canada and the US), groups of countries (the EU), as well as international organizations, for example, the United Nations Educational, Scientific and Cultural Organization (UNESCO), the United Nations Environmental Programme (UNEP) and the Inter-American Development Bank to create and implement models of environmental and resource management, as well as conflict resolution practices in coastal areas. This section is aimed at gaining a deeper understanding of environmental and resource management and conflict resolution practices worldwide in order to provide context and perspective for the study of environmental conflicts and conflict resolution approaches in the Great Lakes area of North America.

2.4.1. Institutional capacity: International organizations and their initiatives in coastal management and conflict resolution

Resolving environmental conflicts is tied to power relations and the institutional capacity of stakeholders (Hoffman and Ventresca 2002). For example, Giordano et al. (2005) blame both resources scarcity and insufficient institutional capacity to deal with these

scarcities for international resource conflicts. They stress that institutional failure to address this issue is critical especially where resource sovereignty is ill-defined or non-existent, or where existing institutional regimes are destroyed by political change. Similarly, Roger Sidaway (2005) discusses the centrality of power and decisionmaking in any study of environmental conflicts.

While the field of conflict resolution continues to grow and evolve, “it is not yet highly institutionalized” (Kriesberg 2009a, 473). Environmental issues and problems are addressed through a wide range of government and international organizations, agencies, NGOs, and initiatives, which often work separately on similar issues around the world (for example, on coastal resource management issues). However, while the UN and its numerous thematic programs (including UNDP, UNESCO and UNEP) form the institutional foundation for international policymaking, concerns over the UN’s capacity to resolve conflicts and address global challenges are voiced by academics and practitioners (see Mingst and Karns 2007). At the same time, an institutional foundation is critical for coordinating the efforts of these environmental and peace organizations to produce more effective policies, share experience and best practices, as well as deliver and promote peace and environmental education (Boulding 2000).

A number of international organizations (including UNEP, UNESCO and the World Bank) conduct and/or support individual projects as well as large-scale programs aimed at promoting the sustainable development of coastal zones. Conflict resolution mechanisms are developed in the frameworks of some of these programs in the form of regulations, recommendations, strategies or other provisions, which outline the process and suggest the tools to be used for resolving conflicts and disputes among stakeholders in coastal zones.

The North Atlantic Treaty Organization (NATO) has conducted a number of workshops aimed at exploring coastal management options, environmental security in the coastal areas and multi-criteria decision analysis strategies for resource and environmental management in coastal zones (see Linkov et al. 2005). UNESCO also supports initiatives aimed at developing sustainable coastal regions, preserving the cultural heritage of coastal communities, including indigenous communities, and in sharing knowledge and practical experience in the management of coastal resources between non-indigenous and indigenous peoples (see Cambers 1997; Hviding 2005; UNESCO 2003; UNESCO 2006, 2009). Moreover, UNEP's contribution to scholarship and practice in resource management and conflict resolution in coastal zones range from research on various related topics, for example, the relationship of the state of coastal ecosystems and human wellbeing (UNEP 2006a) and assessing coastal vulnerability (UNEP 2005) to creating national action plans (UNEP 2006b) and training manuals (UNEP 2004).

The Inter-American Development Bank (the Bank) is one of the examples of a regional financial organization that in the framework of its environmental strategy among other critical environmental issues focuses on providing loans, grants and investments to projects in coastal resource management and conflict resolution (Inter-American Development Bank 2003). Moreover, the Bank's strategy on coastal and marine resource management in Latin America and the Caribbean lays out the foundation and provides practical guidance for projects in coastal management in this region (Inter-American Development Bank 1998). In working towards improving the quality of life of coastal communities as well as in maintaining biodiversity and the productivity of coastal ecosystems the Bank has the following objectives: (1) supporting the establishment of institutions, programs and policies in coastal management; (2) creating incentives for

effective management and protection of coastal and marine ecosystems; (3) promoting participatory governance; (4) preventing conflicts and avoidable losses; and (5) building regional consensus on shared priorities, good practice and responsibilities in meeting international agreements on coastal and marine resources (Ibid, 16). Overall the Bank has supported over 60 large programs and projects in coastal development in Latin America and the Caribbean, which include the initiatives in integrated coastal management (both region-wide and in individual countries, for example, in Suriname, Costa Rica, Bahamas, Panama and Barbados) as well as initiatives aimed at conflict resolution in coastal zones (both region-wide and in Panama)⁵.

2.4.2. Integrated Coastal Zone Management (ICZM): The European Union perspective

One of the mechanisms of addressing resource and environmental disputes or conflicts in coastal areas is through Integrated Coastal Zones Management (ICZM), which is a dynamic, continuous and interactive process designed to promote the sustainable development of coastal zones (European Commission 1999).

The concept of ICZM was developed over the course of a number of international conferences – including the UN Conference on the Human Environment in Stockholm in 1972, the UN Law of the Sea Conference (1973-1982), and the UN Conference on Environment and Development (UNCED) in Rio de Janeiro in 1992 that addressed the need for improved management of coastal areas worldwide (along with other important environmental issues) and became major frameworks for coastal governance under national jurisdictions (Cicin-Sain and Knecht 1998, 67, 94). A number of international agreements resulting from these conferences addressed various issues related to

⁵ See <http://www.iadb.org/projects/> for the database and description of projects in coastal management and conflict resolution supported by the Inter-American Development Bank.

development, protection, research, and the management of coastal zones. In particular, in the framework of the UNCED, Agenda 21 (1992) in Chapter 17 emphasized the importance of developing new approaches to coastal and marine resource management based on the principles of sustainable development and the integrated management of coastal and marine resources. Besides identifying these issues, Chapter 17 of Agenda 21 went further and included practical considerations and recommendations within the comprehensive plan for action in the integrated management of coastal areas including, in particular, the sustainable development of small island states.

The goal of ICZM is to integrate the three basic objectives – coastal protection, nature and resource conservation, and economic development – in a sustainable manner (Schernewski and Schiewer 2002b; Glaeser 2002). The meaning of “integration” within ICZM has several dimensions, including *intersectoral* (i.e. among different sectors of coastal users, such as, oil and gas development, fisheries, coastal tourism, and port development), *intergovernmental*, *spatial*, *international*, and *science-management* integration (Cicin-Sain and Knecht 1998, 45). The major functions of ICZM include area planning, promotion of economic development, stewardship of resources, conflict resolution, protection of public safety, and proprietorship of public submerged lands and waters (Ibid, 47).

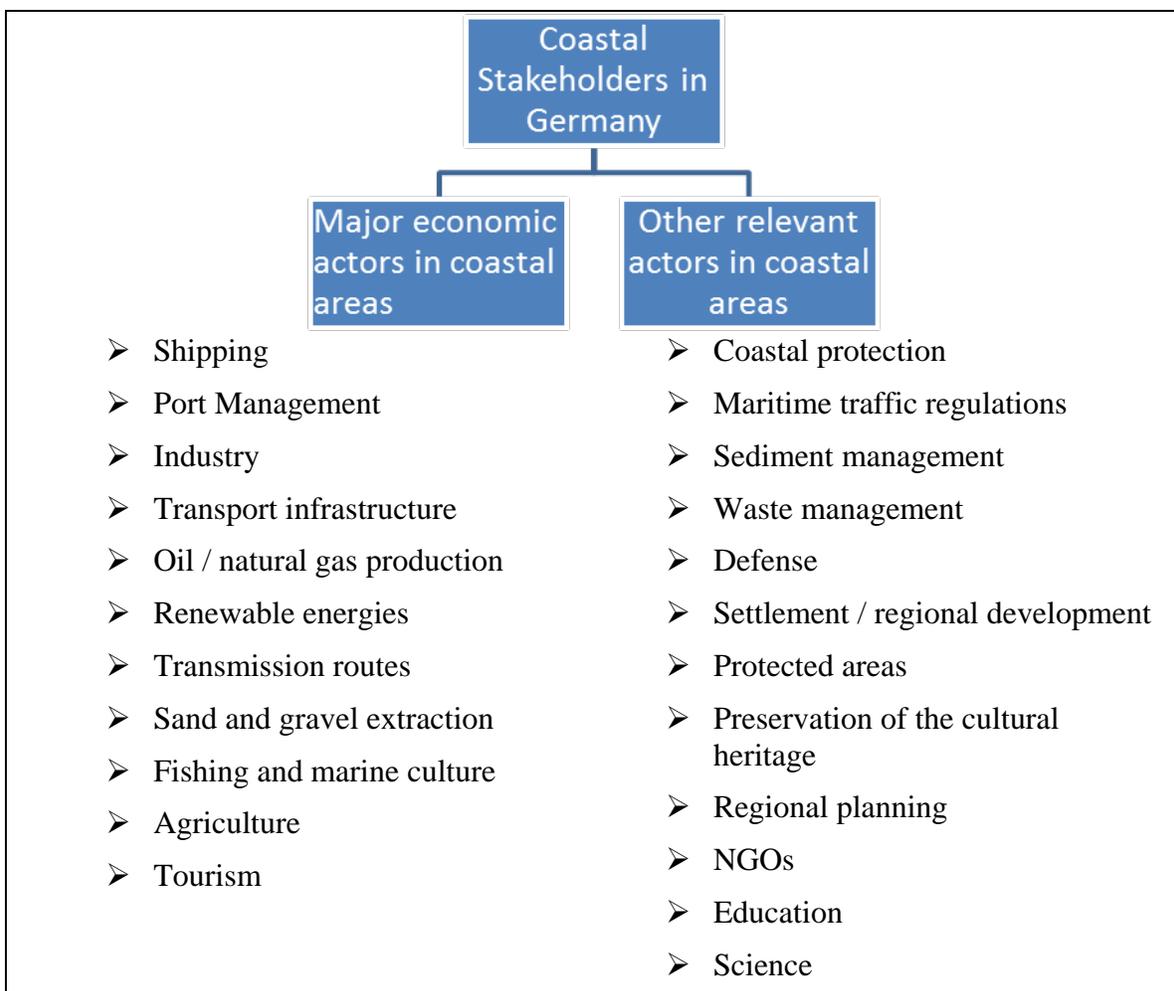
ICZM programs in Germany and other countries of the Baltic Sea region

Coastal resource management in Germany, as well as in the other countries of the EU, is regulated by a set of national laws, international agreements and by the regulations set up in the framework of European governance, including the Helsinki Convention, Baltic 21, and the Union of Baltic Cities (Kern and Löffelsend 2004). German environmental policies are, therefore, closely connected with the relevant measures of the EU, which has

developed guidelines for an ecological policy framework and natural resource protection for its member-states (see German Environmental Report 2002; Dolzer and Thesing 2000; Skarlato and Telesh 2008).

The Baltic Sea region presents a case of multiple users from eight EU countries (including Denmark, Estonia, Finland, Germany, Latvia, Lithuania, Poland and Sweden) and one non-EU member country – Russia. Within each of these countries there are multiple coastal stakeholders each having multiple interests, needs, policies and priorities. Figure 3 presents coastal stakeholders in Germany.

Figure 3: Coastal stakeholders in Germany



Source: Integrated Coastal Zone Management in Germany 2006

Such a diversity of stakeholders creates a number of challenges for cross-border cooperation in coastal resource management and in achieving environmental sustainability (Skarlato 2002). Disputes and conflicts may arise over the issues related to water quality, erosion, tourism, fisheries, aquaculture, and port developments between coastal stakeholders of the Baltic Sea (Cicin-Sain and Knecht 1998, 233). The potential for conflict can also be rooted in different spatial planning systems, cultures and traditions of European member states (Dühr 2007, 3).

Based on an EU-wide ICZM strategy, EU countries are developing national ICZM strategies (see Roberts 2005; Coccossis 2005; Sorensen 2005). In Germany, for example, the development of a national ICZM strategy is based on “an assessment of the economic, social and ecological situation of Germany’s coastal zones as well as of the legal, political and administrative structures and institutions” working in the area of coastal zone management and development (Leal et al. 2008, 113). The implementation of a national ICZM strategy in Germany will be pursued by Federal and state legislators by the means of a top-down approach that would include optimization of existing tools and basic principles of coastal management, as well as bottom-up cooperation with local, regional and social actors (Ibid, 114).

Managing resources in the Baltic Sea region where multiple stakeholders have a variety of interests and expectations requires taking into consideration their competing demands for space and coastal resources, as well as the resulting conflicts (Glaeser 2004). In the framework of a research project aimed at investigating issues towards developing a national ICZM Strategy in Germany, Glaeser et al. (2005) conducted a study with the aim of analyzing the spatial compatibility of 16 different users of Baltic coastal resources (that is, if the two users can occupy the same coastal or marine space). Their study has shown that the four most compatible users were tourism, harbors and ports, coastal

protection, and agriculture. At the same time, the least compatible users included marine protected areas, oil and gas exploration, sand and gravel extraction and military use (Glaeser et al. 2005).

Another research project conducted in Germany was entitled “Integrated Coastal Zone Management (ICZM): Strategies for Coastal and Marine Spatial Planning” (2006). Its key element was investigating the relationship between the two coastal management tools – ICZM and spatial planning. One of the major results of the project was the establishment of guiding principles of a long-term ICZM in Germany including a ‘systems approach’ (treating coasts and seas as an integrated ecological, economic, and social system), and a ‘polyculture approach’ (recognizing the co-existence of different forms of promoting win-win solutions with the assistance of suitable management instruments) as well as understanding that different coasts might have different needs (Ibid.).

A case study in Ventspils, Latvia was aimed at investigating opportunities for developing a strategy of coastal management that would include preserving natural resources, ensuring economic growth, meeting social needs and, at the same time, satisfying the interests of all parties to a maximum level (Zilniece et al. 2008, 198). Three broad groups of methods of conflict resolution in coastal zones were identified in the framework of this project: (1) legal methods (environmental protection, planning, building control, and environmental impact assessment); (2) environmental information collection and research methods; and (3) voluntary information dissemination and public awareness methods (Ibid, 202-217).

While ICZM programs generally provide a framework and guidelines for coastal resource management, and include provisions regarding conflict resolution, there is often a gap between policy frameworks and the actual implementation of conflict resolution

measures. According to the Policy Recommendations (2007) based on an expert workshop on Integrated Coastal Zone Management, which took place in Riga in 2006, difficulties with coastal management are mostly in convincing relevant partners and stakeholders to participate in and to commit to coastal management processes. The Recommendations identified three groups of underlying problems:

- 1) *Economic development* problems: business interests might exert a pressure in favor of certain coastal users, not always favoring the most sustainable actors. Financing can also be an important incentive to advance favored projects or to ensure participation.
- 2) *Regulatory and legal* problems are due to non-existing, concurring or fragmental legislation. A regional cross-border context further complicates these problems.
- 3) *Cultural and cognitive* problems include difficulties to cross different types of borders or create a consciousness of “new” environments like coastal zones. Land-sea interactions are especially difficult to handle (Policy Recommendations 2007).

The general and significant contribution of an ICZM strategy to conflict resolution in coastal zones is in providing a framework for addressing issues, problems, and disputes regarding coastal developments. It provides coastal stakeholders with reference for terms, guidelines for action and outlines their responsibilities regarding the upcoming issues in coastal zone developments. In addition, specific principles of an ICZM strategy provide coastal stakeholders with more concrete strategies, recommendations and tools for conflict resolution, for example, cooperative and learning-based coastal zone management (Brown et al. 2002, 18), a consensus-based process of managing coastal resources and the environment (Leal et al. 2008, 40-41), and area planning for users of coastal space (Cicin-Sain and Knecht 1998, 47, 53).

2.4.3. Integrated coastal resource management in Nova Scotia, Canada

Coastal areas provide Canada with numerous resources including both tangible (food, mineral resources and water), and non-tangible (cultural heritage, traditions and coastal community identity). Furthermore, Canadian coastal zones are extended, have an enormous potential to benefit both present and future generations, and are crucial for transportation, fishing, aquaculture, recreation, tourism, and subsistence.

Managing Canadian oceans and coastal zones is a task that is shared by Federal, provincial and the territorial governments of Canada, and is also regulated by international law. The *United Nations Convention on the Law of the Sea* (UNCLOS) provides a comprehensive framework for the regulation of the oceans by incorporating both customary international law and negotiated treaty commitments related to the world's oceans (Canada's Oceans Strategy, 2002). UNCLOS (1982) deals with a range of activities such as access to the seas, navigation, protection and preservation of the marine environment, pollution prevention and control, exploitation of living and non-living resources, conservation, scientific monitoring and research, and the outline of a dispute settlement mechanism. Key Canadian legislation that regulates the management of coastal and ocean resources on the Federal level is *Canada Oceans Act* (1997), which is based on three fundamental principles: (1) sustainable development, (2) integrated management, and (3) a precautionary approach. Moreover, indigenous peoples in Canada have certain treaty and non-treaty rights pertaining to the management of coastal activities.

The East Coast of Canada provides a good example of a region that has evolved around the coastal area. While ocean and coastal resources form the basis of regional economy, recent years have brought considerable changes to the state of the environment of coastal provinces including Nova Scotia. Environmental and resource conflicts

between industry, construction and the development of coastal zones, and coastal communities have become more serious over the years (see Munro 2004; McInnes et al. 2006). Coastal stakeholders in this region are diverse and their interests and needs are dynamic and often overlapping (see Figure 4: Coastal Stakeholders in Nova Scotia, Canada). While some of these stakeholders may have greater stakes in coastal resource management issues than others, it is important to consider coastal areas as multi-stakeholder regions with multiple interests, responsibilities and influence.

Figure 4: Coastal Stakeholders in Nova Scotia, Canada



Sources: Coastal Communities Network 2004; Canada's Oceans Strategy 2002; see also Coastal Communities Network at <http://www.coastalcommunities.ns.ca/>

In 1994 the Coastal Zone Canada Association conducted an international conference in Halifax, Nova Scotia, entitled 'Cooperation in the Coastal Zone'. This conference addressed the key themes and issues of coastal management including:

- Empowering local communities through community-based management;
- Strengthening coastal economies and dealing effectively with poverty;
- Recognizing the rights and interests of indigenous peoples; and,
- Integrating traditional knowledge with conventional science (Coastal Zone Canada Association 1996).

While these issues reflect some of the main conflicts in coastal management that were identified by the participants of the conference, full stakeholder participation and co-management has been suggested as a possible solution to these problems. Other recommendations included: developing diverse marine and coastal resource training, education, and awareness programs; incorporating traditional knowledge into developing policies and practices concerning coastal resource management (see also Berkes et al. 2005); moving towards a more ecosystem-based approach to managing human activities in coastal and marine environments; and increasing international cooperation between coastal nations (Coastal Zone Canada Association 1996).

Furthermore, the Eastern Scotian Shelf Integrated Management (ESSIM) Initiative was announced in 1998 and can be considered an example of a regional integrated coastal management program conducted in Nova Scotia (The Eastern Scotian Shelf..., n.d.). This initiative is a collaborative ocean planning process led and facilitated by the Oceans and Coastal Management Division (OCMD), Fisheries and Oceans Canada (DFO – Maritimes Region) under the *Oceans Act*. ESSIM represents a regional intergovernmental and multi-stakeholder planning process to develop and implement an Integrated Ocean Management Plan for the eastern Scotian Shelf area. The eastern

Scotian Shelf was selected for the application of integrated ocean management because it possesses important living and non-living marine resources, significant areas of high biological diversity and productivity, and increasing levels of multiple use and competition for ocean space and resources (The ESSIM Initiative, n.d.). Key ocean use interests and activities include fisheries (see Harris 1995; Sinclair and Ommer 2006), offshore oil and gas, shipping, maritime defense operations, submarine cables, science, research and development, recreation and tourism, potential offshore minerals development, and marine conservation (The ESSIM Initiative, n.d.). While the objectives of this Initiative include creating a balanced approach to achieving ecosystem, social, economic and institutional sustainability, the three main goals of ESSIM are: (1) collaborative governance and integrated management, (2) sustainable human use and (3) healthy ecosystems (Ibid). The aforementioned goals and objectives highlight an integrated character of the ESSIM initiative by focusing on various aspects of human and environmental health and sustainability.

Despite the efforts in resource management presented above, a number of challenges to sustainable coastal management were identified by a more recent project entitled “Coastal Area Management in Nova Scotia: Building Awareness at the Municipal Level” including the lack of sufficient funding, lack of appropriate laws and regulations and the resulting uncertainty about responsibility, plus the lack of a comprehensive integrated strategy for managing coastal resources (Toews 2005). Moreover, six major issues/conflicts that threaten sustainability in the region were identified. Presented from the most serious to the least these issues include: (1) non-resident land ownership; (2) the loss of public access to the coastal areas; (3) migration of youth away from rural communities; (4) loss of coastal culture and connection to the sea; (5) increasing tourism and the change from a traditional focus on the fisheries to a more

service-oriented coastal economy; and (6) coastal erosion that is seen as both a natural and human-induced process (Ibid.).

2.4.4. Examples of environmental management and conflict resolution in the US

A comprehensive evaluation of environmental policies, projects, and programs is necessary for determining the degree of success of these initiatives and for developing best practices in order to design more effective and efficient approaches to resolving environmental conflicts. While a comprehensive evaluation should be an integral part of any project or initiative, there is relatively little literature dedicated specifically to the methods and techniques of evaluating environmental projects and conflict resolution initiatives. One of the most inclusive publications in this field is *Braving the Currents: Evaluating Environmental Conflict Resolution in the River Basins of the American West* (Pearson d'Estree and Colby 2004), which makes an important contribution to the field of dispute resolution evaluation in the context of both environmental and other conflict scenarios. In this book Pearson d'Estree and Colby, who draw on the sample case studies of resolving conflicts in the river basins of the Western part of the US, define success in resolving these conflicts, outline the framework for documenting success and use this method to document cases. Based on this research, the authors revealed a number of practical approaches to achieving various elements of success including: cost-effective implementation, financial feasibility/sustainability, cultural sustainability/community self-determination, environmental sustainability, and clarity of outcome (Pearson d'Estree and Colby 2004, 278-282). The authors also discovered a number of gaps in conducting evaluation that suggests the necessity of further inquiry into these issues, including: procedural justice, procedural accessibility and inclusiveness, financial feasibility/sustainability, compliance with outcomes over time, stability/durability,

reduction in conflict and hostility, and transformation in social values and priorities (Ibid, 282-285). Finally, the work of Pearson d'Estree and Colby has an important policy implication as they discuss generic characteristics of policies that can help prevent and manage conflicts, such as: clarity and consistency, inter-jurisdictional coordination, equitable cost-sharing, bargaining power for interests representing social values, and building better problemsolving capacity (Ibid, 287-290).

Tony Prato (2006) also presents an analysis of evaluation techniques concerning developing the management alternatives for the Missouri River System. Prato compares and contrasts traditional Cost-Benefit Analysis (CBA), which evaluates alternative actions by calculating and comparing their net present values, with Multiple Attribute Evaluation (MAE) that has three advantages relative to CBA (Prato 2006, 78). First, MAE allows stakeholders to compare alternatives based on their own preferences, which fosters collaborative decisionmaking. Second, this approach does not require assigning monetary values to ecological services. Third, whereas net present value is an efficiency-based criterion, MAE allows consideration of non-efficiency objectives, such as distributional fairness and ecological sustainability (Ibid, 78).

The Great Lakes Restoration Initiative

One of the examples of the successful efforts that the US is currently making in ECR is the **Great Lakes Restoration Initiative** (GLRI)⁶ and the implementation of its Action Plan (2010).

The Great Lakes area represents a major way of life in North America, as well as all aspects of its natural environment such as climate and weather, wildlife and habitat. However, history has shown that the Great Lakes are highly sensitive to environmental

⁶ See official Website of the Great Lakes Restoration Initiatives at <http://greatlakesrestoration.us>.

and human-induced stresses. While restoration progress in the Great Lakes region has been made through years of concerted effort and expenditures on the part of federal, state, tribal and local governments and other stakeholders, at present that progress is slowing or even reversing, and the Great Lakes are facing a number of serious challenges; the most significant of these include the inflow of toxic substances, invasions of alien species, nonpoint source pollution and near shore impacts, habitat and species loss, and a need for better information to guide decisionmaking (Action Plan 2010). These challenges may potentially lead to environment related conflicts between numerous coastal stakeholders such as environmental and conservation groups, local communities, commercial and recreational fishing industries, etc.

Moreover, habitat destruction and degradation caused by development, competition from invasive species, alterations of natural lake level fluctuations and flow regimes, poor coastal development planning and land management, and habitat fragmentation have had negative impacts on wildlife (Action Plan 2010, 8). In addition, water quality in the economically valuable near shore lake zones and open areas that provide drinking water for municipalities and habitats for numerous species of birds, fish and other aquatic life has become degraded.

While the Great Lakes region was a recognized leader for innovative science and advances in natural resource management for decades, there are still significant gaps in knowledge about ecological processes, mechanisms behind environmental resilience and key indicators of ecosystem health (Action Plan 2010, 8). Today there is a strategic need to obtain additional information to facilitate implementation activities, assist tracking and report progress, and to identify adaptive policymaking, coastal management and ECR actions in the Great Lakes region.

While in the past the nature-protection work in the Great Lakes was aimed to minimize harm in this region, today there is a demand for a new standard of care, which suggests that we must leave the Great Lakes better for the next generation than the condition in which we inherited them (Action Plan 2010, 3). Therefore, it is important to proceed by going beyond minimizing harm to proactively rehabilitating the Great Lakes (Ibid.). “Understanding this, U.S. President Barack Obama and U.S. Environmental Protection Agency (EPA) Administrator Lisa Jackson, in collaboration with 15 other federal agencies, have made restoring the Great Lakes a national priority. Signaling a commitment beyond measures of past promises, in February 2009, President Obama proposed \$475 million for a Great Lakes Restoration Initiative (Initiative)” (Action Plan 2010, 4).

The Great Lakes Restoration Initiative is the largest investment in the Great Lakes in two recent decades. A task force of 11 federal agencies developed an Action Plan to implement the Initiative. This Action Plan covers fiscal years 2010 through 2014 and addresses five urgent issues and principal focus areas: (1) cleaning up toxics and areas of concern; (2) combating invasive species; (3) promoting near shore health by protecting watersheds from polluted run-off; (4) restoring wetlands and other habitats; and (5) tracking progress and working with strategic partners (Great Lakes Restoration Initiative n.d.).

The Initiative and its driver, the Action Plan, present an opportunity to systematically address the environmental challenges that have affected the Great Lakes region for decades. The Action Plan “draws upon the ecological priorities, goals and objectives of numerous pre-existing issue or area-specific plans and programs that have been developed by federal, state, tribal, local and non-governmental stakeholders” (Action Plan 2010, 11).

The GLRI also supports the National Policy and Implementation Plan (NPIP), which is being developed in response to the President's memorandum on a "National Policy for the Oceans, Our Coasts, and the Great Lakes" (Action Plan 2010, 12). "In many instances, the most effective solutions to the challenges facing the Great Lakes will require effective use of non-GLRI baseline federal funding, federal regulatory or other policy tools, and the significant regulatory and policy tools and resources of states, tribes, and other non-federal partners" (Action Plan 2010, 12).

It is both the complexity of the operation, and the advantage for resolving potential environmental conflicts, that the Great Lakes region spans many different government jurisdictions along with their regulatory agencies and authorities: two countries, eight US states, two Canadian provinces, 83 US counties, thousands of cities and towns, 33 US tribal governments and more than 60 recognized First Nations in Canada (Action Plan 2010, 36). Through the 1909 Boundary Waters Treaty with Canada, the related Great Lakes Water Quality Agreement, and other institutional arrangements, this region has a long history of governments at all levels collaborating on the Great Lakes protection and restoration (Action Plan 2010, 36).

Federal coordination efforts have been significantly enhanced due to the efforts of the Great Lakes Interagency Task Force and its Regional Working Group, while "Binational efforts continue with help from the International Joint Commission, and through the Binational Executive Committee, which coordinates binational implementation of the provisions of the Great Lakes Water Quality Agreement" (Action Plan 2010, 36). These partnerships continue to further strengthen the cooperation of different agencies in the US and Canada that address the complex issues faced by the Great Lakes, resolving environmental conflicts and implementing the balanced policymaking that enhances coordination and collaboration among Great Lakes partners

to help ensure that actions, projects and programs under the Great Lakes Restoration Initiative are efficient, effective, and in furtherance of the US - Canada Great Lakes Water Quality Agreement (Action Plan 2010, 39). This principal action also emphasizes building ownership and a sense of joint responsibility among agencies, institutions and the public across the Great Lakes region (Action Plan 2010, 39). The Initiative has enjoyed strong, bipartisan support in the US Congress, which has funded hundreds of millions of dollars in recent years. “The Great Lakes states, municipalities and conservation groups are heavily engaged, and more than 700 restoration projects are already under way and making progress in communities across the region” (EPA 2011, 3).

2.4.5. Community Based Resource Management

Community based resource and environmental management is an important practice that is most relevant to the development and conservation of multifunctional coastal areas of the North American Great Lakes. According to Fikret Berkes (2004, 621) “community-based conservation (CBC) is based on the idea that if conservation and development could be simultaneously achieved, then the interests of both could be served”. While the goals of community development and the objectives of conservation may significantly vary, integrating them together may lead to developing a better understanding of social-ecological interactions and to the transition “toward a systems view of the environment, a perspective that sees humans as part of the ecosystem, and an emerging practice of participatory management” (Berkes 2004, 628).

The term *co-management* (or *cooperative management*) relates to the participation of users in decisionmaking and to establishing connections between communities and government managers (Armitage et al. 2007b, 1). Co-management is

conceptualized in terms of various forms of powersharing related to the management of and use of natural resources (Berkes et al. 1991, 12; McCay and Acheson 1987, 32; Charles 2007, 83; Armitage et al. 2007a, 328). For example, Pinkerton (1992, 331) defines co-management as “power-sharing in the exercise of resource management between a government agency and a community organization of stakeholders.” Moreover, environmental and resource co-management serves to “democratize decision making, foster conflict resolution, and encourage stakeholder participation” (Armitage et al. 2007b, 3). In addition, Berkes (2007) examines several specific strands of co-management including co-management as: (1) powersharing; (2) institution building; (3) trust building; (4) process; (5) social learning; (6) problemsolving; and (7) governance. Overall, Berkes (2009, 1693) found that “most definitions of co-management require some institutionalized arrangement for intensive user participation in decisionmaking.”

The practical implementation of co-management may face a number of significant challenges for participants, especially in the highly populated and dynamic coastal areas. For example, McConney et al. (2007) explored the challenges of coastal resource co-management based on their research of four case studies in the Caribbean (two case studies in Barbados, one in Grenada and one in Belize). This research showed that major challenges in the coastal resource management within these cases included: (1) insufficient cooperation; (2) limited ability to manage conflicts; (3) low organizational capacity; (4) scarce financial resources to support co-management institutional and governance initiatives; (5) the poor social and cultural fit of co-management; and (6) insufficient trust and respect among participants (McConney et al. 2007, 120-121).

Co-management is a dynamic term that continues to evolve both in its theoretical meaning and practical application (Plummer and Armitage 2007). While there are numerous definitions of co-management, Plummer and Armitage (2007, 834) note that

“at the core of co-management is the need to rethink the boundaries (real and constructed) among people, institutions, and environments, and adopt novel governance arrangements to foster sustainability.” Pomeroy (2007, 172) also notes that co-management is not a tool or a single strategy to resolve all existing coastal environmental and resource management problems; rather it is a “process of resource management maturing, adjusting, and adapting to changing conditions over time.” Moreover, Doubleday (2007, 243) emphasizes an interrelated character of co-management that evolves through “conflict and cooperation, adaptation and change, and social systems and ecological systems.”

Adaptive management is a practice that is closely related to environmental co-management. Adaptive management is an integrated approach to environmental and resource management in which management institutions adapt, adjust and evolve according to the dynamic and constantly changing environmental conditions (Berkes 2008, 72). Moreover, adaptive co-management is moving beyond co-management and powersharing towards learning and transformational processes of natural resource management, conservation and development activities (Berkes et al. 2007, 320). For example, adaptive co-management (1) focuses on the capacity building of all actors including community groups and the government; (2) adopts complex systems thinking; (3) establishes an exclusive institutional design that involves all key players; (4) and encourages partnerships and powersharing by devolving power to communities (Berkes et al. 2007, 321-322).

Environmental and resource co-management has the capacity to address, resolve and transform conflicts among resource users. For example, Fabricius and Cundill (2010, 58) found that the co-management and governance of natural resources in Macubeni, South Africa that linked the work of community members and government

representatives became an effective “forum for conflict resolution and information sharing.” Overall, co-management is conceptualized as a transformative process that may facilitate communication and negotiation among various actors involved in resource management and assist them in problemsolving and conflict resolution (Plummer and Armitage 2007; Carlsson and Berkes 2005; Castro and Nielsen 2001).

2.5. Conclusions

This chapter presented the literature review to provide a theoretical and practical background of environment-related conflicts that forms the framework of the data Chapters, and the foundation for developing and implementing practical approaches to dispute resolution in coastal zones. The multidisciplinary character of conflicts in coastal areas requires an integrated approach for the analysis of the origins of these conflicts, their escalation, and resolution, as well as preventing such conflicts from happening in the future. The theoretical background and knowledge presented in this chapter covered the fields of conflict resolution and peacebuilding, community based resource management, environmental security and human security, as well as sustainable development and culture. Based on the literature review presented in this chapter the key questions to explore in this study include: (1) what types of environmental and resource conflicts are relevant for the Great Lakes area; (2) which stakeholders are involved in these conflicts; and (3) which conflict resolution approaches are applied to address these conflicts. The complexity of conflicts in coastal areas that are enhanced by the multitude of factors, processes and issues at stake as well as different interests, needs, rights and responsibilities of stakeholders, requires paying particular attention to interdependence

between these elements, processes and participants⁷ as well as choosing an appropriate methodology to study these issues. The next Chapter focuses on the methodology used in this study.

⁷ For a discussion of environmental conflict resolution as complex systems, see Bingham et al. 2003, 338-340.

Chapter 3: Methodology: Environmental conflict resolution workers in the field

Introduction

This study was designed as a qualitative, multi-sited exploratory, integrative, and holistic research (see Lederach 1995, 1997), which contributes to the development of the ECR field theoretically and identifies and analyzes practical approaches for intervention into environmental and resource conflicts implemented by stakeholders and groups from Canada and the US in the Great Lakes area. The study aims to explore the following research question: what are the perceptions of Canadian and US respondents (environmental policymakers, researchers, academics, educators and NGO members) about environmental and resource conflicts and conflict resolution practices in the coastal areas of the Great Lakes?

The focus on *perceptions* of study respondents is based on several important considerations that underlie the significance of the study of perceptions of the participants of qualitative research studies. First, Hadley Cantril discussed the importance of studying perceptions within various types of research methodologies (Cantril 2007). Second, the significance of focusing on perceptions along with experiences and knowledge of study participants was also highlighted in regards to applying critical and indigenous research methodologies (Battiste 2008; McLeod 2007). Finally, the definition of conflict by Dukes (1996, 188-189) that is adopted in this study includes the notion of perceived incompatible values, goals or interests that may cause conflict. Similarly, Wilmot and Hocker (2011, 11) highlight the importance of perceptions in the study of conflicts by noting the perceived incompatible goals and scarce resources as key characteristics of conflicts.

In general, environmental conflict resolution research has largely focused on the “micro” level of analysis (studying the issues, factors and characteristics of individual cases of resolving disputes), which created a challenge for its contribution to integrative theory-building (O’Leary and Bingham 2003, 16-22). In the context of global environmental change, for instance, Stern et al. (1992, 196-199) formulated four broad conclusions concerning research and theory-building in the area of assessing human-environment interaction: (1) the critical importance of interdisciplinary collaboration; (2) being open to applying new theoretical tools; (3) adopting methodological pluralism through the “dialogue of methods”; and (4) conducting post hoc analysis and evaluation. This study of resource management and ECR practices in the North American Great Lakes is an attempt to address this challenge by designing an integrative multidisciplinary framework for research and analysis. In order to facilitate the integration of multiple issues and participants within one research methodology, a holistic and integrative qualitative research design, which serves as an organizing device and as a guide for collection, analysis and interpretation of data is used in this study.

Figure 5: Exploratory, integrative, and holistic study research design: Exploring environmental and resource conflicts and conflict resolution practices in the coastal areas of the Great Lakes

Phase I: <u>Preliminary research</u>	<ol style="list-style-type: none"> 1. Studying relevant literature and publications; 2. Identifying and formulating a research question and the goals of this study; 3. Identifying and inviting respondents to participate.
Phase II: <u>Data gathering</u>	<ol style="list-style-type: none"> 1. Conducting semi-structured open-ended interviews (via telephone, Internet and face-to-face); 2. Studying relevant documents (such as, policies, regulations, and programs).

Phase III: <u>Data analysis</u>	1. Qualitative analysis of the data using a grounded theory approach.
Phase IV: <u>“Reporting back”</u>	1. Sharing acquired knowledge and “reporting back” research results and recommendations to stakeholders.

Figure 5 presents an integrated research design for gathering and analyzing data on resource management and ECR practices in the coastal areas of the North American Great Lakes. The research project was designed in the form of an exploratory, integrative, and holistic study focusing on stakeholder perceptions of conflicts and conflict resolution practices in coastal resource and environmental management, rather than comparing several projects or case studies.

This exploratory study required a framework for integrating a number of specific research methods and techniques to ensure validity of results and to contribute to designing appropriate recommendations. The research design included four phases: phase I (preliminary research), phase II (data gathering), phase III (data analysis), and phase IV (“reporting back” research results). Throughout the project semi-structured open-ended interview schedules were used, and grounded theory techniques were applied in the analysis of the data. Some photographic images of coastal ecosystems and developments, as well as examples of sharing space between coastal stakeholders were also taken during phase II of the project, and are used as illustrations (see Appendix 4).

3.1. Research site

This integrative and holistic study explores environmental and resource conflicts and conflict resolution practices in the coastal areas of the North American Great Lakes. The overall research site includes the entire coastal region of the Great Lakes, including both its Canadian and US coastal areas. In particular, I attempted to involve respondents from

various geographical locations along the coasts of the Great Lakes to gain a deeper knowledge about environmental conflicts and conflict resolution practices in the entire Great Lakes region as opposed to a single location in the Great Lakes area. As a result, respondents in this study reside and work along the coasts of all five Great Lakes – Lake Superior, Lake Michigan, Lake Huron, Lake Erie, and Lake Ontario. More detailed demographic information about the geographical locations of participants along the Great Lakes coastal area is included in Section 3.3., Description of Participants.

3.2. Sampling

A total of 52 participants from both Canadian and US coasts of the Great Lakes were interviewed for this study. Initially, I contacted 232 potential respondents and invited them to participate in this study. It is important to note that the main deciding factor for inviting a person to participate in this research project was her or his knowledge and practical expertise in the areas related to coastal environmental and resource management, conflict resolution, education, and policymaking. All respondents work in the areas related to environmental and resource issues relevant to the Great Lakes. Moreover, the majority of respondents reside on the coasts of the Great Lakes. At the same time, the goal was to include a group of research participants that would be balanced as much as possible in terms of the following factors: (1) residency (Canada and the US); (2) geographical location (along the entire coastal area of the Great Lakes); (3) professional occupation (related to environmental and resource management and studies in the area); (4) gender; and, (5) age.

Initially, potential research participants were identified through organizations and professional websites, list serves, as well as conference presentations. Moreover, some potential respondents comprised of my own personal contacts, others were identified by

colleagues, and some were identified through their publications and research into environmental issues, resource management and ECR in the Great Lakes. Study subjects included coastal stakeholders who were government employees, representatives of NGOs, coastal residents, academics, scientists and educational professionals⁸. Targeted emails were used to introduce this research project to each potential respondent individually and to invite them to participate in this study.

Participants were also identified by using snowball sampling. Snowball sampling is a method that builds on an earlier data collection and asks key informants to locate other key informants in populations and recommend them for contact (Marshall and Rossman 2006, 70; Bryman 2004, 100). Snowball sampling may be suitable for smaller, hard to sample populations that may contain few members. In this study, snowball sampling allowed me to identify potential respondents especially knowledgeable of ECR and resource management that would otherwise be difficult to locate.

3.3. Description of participants

My study explores local and regional environmental conflicts and conflict resolution practices drawing on the perceptions and knowledge of the key stakeholders from the coastal areas of the Great Lakes. In particular, I wanted to explore environmental conflicts that arise throughout the work of resource managers, water quality experts, environmental researchers and educators, local activists and government officials who work on environmental and resource issues. I wanted to hear their stories, learn about their experiences of dealing with environmental and resource conflicts and to explore the conflict resolution approaches they use. Studying these issues helped me to identify common themes within ECR practices throughout the Great Lakes region.

⁸ One subject self-identified himself as First Nations.

Table 3: Demographic information about the participants

Residency	Canada			US		
Number of respondents	13			39		
Age	20-29	30-39	40-49	50-59	60-69	No answer
Number of respondents	2	11	10	10	13	6
Gender	Female			Male		
Number of respondents	14			38		
Occupation	Activist	NGO	Academic	Bureaucrat	Other	No Answer
Number of respondents	3	5	14	10	16	4

The **residency** of participants in this study refers to respondents residing in Canadian or US coastal areas of the Great Lakes. While every effort was made to attempt to include a 50/50 ratio in terms of residency, the final breakdown between residents of Canada and the US in this study was as follows: 13 participants from Canada and 39 participants from the US (see Table 3).

There are several possible reasons for these differences in the number of Canadian and American respondents. First, out of over 230 people from both Canada and the US invited to participate in this study, the response rate was higher among American participants. Perhaps, this is due to the fact that American coastal areas of the Great Lakes are more densely populated, have more infrastructures and host more governmental organizations, NGOs, and institutions which focus on environmental issues. There are 8 American States that stretch along the American coastal areas of the Great Lakes (Minnesota, Wisconsin, Illinois, Indiana, Michigan, Ohio, Pennsylvania, and

New York) compared to the Province of Ontario on the Canadian side (see Appendix 3: The Map of the Great Lakes). It was also easier to find information about potential participants from the US compared to Canada using various Internet resources, scholarly publications and policy documents during Phase I of the research.

Snowball sampling also produced more potential participants from the US compared to Canada. Respondents from both the US and Canada often recommended that I contact their colleagues from the US when asked to help identify potential participants for this study. As a result, 13 respondents were from Canada and 39 respondents were from the US. While this could be considered one of the limitations of the study, it may also not be as significant as it first appears because the goal was to include the participants who were most knowledgeable in the theory and practice of environmental and resource management and conflict resolution in the Great Lakes coastal areas from both Canadian and American locations.

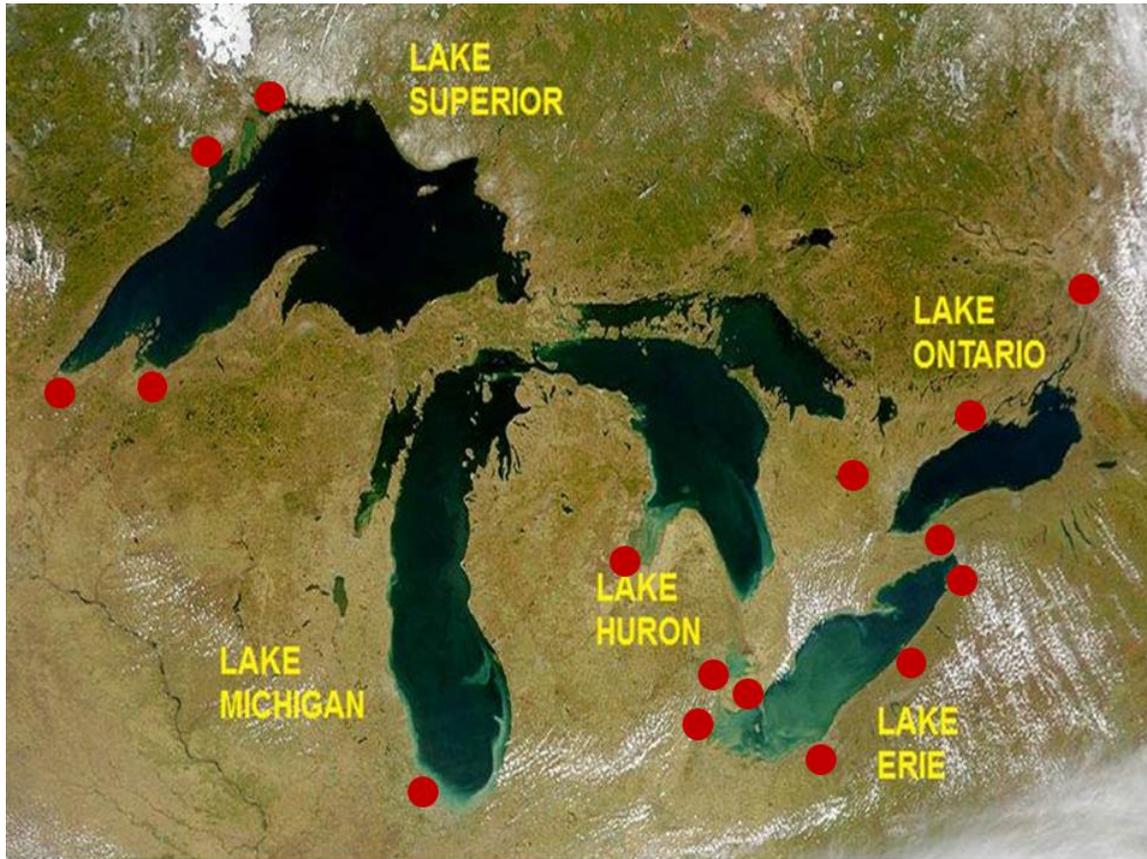
The work of all study participants is related to environmental and resource issues within local areas along the Great Lakes coast. The majority of respondents reside in the Great Lakes region. A small number of respondents work on the Great Lakes regional environmental issues while residing in other American states or Canadian provinces.

The **geographical location** along the coastal areas of the North American Great Lakes was another factor that I included in sampling potential respondents. The goal was to include participants from a number of different locations along the coast from both Canada and the US. This goal was achieved successfully.

A significant number of study participants indicated that their work relates to the entire lake (for example, Lake Erie) or the whole Great Lakes region (on either side of the border, or both in Canada and the US). However, some respondents indicated specific location(s) in the Great Lakes area where their work is mostly concentrated. These areas

are visible in the distribution of the study participants along the coastal areas of the Great Lakes presented in Map 1 below.

Map 1: Mapping research participants



Original map source: Michigan Sea Grant Coastwatch, www.coastwatch.msu.edu

The specific locations identified by the study participants where they reside and/or work include: Toronto, ON; Thunder Bay, ON; Nipigon, ON; Cornwall, ON; Cleveland, OH; Duluth, MN; Buffalo, NY; Detroit, MI; Chicago, IL; North-Western Pennsylvania and Northern Wisconsin. In addition, while several study participants currently reside in other parts of Canada and the US, in their interview schedules they referred to their knowledge and expertise during their current and/or previous work located along the Great Lakes area and related to resource and environmental issues in this region.

Next, the **professional occupation and affiliation** of respondents was critical, because it determined why these particular participants qualify for taking part in this research project. In an attempt to learn about and categorize the expertise of the study participants the following options were offered for them to select: Activist, NGO, Academic, Bureaucrat, or Other (please specify). The general breakdown among the above categories of study participants was as follows: Activist – 3 participants; NGO – 5 participants; Academic – 14 participants; Bureaucrat – 10 participants; Other – 16 participants; No Answer – 4 participants (see Table 3).

Sixteen participants identified themselves with the “other” professional occupation than activist, NGO, academic or bureaucrat. *Other* professional occupations and affiliations of the study participants included: a government research scientist; a municipal utility operator; a member of a non-profit environmental organization; a US Federal Government employee; an extension specialist and systems ecologist; a city employee; a natural resources manager – local unit of Government; a fisheries biologist at a Native American Reservation; a research manager; a land conservation specialist; a Federal Government scientist; a scientific researcher for the Federal Government; a coastal land use specialist working for a Sea Grant; an academic who was also a Government employee working for a Sea Grant; an academic working for a Great Lakes Fishery Commission; and an environmental educator and outreach specialist.

It is also important to note that several respondents emphasized that the term *bureaucrat* may have a perceived negative meaning attached to it, and suggested instead that they be called a *federal government employee, state or city employee, civil servant* or *government service employee*.

Moreover, a small number of the respondents identified themselves as belonging to more than one category. For example, one respondent identified himself as both an

academic and a government employee while another respondent preferred to be defined as an activist, an NGO representative and an academic. The first answer in such multiple responses was counted in the calculation of the total breakdown of professional occupation and the affiliation of respondents. Therefore, the breakdown of the professional occupation categories provides only an approximate calculation of the number of study participants who belong to each professional occupation and/or affiliation.

Gender was also an important factor in the process of selecting participants for this study. During Phase I of this research (selecting and inviting participants) an attempt was made to include a balanced amount of female and male respondents in this study. From over 230 participants who were invited to take part in this study, the potential respondents were approximately 35 percent female and 65 percent male. However, the breakdown among those invited participants who ended up taking part in this study and who provided responses included 14 female respondents and 38 male respondents (see Table 3).

Similar to the “residency” factor discussed above, the gender factor ended up to be less balanced than I had planned, but appropriate nonetheless due to the fact that the main deciding factor for inviting potential respondents to participate in this research project was the relevance of their work to environmental and resource management and conflict resolution in the coastal areas of the Great Lakes. At the same time, the imbalance in gender may be explained by the greater involvement of males in work related to policymaking, post-secondary education and practical involvement in environmental and resource issues and problems.

Finally, adult respondents of many **age groups** participated in this study. The large variety of age groups represented by participants is significant, as age may

contribute to different perspectives, knowledge and experience within the perceptions of the 52 study participants. It was the goal of this study to reach participants of different ages. However, it was not the intention of this study to control the age factor for all of the study participants. As a result, the study included: 2 participants between 20 and 29 years old; 11 participants between 30 and 39 years old; 10 participants between 40 and 49 years old; 10 participants between 50 and 59 years old; 13 participants between 60 and 69 years old; and 6 participants who chose not to disclose their age (see Table 3).

3.4. Protection of human subjects

Participation in this study was voluntary and all participants had the option of remaining anonymous. The research participants were initially contacted by email to introduce each person to the research project and to invite their involvement in the study. No mass emails with invitations for participation were sent out, and further communication did not involve any mass emails.

Although a risk does exist that participants could be identified by their responses once made public, the research was not mandatory, the names of respondents were kept confidential, and consent forms instructed participants how the data would be used (see Appendix 2: Participant Informed Consent Form). All research participants were asked to provide their informed consent and were informed of their right to withdraw at any stage from the research study. The informed consent form received by each respondent outlined the parameters of the research, the intended use of the findings and their rights regarding both participation and withdrawal from the study. Consent forms also informed participants that they had the chance to read through their responses and either make necessary changes or remove any content from their contributions. The participants who used the online option of responding indicated their consent by answering the question,

“Have you received the consent form and having read it agree to contribute to this study?” In the face-to-face and telephone interviews the respondents were asked to give their verbal consent to participate in this study. All of the respondents were informed that they had the opportunity to review their responses and make changes, and that their contributions will be destroyed within five years of the study’s completion.

The participants in this research study had the option to identify themselves by name, institution, credentials, or to remain anonymous. In research analysis and data reporting confidentiality is maintained by assigning each respondent with letter identification (for example, Respondent TG). The letter identifications are not initials. Further, the respondents in data reporting are identified by their general, non-specific, geographic location and a general description of their specific work in environmental and resource management and conflict resolution (for example, an academic from Ontario).

Confidentiality is further maintained by carefully securing the contact information of each participant in a locked cabinet on two digital jump drives (one for back-up). Digital text files and audio files containing information, notes, contact information, and interview transcripts are only available to me and the files will remain in a locked cabinet and will then be destroyed five years after research completion. No group emails were sent, eliminating the possibility of respondents learning the names and/or contact information of other respondents that I contacted.

This research did not involve any deception and I was not interested in coercing responses from participants. No compensation or payments were made to respondents for participating in this study. Only voluntary consensual responses are included in the research dissemination.

3.5. Risks and benefits to the participants

This study did not intend to cause respondents any emotional stress. However, there is a possibility that research participants who have experienced conflicts over environmental or resource issues may have felt uncomfortable relating their personal experiences. The participants were always free to withdraw their participation from the study at any time for any reason, including emotional stress. Moreover, the informed consent form also included the contact information for two Canadian and two American counseling services should the participants have felt the need to seek support.

The risks involved in this study were minimal for respondents because they were in control of their contributions, had options regarding feedback methods, and could withdraw at any time. Some participants may have found it time consuming or emotionally taxing to contribute to this study and some may have chosen to withdraw from the study. The opportunity for a low responsive rate did exist, and as a preventative measure to address this in advance, I identified and contacted over 230 potential participants. Approximately every fourth invited participant contributed to this study as the total number of respondents was 52.

This research project represents an opportunity for coastal stakeholders to share their opinions, knowledge and perceptions of environmental and resource conflicts and conflict resolution practices. Therefore, this study may have provided participants with a valuable outlet to communicate their knowledge to outsiders and invite further research into the challenges and opportunities of coastal resource management and environmental conflict resolution. The participants will be informed when/if research materials become published by email. Moreover, it is a goal of this study to develop a conflict resolution system design for environmental and resource conflicts based on the data generated and

analyzed during this research. This conflict resolution system design will be shared with research participants for their use and development.

3.6. Research method

This is a qualitative multi-sited exploratory study. A combination of self-administered (typed or handwritten) and oral (verbal) interviews was used to collect data from 52 respondents who are key stakeholders in environmental and resource management and conflict resolution from various locations in the Great Lakes area. An elicitive grounded theory approach was used to analyze interview responses to articulate new findings to the existing discourses as the themes emerged inductively from the data (Bryman 2004, 401-408; Rubin and Babbie 2008, 418-422).

This exploratory, integrative, and holistic study does not focus on a theory-driven, hypothesis testing, and generalization-producing approach. The narratives of the respondents in this study reflect their worldviews and experiences, and what they perceive to be some of the underlying issues that generate conflict and the kinds of structures that need to be established to address those issues in the Great Lakes area. In this study I identify how the respondents perceive environmental and resource conflicts to better understand what issues need to be looked after (policy, environmental impacts, etc.). The data were analysed inductively to draw themes from interview transcripts using in-depth, repetitive examination. Data analysis was conducted with the help of grounded theory (Dey 1999), which focuses on the inquiry and the broadening of understanding of human nature and human behaviour in particular social contexts (Benoliel 2001, 7-8).

Some elements of the Delphi research methodology are used in this study. The standard Delphi methodology was described by Radford (1977, cited in Miller and Cuff 1986, 322) as a “systematic gathering of information held by a number of individuals on

a given subject. The procedure consists of submitting a sequence of questionnaires to the individuals concerned in a number of rounds.” Generally, a researcher that uses Delphi methodology corresponds with experts in a particular field by mail, email or face-to-face to gather and analyze their opinions of specific questions regarding the research topic (Miller and Cuff 1986; Taylor and Ryder 2003; Miller 2001; Reynolds 2011). Delphi methodology may be used in a variety of environmental related research topics, including environmental assessments and forecasting (Ying and Kung 2000) as well as mediating environmental disputes (Miller and Cuff 1986).

My study is both descriptive and analytical, and it focuses on environmental and resource conflicts and conflict resolution practices applied by key stakeholders in the coastal areas of the Great Lakes. The choice of qualitative methods as the main research methodology of this study is based on the characteristics of such methods that highlight the potential for more in-depth understanding of the issues at stake, of the interests and needs of participants, of relationships among the stakeholders, as well as their perceptions of the environment and its resources. “Qualitative methods are essentially descriptive and inferential in character” because they focus on the evidence that provides an understanding of issues and processes being researched (Gillham 2000, 10). At the same time, quantitative projects are often informed by qualitative decisions and choices (Druckman 2005, 8) while qualitative analysis may benefit from quantitative data at various stages of research. Moreover, it is important to keep in mind the complementarity of both quantitative and qualitative approaches: “in mutual dialogue, the two methodological enterprises can yield more complete insights into social processes” (Schrank 2006b, 173). According to Detlef Sprinz (2004, 178), there are five general themes within international environmental policy that are the focus of quantitative research: “(1) the effects of economic development, abatement costs, and democracy on

pollution patterns, (2) the debate of the effects of the growing trade on environmental degradation, (3) regulatory issues, (4) the link between environmental factors and violent conflict, and (5) the formation and effectiveness of international regimes.” While this study does address some of the aforementioned issues, its goal is to elicitively explore and analyze a variety of environmental conflict resolution practices in an attempt to develop an integrated approach to environmental conflict analysis and resolution.

3.7. Research instrument

The research instrument was developed based on a comprehensive study of the relevant literature as well as an initial mapping of potential study participants. The research instrument consisted of two sections. The first section included general questions aimed at collecting demographic information from the respondents. The second section consisted of specific exploratory open-ended questions aimed at answering the research question of this study. These questions were asked with the goal of learning about the perceptions and experiences of participants regarding each research question based on their knowledge, experience and expertise. All participants received the same set of questions in the same order. A copy of the research instrument is provided in Appendix 1.

3.8. Data gathering

This exploratory, integrative, and holistic study began with an extensive review of the academic literature concerning environmental and resource conflicts in the area of the Great Lakes, including the role of public policy, ADR, education, stakeholder participation and dialogue in resource management. Further, open-ended semi-structured interviews were used in this study. The data collection utilized a combination of self-

administered and personal interviews. The interviews were conducted via phone, via email and face-to-face.

In this study, interview schedules were used to collect data by asking the participants about their perceptions and points of view with regards to 11 open-ended questions (see Appendix 1). The interviews were conducted between May and September 2010 and included 52 individual participants who were particularly knowledgeable in environmental and resource-related issues in the Great Lakes area, and who can be referred to as *key informants* according to the classification designed by McMillan (2008, 281-282).

While conducting interviews with multiple participants may be time-consuming, include additional traveling costs, and may present a difficulty of “independently verifying the information if it is not published or publicly available” (Pearson d’Estree and Colby 2004, 64) for individual exploratory studies, interviewing is “practicable and probably essential” (Gillham 2000, 61). Face-to-face interviews provide an advantage of the ‘richness’ of communication while telephone interviewing is a possible alternative in cases where the accessibility of participants is problematic (Gillham 2000, 61-62). At the same time, using the Internet and email to conduct qualitative interviews has become “part and parcel of much scholarship in the social sciences and applied fields” (Marshall and Rossman 2006, 130). For example, Claire Hewson (2008, 544-545) provides multiple examples that illustrate the growing popularity of Internet-based research methods in the social sciences reflected in a wide-range of emerging publications in academic journals, textbook chapters, and university research methods courses. Moreover, interviewing via email can be especially effective in: (1) providing access to a broad and diverse group of potential respondents (Hewson 2008, 546); (2) reaching large groups of “specialized populations” (Fontana and Frey 2003, 97); and (3) facilitating an interview process that

involves less financial resources (Bryman 2004, 470). Indeed, the advantages of the chosen qualitative approach to complete the research included the possibility to conduct face-to-face, telephone and email interviews, which generated a large amount of rich data from respondents from a broad geographical location. Many interviews included follow-up questions and discussions, and a number of respondents also shared documents and Web links that provided more detailed information about conflicts and conflict resolution approaches they referred to in their interview schedules (such as, policy documents, descriptions of case studies, coastal management programs and conflict resolution approaches). A number of respondents welcomed follow-up discussions throughout this project and expressed their willingness to participate in further research on this topic. Using telephone and email communication facilitated my follow-up questions and discussions with some of the respondents.

The research participants were initially contacted by email to introduce each person to the research project and to invite their involvement in the project. The participants were invited to either complete an interview schedule sent by an email attachment or to be interviewed by me in person face-to-face or by telephone. The face-to-face and telephone interviews were tape recorded and transcribed verbatim. The transcripts of individual interview responses were sent to participants by email so they could verify, clarify and, if necessary, alter their responses. In some instances, the responses justified follow-up questions to explain or expand on prior answers.

Out of a total of 52 interviews 6 were telephone interviews, 1 was a face-to-face interview and 45 were interviews via email. The process of carefully selecting and inviting respondents was the same in all interview cases. The questions asked were also the same in all interviews. The only difference was that during the telephone and face-to-face interviews I asked the questions verbally and in email interviews the questions were

asked and answered in a written form. During telephone and face-to-face interviews I received verbal answers, recorded them, transcribed them and then sent transcriptions to my respondents to verify their answers. During email interviews, the respondents received their questions by email, and then were free to answer the questions at a time that was convenient for them and to eventually send me back their answers by email. The length of the verbal interviews was approximately one to one and a half hours. The length of the email interviews was determined by the respondents because they could choose the timeline for their answers. In most cases I requested the answers within approximately two to three months from the time the interview schedules were sent to each respondent. Initially, it was planned to have a balanced number of face-to-face, telephone and email interviews. However, due to a number of challenges that came up during this research, the majority of interviews ended up being conducted via email. These challenges and my efforts to address them are discussed in detail in Section 3.12.4., *Challenges with data gathering*.

The photographic images, which supplement the interviews and provide some examples of environmental and resource issues discussed by the study participants were collected by me during my research trip to the coastal areas of Lake Ontario in the summer of 2010. This trip was planned to observe the coastal areas of Lake Ontario and to explore in more detail some of the specific examples of multiple ways coastal stakeholders use coastal resources and share coastal space, and to attempt to visualize other relevant examples discussed by the respondents. Some of the photographic images collected during this trip are presented in Appendix 4.

The importance of being open to using multiple approaches and techniques in research is discussed by a number of social science scholars (Maoz 2002; Maoz et al. 2004; Bennett 2004, 19; Druckman 2009, 119; Sprinz and Wolinsky-Nahmias 2004;

Gillham 2000, 2; Kacowicz 2004, 120-121; Schrank 2006a, 34). Moreover, it is especially important for qualitative researchers to be creative and open-minded conducting research studies and using various qualitative research methods (Gillham 2000, 18-19; Levy 2002, 152). For example, Day and Farenden (2007) discuss a multi-faceted and multi-level approach to community network analysis and the research of community communication technology. The approach taken in their study included a variety of qualitative research tools and techniques: exploiting existing information sources; in-depth interviews; mapping; storytelling interviews; reflective and scenario workshops; and transect walks and observation (Day and Farenden 2007, 77).

In the context of my study of environmental conflict resolution in coastal areas of the Great Lakes, a qualitative multi-level approach based on in-depth oral and written interviews as well as the study of relevant documents and policies, provides a framework for identifying stakeholders, and their interaction and participation in decisionmaking. It also provides a framework to study and analyze stakeholders' needs, values and interests, issues at stake, and stakeholders' perceptions of environmental and natural resources conflicts. This method further facilitates conflict analysis, the study of conflict resolution processes, the evaluation of programs that already exist and ways to improve them, as well as to design new interventions.

3.9. Data processing and analysis

This study generated a large amount of data from 52 interview schedules, 7 of which were transcribed by me, while the remaining 45 were typed or handwritten by the respondents. Furthermore, a number of additional documents were shared with me by the respondents via email and Internet links. All transcribed, typed and handwritten interviews were analyzed inductively by me using the *grounded theory* method.

Qualitative software was not used in this study due to the limitations that this software creates in terms of the risks of missing important points and themes.

According to Rubin and Babbie (2008, 418), a grounded theory starts with “observations and looks for patterns, themes of common categories.” My study involved reading through the data several times and identifying key points, themes and topics related to environmental and resource conflicts and conflict resolution approaches in the Great Lakes. Grounded inductive research does not start with a hypothesis, which has to be further confirmed or rejected based on the data analysis. Generally, grounded theory research studies aim at generating or discovering a theory or schema within a particular research area (McMillan 2008, 13). Moreover, in grounded research the previously acquired knowledge directs the “search for generalities’ in the process of data analysis (Babbie 1998, 283). Therefore, the theory or hypothesis developed within a research study is grounded in or derived from the data, which have been collected in the framework of this research project (McMillan 2008, 293).

The data analysis in this study involved deriving general principles and themes from the rich qualitative data using a coding system that was developed based on repeated reading of the data. The data were coded into specific components, which emerged inductively from the data analysis. As a result of the data analysis a number of concepts were derived. According to Alan Bryman (2004, 405) “concepts and categories are perhaps the key elements in grounded theory... [they] are at the heart of the approach”.

The coding system was analytic and focused on details, nuances and subtleties of the collected data (Dey 1999, 11). The data was analyzed by me line by line with the help of a coding system I developed following the guidelines suggested by Glaser (1978). The coding system was directed by the theoretical relevance because this study was not aimed

at gathering evidence to support or reject a particular hypothesis (Dey 1999, 96). The data was coded with the goal of identifying categories of information relevant to environmental conflicts and conflict resolution practices in the coastal areas of the Great Lakes. These categories were analyzed inductively, and they subsequently formed sections and subsections of Chapters 4, 5 and 6. For example, these categories included “conflicts related to water” (Section 4.1.), “public policy, policymaking and regulation” (Section 5.1.) and “public participation and governance” (Section 6.1.).

Moreover, there are various options for presenting the theory utilizing a grounded theory approach including formulating hypotheses, using a visual model or diagram, using stories, or the combination of the above approaches (McMillan 2008, 294). One of the goals of this study was to develop new components and considerations within ECR theory with the help of the grounded theory approach.

The advantage of conducting qualitative data analysis using the grounded theory approach, by carefully and systematically studying and analyzing interviews and additional documents shared by the respondents is in the opportunity it provides to identify each theme/topic manually, make notes along the way and create a system of codes that would reflect the findings of this study in a more clear, representative and inclusive way. One of the disadvantages of this approach is that it is more time consuming. However, I believe that this disadvantage is justified as the extra time spent on analysis increased the quality of the research and contributed to the significance of the conclusions and recommendations made in this study.

3.10. Triangulation, validity, and reliability

Triangulation generally refers to the use of a variety of different sources and methods of data collection in research with the purpose of enhancing the validity, credibility and

reliability of the research findings (Bogdan and Biklen 2007; Rubin and Babbie 2008). Reliability and validity are the two key concepts related to research methods (Rubin and Babbie 2008, 180). There are several ways to ensure validity and reliability in qualitative research including: (1) triangulation; (2) examining and comparing different sources of information for consistency; (3) asking respondents whether they think that a researcher gained an accurate understanding of a particular phenomenon; and (4) conducting research at various times, as well as in different places and contexts if applicable (Rubin and Babbie 2008, 197).

In this study a variety of resources were used to ensure validity and reliability. The resources used in this study included interviews, organizational reports and publications, Internet resources provided by the respondents, program descriptions, as well as observation of coastal environmental issues. I have conducted a comprehensive review of the relevant literature covering the research topic, including the scholarly publications, media reports and publications, as well as various research reports. This extensive literature review contributed to the reliability and validity of the themes discussed further in the interviews with the respondents. Moreover, the methods of data collection included interviews conducted face-to-face, via telephone and using emails, which provided an opportunity to collect both verbal and written narratives of various lengths and depths from respondents coming from a large geographical area of the entire coastal region of the Great Lakes. Finally, I used observation techniques and took photographic images of coastal environments in the Lake Ontario region.

3.11. Challenges during the research process

It is important to address a number of research challenges that I faced during this study. Researchers often encounter a number of various challenges in their work, and the way

they deal with these challenges may significantly affect both the process and the outcome of their research. In this study, I faced the following challenges related to the research process: (1) interpreting the data; (2) addressing the issue of researcher neutrality; and (3) challenges related to data gathering.

3.11.1. The question of interpretation

Analyzing research data, drawing conclusions, and designing recommendations is tied to a researcher's unique understanding and interpretation of this data. In a certain way, "interpretation is transformation [which] brings out and refines... the meanings that can be sifted from the text, an object, or slice of experience" (Denzin 1998, 322). Researchers may be perceived as translators of words and actions of the participants to the audience that the researcher is trying to reach (Corbin and Strauss 2008, 49). Studying the context of environmental conflicts was also very important in addressing the problem of interpretation of data because "context not only grounds concepts, but also minimizes the chances of distorting meaning and/or misrepresenting intent" (Corbin and Strauss 2008, 57). The transcription of data is also an interpretive practice (Riessman 2008, 50). A researcher is taking on a difficult task and a responsibility to be knowledgeable, accurate and ethical in gathering, analyzing and sharing the research data. At the same time, "prior theory serves as a resource for interpretation" of data (Riessman 2008, 73) including spoken and written narratives.

Another important issue that can illustrate a researcher's interpretation is the way a researcher is presenting the data. For example, "there is a tendency among some researchers and some disciplines to do less analysis and more quoting, leaving the interpretation up to the reader" (Corbin and Strauss 2008, 318-319). While the significance of including longer direct quotes may be in providing more evidence for the

case and a more fascinating reading, according to Corbin and Strauss (2008, 319) “it doesn’t provide the reader with any framework for making sense out of those readings.” In this study I provide a balanced amount of direct quotes of various lengths along with my interpretation of the data. In addition, I provide a strong foundation for interpretation in the framework of this study by including a comprehensive theoretical background of the issues discussed.

The interpretation of data may bring about the following considerations and questions: “who is interpreting and how?”, “what are the reasons and the circumstances for interpretation?”, and “is the interpretation accurate and can it be authentic?” For example, the issue of interpretation of data runs through most of the readings on indigenous research methodologies (Cruikshank 1998; Smith 1999; Dei et al. 2000; McLeod 2007). In oral narratives interpretation is critical, as each storyteller presents the story in conversation by memory on a particular occasion and to a specific individual or group, and interprets the narrative in a unique way every time (Senehi 2009). According to Cruikshank (1998, 2) “meaning does not inhere in events but involves weaving those events into stories that are meaningful at the time. Events, after all, are stories known directly only to those who experience them and interpret them to others, who in turn make their own interpretations of what they hear.” McLeod (2007, 17) further discusses the interpretation of data as follows,

... Oral traditions can be considered open-ended: different elements of the story can be emphasized during a single performance, which can be characterized as the occasion of telling. In other words, there can never be a complete authoritative performance of a narrative because the audience and the demands of the occasion will always vary. Furthermore, a narrative can never be exhausted, because the dynamics between the teller and the listener will also vary. The story will always be understood in slightly different ways, depending on the experiences of the people listening.

The interpretation of respondents' images and perceptions in their interviews by a researcher becomes even more challenging in the case of open-ended qualitative interviews with multiple participants. In this study, I made every attempt to present and interpret the data accurately and comprehensively. I paid equal attention to details in all responses, and attempted to be neutral and objective in data presentation and analysis. Moreover, research in these contexts required that I practiced impeccable research ethics, a respect for my study participants, and openness to their constructive criticism. In addition, gaining competence in a variety of research methods helped me access, document, and analyze information from a variety of sources. For me, learning in the framework of this study is an ongoing process.

3.11.2. Neutrality of researcher

The neutrality of a researcher, mediator, or third party in negotiation is highly debatable (Mayer 2004; Weiss 2004, 155). For example, while general guidelines for mediators emphasize the importance of neutrality and objectivity of the third party (Umbreit 1995), in practice it is unclear whether it is ever possible to remain neutral in any situation, and especially in situations involving violent actions, injustice and discrimination. In addition, the political affiliation, personal values and beliefs, gender, as well as ethnic and cultural identity of a researcher or mediator influence their perceptions of, and attitudes toward a situation, event or concept they are addressing. Finally, objectivity may also be regarded differently by different people – what seems objective for a non-indigenous researcher may be seen as biased by a representative of an indigenous community and visa-versa.

Moreover, Winslade and Monk (2000, 34-35) discuss the issues of neutrality and objectivity of a third party as an assumption built into the problemsolving model of

mediation, which seeks “generation and application of universal cultural truths.” Bernard Mayer (2004, 3) also suggests that one of the challenges of conflict resolution professionals is to “change our view of ourselves from neutral conflict resolvers to conflict engagement specialists”. In addition, Linda Smith (1999, 55-56) refers to neutrality and objectivity through understanding distance, both in time and space, which separates the researcher from the researched. However, while distance is measurable, objectivity is not (Smith 1999, 56).

One of the factors that contributed to my neutrality in this research project was the fact that I am an “outsider” to the practice of environmental management and conflict resolution in the Great Lakes area. While this topic interests me as a researcher, I come from a different culture and geographical area (Russia), and am not involved in the practical application of environmental and resource conflict resolution strategies in this region. This reduced my possible biases regarding particular themes or specific locations explored within this study, and allowed for genuine interest and curiosity to guide the data collection process while I attempted to remain a neutral observer and researcher.

As a researcher who is an “outsider” to the Great Lakes region, I tried to follow valuable recommendations found in the academic and practical literature on research methods, for example in the *Handbook of Critical and Indigenous Methodologies* (Denzin et al. 2008). In particular, I attempted to earn trust by being genuinely interested in learning about the work the respondents do, by being humble and acting transparently about my research, and having good intentions to use the research results in ways that will not harm but will benefit the study participants. I also addressed the challenge of being an outsider for many respondents by carefully studying the contexts and backgrounds of environmental and resource problems in the Great Lakes area.

At the same time, I would argue that complete neutrality or objectivity is not possible in research. Individual perceptions and actions reflected through personal beliefs, values, experience, history, upbringing and education will always be unique for different people and will affect the research process and the objectivity of the research results. However, there is a difference between conflict resolution professionals and researchers concerning neutrality. While the main task of the former is to assist parties to resolve conflicts, the latter may have a larger variety of goals including raising awareness about conflict, building theory, designing interventions and drawing policy recommendations. In this sense, a researcher is responsible for the implications of her or his work in a variety of different fields. Therefore, while achieving complete neutrality and/or objectivity of a third party intervener and/or a researcher is problematic, it is important that they make every effort to remain unbiased and objective to the best of their ability while conducting their research and work.

3.11.3. Challenges with data gathering

It is important to reflect on the process of gathering data and identify what worked well and what may require adjustments in the future research of similar topics. One challenge I faced was to find a proper balance between asking very specific questions that I was really interested in and, at the same time, making the questions broad enough to allow respondents to be open and unrestricted in sharing their knowledge and experience. This challenge is related to one of the problems for researchers who use open-ended interviews – the need to be especially keen on “reading” and “interpreting” interviews and drawing out meaningful and important information (Piore 2006, 145).

In this research project, semi-structured interview schedules allowed for an effective balance between being open to asking broad questions and staying focused on

particular issues and questions within this study. As a result, the questions I eventually asked were both specific and broad, which some may perceive as a limitation and others may see as an advantage in this type of research. I found this approach to be advantageous because the respondents created a starting point within our discussions on various topics related to environmental and resource management in the coastal areas of the Great Lakes. In particular, along with more general questions such as, ‘What environmental and/or resource issues and conflicts exist in your area of the Great Lakes?’ I also asked more specific questions, for example, ‘What is the role of education in environmental and resource conflict resolution?’ (see Appendix 1).

Another challenge during the process of data gathering in the framework of this study was to obtain a balanced amount of face-to-face, telephone and email interviews. It was initially planned to conduct a relatively similar amount of qualitative interviews using three different methods: face-to-face, via telephone and by email. However, a number of challenges occurred, which significantly reduced the amount of face-to-face interviews I conducted. In particular, the challenges of conducting face-to-face interviews were caused by: (1) the lack of funds (I had very limited research funding, which could not cover the costs of travelling for interview purposes); (2) family commitments (my husband worked night shifts and I could not leave our young daughter with him and travel around the Great Lakes by myself. Taking her with me on such a journey was also not an option); and (3) time restrictions (connected with both previous challenges, I had time restrictions for conducting this research due to the need to return to my two part-time jobs to be able to support my family and my PhD education). Consequently, a large geographical area stretching along the entire coast of the Great Lakes was difficult to cover conducting face-to-face interviews due to these aforementioned challenges.

Moreover, there was also a relatively low number of telephone interviews due to an unforeseen challenge that emerged during the process of selecting and contacting study participants. Overall, I identified and contacted 232 potential respondents who were key stakeholders from both Canadian and American coasts of the Great Lakes. Some of them initially agreed to participate in this study. However, many then informed me that they were too busy with current projects and assignments to participate in telephone interviews. In the initial stages of contacting the participants I also received few replies from potential respondents, which was discouraging. As a result and following the initial research proposal, which outlined a qualitative approach within this study, I concentrated on email interviews. Internet-based data collection methods may draw on already established research instruments, and have the capacity to facilitate cooperation among a researcher and her/his respondents (Marshall and Rossman 2006, 133; Standish 2012). It turned out that conducting qualitative interviews via email brought about a number of important advantages:

- 1) Qualitative interviews via email allowed me to follow the original plan of this research project and collect data from coastal stakeholders from all around the Great Lakes, as opposed to focusing on only one or two specific research sites. This was very important because this exploratory, integrative, and holistic study aims to explore environmental conflicts and conflict resolution practices in the entire coastal region of the Great Lakes. The advantage of reaching study participants who are located far away from the researcher using Internet-based qualitative interview methods are discussed by Marshall and Rossman (2006, 133) and Bryman (2004, 470).

- 2) Conducting qualitative interviews via email allowed me to interview a large number of respondents – I eventually interviewed 52 stakeholders from all around the

Great Lakes. According to Hewson (2008, 546), using Internet-based research has an advantage of providing access to a broad and diverse group of potential respondents.

3) Qualitative interviews conducted via email significantly enhanced the time and cost efficiency of this research project while interview responses sent via email also eliminated the time needed to transcribe interviews and the cost associated with transcriptions. These advantages of conducting qualitative research with the help of Internet-based methods are also discussed by Hewson (2008, 546), Bryman (2004, 470) and Standish (2012).

4) Responding to the interview questions by email turned out to be more convenient for many respondents because in this case they were more flexible in choosing: (a) how much time to spend on the answers; (b) the scope of their answers to each question; and (c) when they chose to reply to me. Moreover, according to Marshall and Rossman (2006, 133), Internet-based data collection methods have the capacity to facilitate follow-up for the purposes of clarification. I indicated that I would start my data analysis in about 2 or 3 months after the initial email invitation to participate in this study. Therefore, most participants had approximately 2 or 3 months to respond and email their responses back to me. In the meantime, the study participants had an opportunity to contact me for any follow-up questions and requests for clarification, which a number of them did in fact do. I believe that the flexibility that came with an email interview option has increased the number of people choosing to participate in the study, and allowed them to think through their responses carefully and ask for further clarifications if needed. It is also possible that the replies were more frank and balanced because each person had time to think over answers before he/she replied compared to face-to-face or the telephone interview options.

In the process of data collection several respondents expressed that they would like to be interviewed by phone. Moreover, the respondent that was interviewed face-to-face also wanted to be interviewed face-to-face, because of his nearby geographic location to me. The other respondents participating in this study did not express that they wished to be interviewed face-to-face. As a result, the respondents participated in the process in a way that was most convenient for them. Consequently, I conducted most of the interviews by emailing out interview schedules and receiving responses by email. The responses often included follow-up questions and attachments with relevant documents and additional information. At the same time a balance between oral interviews and written responses sent to me via email or regular mail was also very beneficial, offering me a variety of responses from clear and concise formulated written formats to longer and more detailed and broader oral responses with lots of examples from different areas of related work. Consequently, the research project is based on extensive and rich data through the interviews of 52 coastal stakeholders using a combination of telephone, face-to-face and email qualitative interviews.

3.12. Strengths and limitations of the study

While in general the significance of an exploratory and integrative study research design is largely in connecting research results to theory (explaining theory, testing theory, and developing theory), the goal of the present study design was primarily in developing practical implications based on its findings while at the same time attempting to contribute to developing theory. In particular, the practical value of this study was in attempting to contribute to designing effective policies in coastal resource management, and in developing appropriate conflict resolution and conflict transformation strategies and interventions. The theoretical value of this study is in developing an integrated and

holistic approach to analyzing multiple issues within coastal resource management; studying the needs, interests, values, and relationships between various coastal stakeholders; as well as enriching conflict resolution theory with examples and practices of addressing environmental and resource conflicts in coastal zones. The study also contributes to further investigating such problematic issues as defining effectiveness and/or success in conflict resolution interventions (Druckman 2005, 302; Pearson d'Estree and Colby 2005, 15).

The possible limitation of this approach may include the concern about “generalizability” or the limited ways to generalize from a single exploratory and holistic study to many local cases on both sides of the Great Lakes (Bogdan and Biklen 2007, 66-68). Another possible limitation of this study is that it is based on a relatively broad set of questions and involves respondents from multiple sites within the coastal region of the Great Lakes. An attempt to explore various dimensions of an integrated approach to environmental conflict resolution based on multiple individual environmental conflict resolution practices may be considered by some critics as a rather broad focus for this study. Yet the interdisciplinary integrated and holistic approach is an established method in the field in terms of community based conflict and conflict resolution studies (see for example, Armitage and Plummer 2010; Byrne and Keashly 2000; Diamond and McDonald 1996; Standish 2012).

In order to address the possible limitations of this particular research design including critical considerations concerning the validity and interpretation of the data within a single exploratory, integrative, and holistic study as well as the validity of this approach to collecting and analyzing data, a number of steps may be taken. For example, Catherine Riessman (1993, 68) suggested “(a) describing how interpretations were produced, (b) making visible what we did, (c) specifying how we accomplished

successful transformations, and (d) making primary data available to other researchers”. Following the above recommendations, this Chapter describes the research process in detail, paying specific attention to outlining the processes of selecting respondents, gathering data and conducting qualitative data analysis. Moreover, the relatively broad context of this study is justified by the existing gap in the academic literature, which indicates the need for integrative, holistic, interdisciplinary and multi-sited studies of environmental and resource conflicts and conflict resolution practices.

Another possible limitation of this study is that it relies on a relatively large number of qualitative interviews conducted via email (45 interviews) and a relatively small number of verbal interviews via telephone (6 interviews) and face-to-face (1 interview). Some of the potential disadvantages of conducting qualitative interviews via email include: (1) the inability to reach people who have no Internet access (Bryman 2004, 470; Hewson 2008, 547); (2) invitations to participate in a research project sent via email may be disregarded by potential respondents as “junk mail” (Bryman 2004, 470); and (3) it may be difficult to establish rapport between a researcher and study participants due to the lack of eye contact and no opportunity to read facial expressions, the tone of voice and other visual and non-verbal cues (Bryman 2004, 470; Hewson 2008, 548-549). Awareness of the aforementioned potential limitations allowed me to address them in the process of conducting research and data gathering as follows.

First, the vast majority of potential respondents within this study had access to the Internet. Today the level of Internet access in North America is very high, and many potential study participants were identified because of their active professional networking and widely disseminated publications on environmental and resource issues in the Great Lakes region that are available on the Internet.

Second, in order to address the possible low response rate among potential respondents who received my invitations to participate in this study via email, I contacted over 230 potential study participants with the goal of interviewing at least 40 respondents. This goal was reached and exceeded; the final number of study participants is 52. Third, the difficulty of establishing rapport with interviewees due to the lack of face-to-face interaction may be considered one of the most significant limitations of this research project. However, my emphasis was on learning about the respondents' perceptions, knowledge, stories, experiences, and the facts they shared about environmental and resource conflicts and conflict resolution practices. While extra linguistic and non-verbal cues facilitated by more face-to-face interaction could have added more depth to the discussions with my respondents, the qualitative approach used in this study allowed me to address the research question comprehensively and in great detail.

Despite these limitations, my research design had a number of advantages. First, the validity of this single exploratory and integrative study design benefited from (1) multiple observations within this study (see Mitchell and Bernauer 2004, 88), (2) an attempt to integrate a variety of issues at stake, and (3) the study of the perceptions and images of multiple stakeholders. Second, open-ended semi-structured in-depth interview schedules, along with the analysis of documentation and the evaluation of existing coastal management programs provided an opportunity for me to use multiple lenses and apply a number of research tools for the analysis of the data. Third, using a combination of face-to-face, telephone and email interviews was an advantage because it facilitated my access to a large and geographically diverse group of study participants despite the hurdles I faced due to their busy schedules and remote geographic locations, and despite the lack of funding support for this project and the time limitations.

3.13. Conclusions

This exploratory, integrative, and holistic study, which is both descriptive and analytical, explores environmental conflicts and conflict resolution practices in the coastal areas of the North American Great Lakes. It has the goal to develop both theoretical and practical implications in resource and environmental management and ECR.

It is crucial to choose appropriate research methods and tools for studying the issues related to environmental and resource conflicts. These qualitative tools allow a researcher to perform her/his task efficiently and to conduct a comprehensive study with minimum bias. In this study I used qualitative interviews and a grounded theory approach to analyze the interests, perceptions, needs, rights and responsibilities of stakeholders on the coasts of the Great Lakes.

The application of various qualitative research methods and techniques may facilitate further research in multidisciplinary ECR. The diversity of issues, stakeholders and interests in coastal areas calls for researchers to design integrated frameworks and research methodologies for studying and analyzing individual and multiple cases. The benefits of such research include: raising awareness about coastal conflicts; sharing knowledge about conflict resolution techniques and interventions from coastal areas case studies worldwide; developing best practices and designing appropriate interventions; as well as facilitating dialogue between multiple coastal stakeholders concerning conflicting issues. The next three chapters present and analyze the data on environmental and resource conflicts and conflict resolution practices.

Chapter 4: Conflict analysis: Environmental and resource conflicts in the North American Great Lakes and stakeholders involved in them

Differing jurisdictions, differing ways of communicating issues and addressing issues, differences in the amount of financial resources available to address problems, and differences in how problems are addressed/remediated. These are all challenges.

(Respondent AZ)

Introduction

There are many possible ways to structure or group the multiple resource and environmental conflicts that occur in the Great Lakes area. The challenge for categorizing these conflicting issues is that while there are so many different environmental and resource issues and conflicts, most of them are also interconnected. For example, an academic from Wisconsin (Respondent AW) structured his response about existing conflicts by grouping them under three key headings: land use management, in-lake management and sustainable development. Another example was provided by a Field Unit Superintendent with Parks Canada from Ontario who named a total of twenty six environmental conflicts and issues but also highlighted what he considered as the three key fundamental conflicts,

Respondent AK: I think the major issues are related to integrated coastal zone management concepts, and how those concepts could be applied to all of the issues that I have identified in my answer... So if I were to really narrow it down, those three areas: approaching these issues from social and ecological systems perspective; addressing continuing contamination of watersheds and of the Lake itself; and then trying to address loss of habitat, continued fragmentation of the landscape.

My respondents discussed numerous environmental and resource issues relevant to the Great Lakes area including local, regional and cross-border conflicts, most of which are

interrelated to a greater or lesser degree. Table 4 below includes an overview of environmental and resource issues that according to the study participants, are relevant to the Great Lakes area. Some of these issues were mentioned more often than others. For example, thirteen participants highlighted invasive species as an environmental conflict relevant to the Great Lakes. While I have grouped the responses into 21 different categories, many of the conflict examples are interrelated and may belong to more than one category. For example, the issues related to water quality in the Great Lakes are connected to almost all of the other categories in Table 4, and they are especially closely tied to pollution, First Nations and Native Americans needs, tourism and recreation, fisheries, shoreline development, waste and sewage disposal as well as the sustainability of coastal resource management practices. However, for the sake of clarity I mapped the issues shared by the study participants into twenty one categories in Table 4.

Table 4: Environmental and resource issues, problems and conflicts relevant to the coastal areas of the North American Great Lakes

1. Invasive and exotic species

The respondents called for the need to prevent the introduction and spread of non-native aquatic invasive species into the Great Lakes. They also emphasized the need for the eradication of invasive species that have already been introduced to the Great Lakes ecosystem. Some examples of such invasive species include: sea lamprey, zebra mussels, Asian carp and reed (*Phragmites australis*). Invasive species may cause numerous conflicts including shipping and industry vs. environmental and recreational; native species management vs. non-native species; and changes in the ecosystem.

2. Fluctuating water levels and temperature

The respondents noted water level fluctuations, specifically in Lake Superior, as well as the gradual warming of Lake Superior. They also noted that controlling water levels and volume, including dam water level regulation, alter the natural dynamics of coastal habitats.

3. Tourism and recreation related issues

The respondents noted competing types of recreation, particularly motorized versus non-motorized vehicles and boats, as well as the lack of a tourism infrastructure to support transitioning from resource harvesting and extraction to sustainable tourism industries.

4. Forest related issues

The respondents noted forest poor harvesting practices and forest fragmentation among

important coastal issues in the Great Lakes area. The collapse of the forest industry in Northern Ontario led to unemployment, the loss of pensions and the loss of a tax base in local communities.

5. First Nations and Native American needs

The respondents noted a number of issues related to land use and management, resource use and management, the removal of Aboriginal communities from their land, the marginalization of Aboriginal communities, and the need for their inclusion and participation in decisionmaking.

6. Sustainability in resource and environmental practices

The respondents noted the need to adopt sustainable practices in the environment and resource management in the Great Lakes, specifically focusing on sustainable use and management of water resources.

7. Water quality

The respondents noted poor drinking water quality (both odour and taste) due to pollution, storm water runoff, sewage disposal, combined sewer overflow, algal growth, invasive species and water diversion. They called for improved water management to address these issues.

8. Sale of water and water diversion

The respondents noted conflicts related to the sale and export of water, water diversion, water withdrawal, and water overuse.

9. Shoreline development

The respondents noted the following environmental issues and conflicts related to shoreline development: the impacts of shoreline modification, erosion, dredging rivermouth wetlands/deltas for shipping, the removal of sand for beach restoration, limited public access to the lake front and urbanization. The aforementioned issues were also discussed in the contexts of the economic benefits of coastal development versus environmental and aesthetic impacts; the massive change in natural landscapes to constructed ones that have less of an ecosystem function; and urban development vs. resources preservation.

10. Fisheries

The respondents noted conflicts between fisheries user groups; fish and wildlife metal contamination; fisheries habitat degradation; the depletion of fishing stocks; fisheries management and regulation issues; as well as fisheries resource sharing conflicts (commercial/recreational/tribal/sport).

11. Land, water and ecosystem protection, restoration and conservation

The respondents noted the need to restore to environmental health the Areas of Concern⁹ identified by the International Joint Commission as needing remediation, and to enhance fish and wildlife by restoring and protecting coastal wetlands, fish and wildlife habitats. They also noted the need to protect the Lakes, to ensure the maintenance of biodiversity (as opposed to loss of biodiversity), and to generate funding for natural resources protection and conservation.

12. Pollution

The respondents noted the need to address pollution, including cross-border pollution of the Great Lakes ecosystem. Examples included: runoff pollution controls, point and non-point water pollution, nutrient pollution, sewer overflows during storm events, and the dumping of waste into the Lakes.

⁹ Areas of Concern are 43 areas in the Great Lakes Basin that are significantly degraded. For more information see *Areas of Concern in the Great Lakes Region* at <http://www.great-lakes.net/envt/pollution/aoc.html#overview>

13. Algae

The respondents noted the problem of algae growth, in particular, the high algae content in tributaries.

14. Mining and energy related issues

The respondents noted the conflicts associated with the environmental impacts of energy extraction, including nuclear, oil/gas drilling, and wind farms. In particular, they mentioned renewable energy v. coal; wind power merits and locations (wildlife impacts/aesthetics vs. power generation/climate); and hydro dams vs. fishing, small boats, recreation, ecosystem sustainability up and downstream.

15. Loss of habitat and wildlife population decline

The respondents noted habitat destruction, fragmentation, reduction and transformation. In particular, they mentioned the needs for the recovery of species at risk in reference to the loss of aquatic and terrestrial habitat.

16. Coastal management issues

The respondents noted coastal land and water management, regulation, planning and governance issues. In particular, they mentioned land use conflicts, poor land use planning, inconsistent/weak regulatory compliance and enforcement, and the need for coordinating collaboration among various coastal stakeholders.

17. Climate change

The respondents noted climate change and global warming as significant environmental conflicts affecting the Great Lakes area.

18. Waste and sewage disposal

The waste and sewage disposal issues discussed by my respondents included: waste disposal vs. fishing, contact recreation, ecosystem sustainability; toxics cleanups; septic system failing; beach microbial contamination due to sewage; and increasing amount of contaminants from pharmaceuticals and commercial health and beauty products.

19. Contamination from chemicals and other sources and historic practices

The respondents noted contamination of the Great Lakes environment due to: the use of chemicals for lawn and weed management; Superfund contaminants; Mercury; atmospheric deposition of toxic chemicals; the introduction of persistent bioaccumulative toxics; eutrophication; as well as beach closings due to bacterial contamination. Moreover, they mentioned the need to address: the legacy contamination resulting from historic practices and historical industrial inputs in the sediments.

20. Concerns with government regulation, policies and level of assistance

The respondents noted the lack of assistance from government; inconsistent dedicated long-term funding sources for environmental issues; disputes along the shore regarding jurisdiction over cultural sites; conflicts between private property uses/rights and environmental regulations; lack of qualified staff/employees to implement corrective actions, employee turnover; and avoidance of regulation by some landowners.

21. Other conflicting issues

The respondents noted people's failure to understand the value of nature; competition for land use; and ecosystem sustainability.

While the conflicts discussed by the respondents vary in scope and intensity, the issues over which these conflicts occur are fairly consistent. Therefore, I have chosen the following approach to present these issues and conflicts in this chapter. First, I have identified seven key sources and/or characteristics of conflicts based on the multiple conflict examples shared by my respondents that include: (1) conflicts related to water; (2) the sharing of coastal resources; (3) coastal land planning, use and management; (4) the sharing of coastal space; (5) fisheries and invasive species; (6) pollution and habitat distraction; and (7) development vs. conservation (see sections 4.1.-4.7. for a more detailed discussion of these issues). Second, I map groups and stakeholders that are involved in environmental and resource management in the coastal areas of the Great Lakes (see section 4.8.). Third, I highlight several conflict examples between particular coastal groups (stakeholders) (see section 4.9.). Even though most of the conflicts discussed within section 4.9. overlap with examples provided in sections 4.1-4.7., I discuss them separately because of their significance for particular stakeholders. Finally, I identify a number of critical issues relevant to environmental and resource conflicts in coastal areas in section 4.10.

4.1. Conflicts related to water

One of the central issues shared by most of my participants was **water-related conflicts**. The participants discussed water use, water management, storm water issues, water diversion, wetland protection, water pollution and water protection. For example, an expert in environmental policy from Minnesota (Respondent W) noted the impact of conflict over the “selling of Great Lakes water vs. protection of public trust values.” An academic from Illinois also provides the following overview of the water issues relevant to Lake Michigan and partly to the entire Great Lakes basin,

Respondent P: Speaking to my area, in **water management** there seems to be a potential issue going forward regarding communities serviced by Lake Michigan water and those communities serviced by other sources of water (shallow and deep bedrock aquifer, other surface). The Chicago metro region is granted a fixed annual diversion of Lake Michigan water by US Supreme Court Consent Decree; however, Chicago, unlike the other Great Lakes communities, is not bound by the Great Lakes Compact in limiting diversion of this water within the Great Lakes Basin (due to the reversal of the Chicago river) and so the issue of how far out of the Basin to provide water is an issue. So far, this issue has adequately been resolved by the existing permit system run by the Illinois DNR. However, as groundwater dependent communities increasingly face potential water shortages and declining water quality the potential for conflict increases. Of course, a dispute between Chicago and its neighbors regarding the Chicago diversion is also ongoing, and well documented... a lawsuit was filed this past winter against Illinois on behalf of other Great Lakes states to re-open the original Chicago Diversion case. The other states want Illinois to close the locks to prevent passage of Asian Carp into Lake Michigan, and there has been quite a lot of resulting debate... Storm water management is a related issue that will increasingly become important in the region.

Water is conceptualized by the study participants in a number of important ways. For example, an academic from Wisconsin (Respondent AU) notes the increased participation and involvement of business and industry leaders in regional water and water quality issues in the Milwaukee area, and highlights their recognition that “water quality is the key to sustainable development in the region.”

My study also includes a detailed discussion of the issues related to the sustainable development of the Great Lakes in the framework exploring environmental and resource management and conflict resolution practices in this region (see section 6.11). Environmental and economic sustainability were raised by many study participants that reflects the importance of sustainability in environmental and resource management in general. However, it is also important to note the particular significance of water as a source of sustainability as well as a vulnerable resource, a fact which defines the entire coastal region of the Great Lakes.

An academic from Ontario reveals the interconnected character of coastal zone management and illustrates how most of the issues in coastal areas are related to water,

Respondent AL: Well, in my professional work it is all water-related, which leads into land, of course, because I think land use planning is basically water management. So I am not involved in forestry or fisheries, or these sorts of things except insofar as they pop up against water, which inevitable they do because water is a bit of a “uniter”.

Water as a “uniter” is a meaningful metaphor that conceptualizes the Great Lakes not only as a massive water body or a space but as an active participant in the developments and processes taking place in this area. Water is a key component of the Great Lakes environment. It defines the region, provides multiple resources for its residents and beyond and creates a space shared by multiple users. Overall, every resource and environmental conflict in this area is related to water to a greater or lesser extent. At the same time, the Great Lakes just by its very existence provide opportunities for coastal stakeholders to resolve their conflicts, to co-exist and cooperate in using its numerous resources and space in a mutually beneficial and sustainable manner.

4.2. Sharing coastal resources

Resource sharing was another critical issue that arose in many of the interviews. Some examples of sharing resources by different user groups included tourism related activities, recreational fishing and commercial fishing. For example, a Great Lakes extension specialist and ecologist from Michigan (Respondent O) noted a resource sharing conflict in fishing between commercial, recreational and tribal fishing. Another example was provided by a fisheries biologist from Minnesota who also discussed conflicts between different user groups (both individuals and those represented by associations) over the limited fisheries resources,

Respondent AD: As far as the fish goes, I guess the conflicts I see are between user groups, where you have user groups who are butting heads for limited resources. The steelhead group wants the DNR [Department of Natural Resources] to stock more steelhead, whereas the Trollers want the DNR to stock more Chinook salmon. The flyfishers are generally more tuned into native fishes, and want the DNR to spend resources managing natives rather than stocking exotic salmonids like the Steelhead and Trolling groups. So more of these conflicts are between various angling user groups.

Moreover, an academic from Wisconsin had this to say about the sharing of coastal space,

Respondent AU: A significant challenge involves the multiple use aspects of water and water resources, which often lead to conflicting demands for those resources. However, every challenge is also an opportunity to creatively live and work together in harmony with others who need or want to use shared resources.

Despite the existence of various regulations related to using numerous coastal resources, conflicts and disputes over shared coastal resources are quite frequent. Potential reasons for these conflicts include: (1) the complexity and interconnectedness of coastal resource management that integrates multiple issues, actions and stakeholders; (2) the lack of required policies and regulations in certain areas of coastal resource management; (3) the possibility that not all users are aware of existing policies and regulations regarding shared coastal resources; and (4) the chance that not all users are able or willing to follow existing regulations for various reasons.

4.3. Coastal land use and planning

Coastal land use and planning were also mentioned as important by a number of participants in this study. For example, watershed land use activities include numerous coastal development and construction projects that often conflict with the goals of coastal

protection and conservation. A coastal land use specialist from Pennsylvania noted the following in his story,

Respondent AP: Coasts/shoreline areas have tremendous economic value. People are drawn to water for the beaches and aesthetic views, but also because buying property where values remain high is a smart investment.

Similarly, a wetland ecologist from Michigan also discussed private property interests and rights vs. environmental regulations as follows,

Respondent AG: I work in the Michigan [Department of Natural Resources] (DNRE) Wetlands Program. Being a regulatory based program, the main conflicts that we encounter are between private property uses/rights and environmental regulations. Since approximately 2000, we have had significant conflicts with private land owners occupying for their own use, the exposed bottomland areas (i.e. areas covered with water during normal water levels became exposed with lower water levels). Once an area is exposed, they often become vegetated with wetland plants. Since historically landowners maintained either mowed lawns or vegetation free sand areas (a.k.a. beach areas), once this water levels dropped, many of the landowners expanded their activities to the bottomlands. Since these areas carry significant public trust and regulatory protections, proper permits were required prior to conducting these activities. Most times people did not get permits due to not knowing about the requirements or in spite of the regulations.

A government employee and scientist from the US also reflected on the complexity of sharing the coastal land conceptualized in a number of ways including sharing resources by various users/stakeholders and the balance between key ecological and key human factors in developing the coastal space,

Respondent AY: Some coastal space is government-protected. But much is shared, with most “sharing” at coastal cities; most of these are at river mouth (fresh) estuaries... [What is required to maintain sustainable development of the Great Lakes] is a comprehensive spatial data, modeling, [and] planning framework that maps key ecologic and human factors... Scientific, landscape scale, hierarchical understanding of how natural and human systems work. Models laid upon the spatial framework. Only with this toolkit can we explore ramifications of various development scenarios. And also work **with** system fundamental processes, rather than against.

The use of coastal land by different stakeholders often leads to the need to share and coordinate their activities, whether they include construction, recreation, commercial fishing or any other form of coastal land use. Consequently, sharing the coastal space may bring about both significant challenges and rewarding opportunities for all coastal stakeholders.

4.4. Challenges and opportunities of sharing coastal space

There is not much choice here. Sharing is mandatory in a biosphere. The challenges and opportunities are in learning how to do it.

(Respondent AE)

The issues of sharing the coastal space are closely connected to the issues discussed in the previous two sections, namely sharing resources and coastal land planning. Space can also be conceptualized as a coastal resource, and usually the notion of space is related to land. However, the term *coastal space* seems to be a more comprehensive concept that includes more than just land and more than viewing the space solely as a resource. This observation stems from the comments and reflections provided by the study respondents about sharing coastal space.

For example, a Field Unit Superintendent with Parks Canada from Ontario provided an important observation about sharing coastal space,

Respondent AK: The benefit is understanding the processes to achieve “how to share”. Building the processes is part of sharing. Shared understanding will result in less conflict and conflict resolution is time consuming and adds another level of expense. It will take longer to build the processes, shorter time to implement the programs agreed to and eliminate conflict and its required processes. It’s all about relationships and understanding each other, locally, nationally and internationally. That translates to respect, dignity and celebration. We must build a community of caring, tolerant passionate citizens who are willing to take accountability for actions and we need laws, regulations and policies that support such accountability.

A research manager working in the Great Lakes Basin in the US also revealed some of the challenges and opportunities surrounding the sharing of coastal space,

Respondent AI: Challenges include the complexity of land-use management by local, state, and federal organizations, with differing priorities for protection and conservations of natural resources. Opportunities include public interest in natural resources at a regional (vs. local) scale, and this interest can foster common understanding.

Respondent AI points to the important connection between existing challenges and potential opportunities for sharing coastal space. While the challenges are reflected in naming specific land use management issues, the opportunities are conceptualized by connecting those issues to various stakeholders leading to the building of broader public interest and the public's understanding of these issues.

Moreover, an academic from Wisconsin (Respondent AW) considers the diverse character of issues and opinions to be both a challenge and an opportunity in terms of managing the shared spaces of the Great Lakes coastal zones. In particular, he sees challenges in “diverse opinions to balance decisionmaking” and opportunities in “diverse tools and perspectives to address new problems.”

An academic from Ontario also noted the following challenges of sharing the coastal space of the Great Lakes,

Respondent AX: Fundamental challenges include tangible effects from different land- and water-use practices from shared coastal and cross-border spaces. In order to know what others are doing in shared spaces, umbrella organizations can arise for multiple purposes: regulation, information exchange, and dialogue. These umbrella organizations would include representatives and perspectives from multiple stakeholders across the region. Challenges associated with these though involve ease of participation and commitment in terms of temporal and financial resources.

Further, she went onto outline the following opportunities for sharing the coastal space,

Respondent AX: The opportunity with these sorts of collectives is that areas, perspectives and approaches begin a relationship with one another. This sharing of information and communication is the channel by which a conceptualization of the socio-ecology evolves and then from that how we ought to work collaboratively in shared coastal space. The hope is that the challenges such as time and money constraints will be mitigated through funding opportunities (grants, subsidies, awards), and respect of individual commitment capacity.

Along with the many challenges to share coastal space, there also exist numerous opportunities. While the challenges are often visible, difficult and sometimes are perceived to be intractable, opportunities may seem to be less obvious and harder to identify or implement.

However, numerous opportunities are available for coastal stakeholders to address issues and conflicts related to shared coastal space. Just by sharing the coastal space the users are located in close proximity to each other, and often may need to interact to discuss their interests and needs or to negotiate their terms. Because all user groups would benefit from a cleaner and safer environment, they all have a common incentive to work towards this goal together. Further, cooperating within resource management and planning can assist coastal stakeholders become more efficient in their work by sharing duties and skills with each other. For example, one stakeholder may contribute his/her ideas or experience, the other stakeholder group may provide time and resources, while a third stakeholder association may be able to contribute financially. This type of cooperation would ensure a more integrated, inclusive and sustainable strategy of management and the use of shared coastal resources.

4.5. Fisheries and invasive species

The respondents also discussed conflicts related to **fisheries**. For example, they highlighted conflicts between commercial fishing and recreational fishing. Fisheries-

related conflicts are closely connected to other types of coastal conflicts (for example, conflicts over water or over resource-sharing). However, conflicts related to fisheries are also unique and distinct from others because fisheries are some of the most valuable resources the Great Lakes have to offer the public. Fish is a critical food source; it is vulnerable and can be affected by water pollution; and it moves around the lakes, which complicates designing and enforcing catchment regulations. Fisheries are also an important part of traditional indigenous ways of life as well as a resource that attracts tourists and sport fishermen, not only from North America, but from around the world.

The participants of this study shared their insights about a variety of fisheries-related conflicts. For example, a fisheries manager from Minnesota outlined his analysis of existing conflicts that involve fisheries in Minnesota,

Respondent X: Development vs. aquatic resource, fisheries habitat degradation, allocation of fisheries resource between sport and commercial resource, fish stocking - how many, what species, etc. native species management vs. non-native species.

Other fishing-related conflicts were also discussed by an academic from New York state.

This is what he had to say on the issue,

Respondent AS: There is tension between recreational and commercial fishermen over who is responsible for depleting stocks, and tension between both groups and regulators. There is also some tension between fishermen and municipalities over beach access. A smaller source of conflict is between anglers and boaters, particularly jet skis and the like.

Moreover, a Federal Government Scientist from the US revealed the following in his story about recreational and commercial fishing and also provided references for further information on this subject,

Respondent AN: I will use Lake Huron as my geographic area, as that is where my professional focus is. Currently, the resource issue that I am most familiar with involves recreational and commercial fishing. Lake Huron food webs have undergone drastic changes in recent years, including significant

decreases in zooplankton abundance and community composition and the collapse of the offshore demersal fish community (Riley et al. 2008). These recent changes may be linked to the invasion of the lake by dreissenid mussels and round gobies. As a result of these changes, Chinook salmon in the lake have declined in abundance and condition, and recreational fishing for this species has collapsed since approximately 2006. This collapse in recreational salmon fishing has had significant economic effects on coastal towns on the Michigan coast of the lake. Commercial fisheries for lake whitefish and lake trout have also suffered recently. The fisheries on the Great Lakes are among the most important freshwater fisheries in the world, and recent declines in fishing have been noted in other Great Lakes as well (Connelly and Brown 2010). Further changes to these fisheries are predicted to occur in the future due to climate change.

He went on to point out coastal groups that are involved in the aforementioned issues that included the following,

Respondent AN: Commercial and recreational fishers, Tribal fishers, Michigan Department of Natural Resources and Environment (MDNRE), US Fish and Wildlife Service (USFWS), Ontario Ministry of Natural Resources, Canadian Department of Fisheries and Oceans, local business groups, University researchers, Michigan Sea Grant.

Another important issue that creates conflicts in the Great Lakes area is related to **invasive species**. This issue was discussed in several contexts including the persistent invasion and the need for eradication of zebra mussels; the need to limit the introduction of new non-native species; the management of native vs. non-native species; and ecosystem responses to exotic species. New aquatic invasive species continue to arrive in the Great Lakes at the rate of about one every eight months, adding to the more than 180 already established in the basin and causing ecological and economic damage that greatly complicate efforts to restore the Great Lakes (Action Plan 2010, 7). For example, an environmental policymaker and academic from Michigan shared with me the following story related to the introduction of the Asian Carp in to the Lake ecosystem,

Respondent AT: For example, one of the big environmental issues of conflict in the region that I work deals with prevention of the migration of Asian Carp, which is an invasive species, and the conflict that occurs with the Asian Carp has to do with, how do you deal with a waterway, the Chicago Sanitary

and Ship Canal, that's used for multiple purposes. So you have barge, and shipping purposes, you have recreational purposes, you have the need to manage a whole lot of water, storm water, for example, or waste water, and that is concentrated in Chicago, then you have the conflict to keep these fish out. And you have a conflict of course between local needs, which is in Chicago, and the whole Great Lakes Basin, which wants to keep these fish out of the Lake. So that is one type of conflict you see between users.

Over the past several decades the Great Lakes as well as many inland lakes in North America, and elsewhere in the world, have experienced a wave of invasions of non-native (nonindigenous, alien) species. The intensification of shipping has led to massive invasions when ships' ballast water discharges into new environments, which has caused new challenges to the Great Lakes managers.

The occurrence of alien fish species is not directly linked to water pollution or eutrophication; however, the latter can foster the invasive process through the excess of food, the lack of controlling factors for the invaders (for example, specific parasites), and often by the decreased competitiveness of the local communities (Laxson et al. 2003). As a result, the invasive aliens may re-structure native communities by feeding on filtering crustaceans and other organisms that consume the excessive primary production of phytoplankton and are the essential food for fish, thus re-organizing the trophic webs and sequentially favoring the eutrophication and decreasing fish stocks sometimes leading to the collapse of native invertebrate and fish populations (Telesh and Ojaveer 2002; Laxson et al. 2003).

Most recent and well known of such invaders to the pelagic ecosystem of the Great Lakes are the relatively large planktonic predatory water fleas, *Cercopagis* and *Bythotrephes*, which arrived to the Great Lakes from Eurasia in the 1990s and established permanent populations there due to the availability of a favorable environment and their individual ecological plasticity (Telesh et al. 2008). Dense populations of these invaders

can facilitate alterations of matter cycles and energy flows through the ecosystems that might be followed by changes in trophic status and water quality (Telesh and Ojaveer 2002). On the other hand, these invasive water fleas also serve as prey for fish (Parker-Stetter et al. 2005).

In the bottom communities of the Great Lakes, the alien mollusks, zebra mussel (*Dreissena polymorpha*) and quagga mussel (*Dreissena bugensis*) dramatically altered both biotic and abiotic characteristics in the lower four Great Lakes that led to an enormous increase in benthic biomass in coastal near-shore waters (MacIsaac 1996). The adverse impact of this invasion due to the fouling of water supply pipes and dam intakes is also well known. The consequences of all these impacts are expressed in changes in the quality of ecosystems, which remains a matter of serious concern within the community.

Lake Ontario has the most extensive history of biological invasions of all the Great Lakes, a history that extends for more than 170 years, and the rate of invasion accelerated significantly after the opening of the St. Lawrence Seaway in the 1950s. Currently, there exist approximately 60 nonindigenous species of vertebrate and invertebrate animals, protozoans, algae and aquatic macrophytes established in the lake, whereas fish are the most widely represented taxon (15 species), followed by algae (14 species), mollusks (11 species) and crustaceans (8 species) respectively (Duggan et al. 2003).

Until recently, ships' ballast water discharge was the dominant reason for alien species' invasions. Since all transoceanic vessels entering the Great Lakes system have to pass through Lake Ontario, these ships could potentially introduce new species, either by ballast water discharges or hull fouling. Other effective ways of introducing alien species include accidental introductions, bait release, movement through canals and aquarium

trade, or the commercial sale of live freshwater fish for human consumption (Duggan et al. 2003).

In some cases the results of the increasing impact of alien species leads to serious commercial losses. Therefore, it is critical to apply the ecosystem approach and evaluate all the inter-related ecosystem components in the Great Lakes, using a relevant methodology and sampling intervals, for the development of ecosystem-level modeling that can assist managers and environmental policymakers understand the mechanisms underlying recent data trends, or even forecast how future ecosystem scenarios may influence water quality and ecosystem health in the Great Lakes region. Despite the recent implementation of ballast water exchange legislation, the Great Lakes, and particularly Lake Ontario, remain highly susceptible to present and future invasions. Consequently, management efforts must focus on identifying and eliminating ways that may bring additional alien species to Lake Ontario and the other Great Lakes.

4.6. Pollution and habitat destruction

Pollution from various sources was yet another important topic discussed by my study participants. Pollution-related conflicts included, for example, the environmental impacts of mining, habitat destruction and ecosystem degradation due to pollution, and stormwater run-off, among others. For example, an environmental NGO member from Ontario (Respondent A) shared with me that there is a “challenge of dealing with transboundary pollution, for example, from American coal power plants.” An academic from Minnesota (Respondent E) also referred to pollution as one of the key environmental problems in the region and noted that “pollution issues dominate our geographic area – such as: sewer overflows during storm events and the dumping of waste in the lake near this large port.” Connected to the problem of pollution is the issue

of waste disposal. For example, an academic activist and a member of an environmental NGO from Ontario (Respondent AJ) noted the conflict between waste disposal versus fishing, contact recreation and ecosystem sustainability.

According to a number of study participants the Great Lakes are used to extract energy including nuclear power, oil/gas extraction, wind farms and hydro dams that may also escalate conflicts. For example, an academic activist and a member of an environmental NGO from Ontario (Respondent AJ) noted the conflicts between hydro dams versus fishing, small boats, recreation, and ecosystem sustainability up and downstream. Study participants also mentioned the necessity of addressing the legacy of past **contamination from historic practices** as well as present remediation efforts.

Habitat destruction is another critical issue raised by the respondents that is related to pollution and to ecosystem changes within the coastal areas of the Great Lakes. According to an academic from Ontario (Respondent AE) environmental issues are often connected to “urban and suburban growth, including associated effects on land use and biophysical systems.”

Moreover, a member of a non-profit environmental NGO from Michigan suggested implementing the following actions to address pollution, habitat destruction and energy extraction to achieve sustainable development in the Great Lakes region,

Respondent T: We need (1) stronger wetland protection laws that prevent them from being destroyed from development and we need those laws to be rigorously enforced, (2) pollution laws including for agricultural runoff and sewage overflows that protects our waters from new sources of pollution, (3) new energy citing laws that control energy plants and turbines to be in places where they do the least harm, (4) permanent moratoria on drilling beneath the Great Lakes, (5) stormwater regulations that reduce the pollution coming from developed land and allowing groundwater infiltration, (6) renewed access to public intervener status so that citizens can sue the government or other parties when laws are not being enforced, and (7) continued funding and policies to restore the Great Lakes region from past harms including legacy pollution, habitat destruction, altered river flows.

Overall, the respondents emphasized numerous pollution-related conflicts. One of the key factors, which makes this issue especially critical and urgent is that air and water pollution may have many different origins in the Great Lakes region, including, for example, industrial waste, mining, and various past and present sources of contamination. At the same time, these numerous sources of pollution affect the entire Great Lakes ecosystem because pollution may not always respect borders or follow relevant regulations. Therefore, conflicts related to pollution and its consequences may often be considered protracted (for example, in case the history of past contamination is involved) or intractable (for example, when it may not always be possible to identify the sources of pollution and the actors responsible for pollution).

4.7. Development versus conservation

The issue of development versus conservation was discussed by a number of respondents within different contexts, including the broader context of development versus conservation, and, more specifically, *urban development versus resource preservation*, or *development versus aquatic resources*. The respondents mentioned development issues in coastal areas, and most of these issues were discussed in terms of “development versus conservation.”

For example, a coastal land use specialist from Pennsylvania shared his observations about development, re-development and conservation along the Lake Erie watershed in Pennsylvania,

Respondent AP: There is a draw to the coastline. There is also a draw to preserve areas along the coastline. So you got development vs. conservation happening right there with a lot of re-development in the areas most successful by the water here, it is bay front. Which is the safe harbor, it is a protected harbor... I think there will always be this conflict between development vs. conservation. And development usually is going to win because that is where the dollars are. And there are state subsidies, but

depends which branch you are in, there are state-federal subsidies for conservation as well.... I sometimes feel that it is a never ending conflict until every square inch of open space has either a bid restriction on it to conserve it, or it has been developed.

While it is relatively easy to see the numerous prospects for developing coastal areas, he continues to explain the long-term benefits of conserving coastal land,

Respondent AP: What it does, it prevents the property from further development, which is the mission of our land trust. And it really blows people's minds, because they ask you, what are you going to do with it, and we say, well, nothing, and they just can't get their arms around the fact that you would just do nothing with a piece of property. Well, it is not nothing if it maintains water quality, and habitat, fish and other species, and it still has a function, a natural function.

Further, he went onto develop his view regarding the connections between, and the challenges of economic development, sustainable development and conservation,

Respondent AP: Well, I will just leave you with this, you know I indicated that it would be preferential and far less expensive for government to establish a growth boundary that says beyond this point there won't be infrastructure extensions, that growth will stay on this side of the border and not on that side of the border. Property rights in this country are so predominant that it's next to impossible to do that. Maybe in Germany, maybe in Europe, or maybe even in Canada you have the ability to establish these growth boundaries and can get away with it, so to speak. But it is very difficult, at least in the US and so you end up with this constant struggle back and forth over what to conserve and what is left for development, basically. To me it is a race to the finish, it would be great if communities establish growth boundaries and just said well, be on this point, at least in the next 10-20 years we are not going to develop. That is how it is supposed to work and maybe conservation agencies can buy on the conservation side of the line and developers can buy on the developer side of the line, but it just doesn't work that way. Having been in the urban planning business for my career, same things happen with urban sprawl and our community. The lack of true ability to control sprawl, it's like everybody says, after you, sir, so that is part of the reason that I have moved into the conservation business because owning it to conserve it is the only true way to guarantee it won't get developed. And the problem is resources are slim and you can't buy everything, so you are targeting as best you can the most important pieces to buy. And the ones that have the most biodiversity or that are along the lake front or a stream, or expand gamelands, that sort of thing. And you do what you can to save the best of what is left. And... when you have a closing and you know you saved a spot, it makes it worthwhile, because otherwise somebody else is going to

come and they are going to buy it and they are going to pop some houses on it or a mall or something.

The economic development of coastal areas can cause different types of conflicts from disagreements between building contractors and conservation groups to conflicts between a tourist attraction developer and a local community whose traditional source of subsistence is fishing. At the same time, the conflicts over development versus conservation could be viewed through the prism of the sustainable development of the entire coastal region of the Great Lakes. Conserving the land and water, and restoring the natural ecosystem is probably the most ecologically sustainable approach to development in coastal zones. However, it would be realistic to assume that it would not be possible to conserve all coastal space. Therefore, it is up to the regulators and developers to ensure that whatever coastal development activities they are conducting, they would make every effort to ensure the sustainability of the region's environment and resources. In this context it is important to have a clear understanding of what sustainable development means to different stakeholders and what their development goals and needs are. The issues related to sustainable development have generated an extensive discussion in the framework of this study, and this concept is further explored in section 6.11.

4.8. Groups and stakeholders involved in environmental and resource management

Having discussed some of the major types of conflicts in environmental and resource management in the Great Lakes shared by my respondents, and prior to moving onto exploring their suggestions of conflict resolution approaches to those conflicts, it is important to present an overview of groups working in this area. Most of my respondents provided lists of various lengths covering major groups and individuals involved in the conflicts they discussed. These lists have continuously overlapped and enhanced each

other. For example, an expert in environmental policy from Minnesota provided the following overview of groups involved in environmental and resource conflicts,

Respondent W: A whole array, too numerous to cover comprehensively: broadly, political decisionmaking bodies including governors and legislatures of the eight Great Lakes states; governmental institutions such as US Department of Interior; US EPA; US Department of Agriculture; International Joint Commission; Great Lakes Commission; Great Lakes Fishery Commission; the state environmental and economic development agencies of all eight Great Lakes states; and thousands of local governments. Nongovernmental interests: individual businesses and business associations such as local and state chambers of commerce; nonprofit environmental and conservation organizations; policy think tanks; public health and agricultural advocates.

One possible way to categorize the groups involved in resource and environmental management is distinguishing between: (1) the users (or immediate participants in a particular conflict of dispute); (2) the regulators of users; and (3) other groups/individuals who are directly or indirectly affected by a particular conflict or by the decisions made regarding managing/resolving this conflict.

Another possible way to structure environmental stakeholders is as follows: (1) Native American Tribes/Canadian First Nations; (2) Government (federal, state/provincial and local); (3) businesses; (4) private property owners; and (5) NGOs. For the purpose of this study, and in order to illustrate the diversity of coastal stakeholders involved in environmental and resource management and conflict resolution, I included a list of Great Lakes coastal stakeholders noted and discussed by the study participants (see Table 5). Table 5 below is based on the study participants' stories regarding the number and diversity of coastal groups involved in environmental and/or resource issues (problems, disputes, conflicts) in their geographic area of the Great Lakes.

Table 5: Coastal groups and stakeholders in the Great Lakes area

<p><u>1) Federal, state/provincial and municipal government agencies and institutions</u></p> <p>Canada: Environment Canada, Ontario Ministry of the Environment, Ontario Ministry of Natural Resources, Canadian Department of Fisheries and Ocean, City of Cornwall, Cornwall and District Environment Committee, the Province of Ontario, Local provincial government staff with the Ministries of Natural Resources, Northern Development, Mines and Forestry, Environment, Tourism, Parks, Local federal government staff with departments of Environment, Natural Resources +1, Fisheries and Oceans, Transportation, Parks Canada.</p> <p>USA: US Department of Interior, US Fish and Wildlife Service, US Geological Survey (USGS), US Environmental Protection Agency (EPA); US Department of Agriculture; Michigan Department of Environmental Quality (MDEQ), Michigan Department of Natural Resources, Pennsylvania Game Commission, The City of Detroit, Pennsylvania Fish and Boat Commission, State Department of Conservation and Natural Resources, National Oceanic and Atmospheric Administration via the State Department of Environmental Protection's Coastal Zone management Program, the US Army Corps of Engineers, The New York Power Authority (NYPA), Chicago Metropolitan Agency for Planning, Department of Commerce, Massena NY Remedial Action Plan, New York Department of Environmental Conservation, Erie County Department of Planning, Department of Energy, Sanitation Department, Illinois Department of Natural Resources, Mohawks of Akwesasne Department of Environment, The Metropolitan Mayors Caucus, Local governments of Ashland, Washburn and Bayfield.</p> <p>Cross-border: International Joint Commission and its advisory groups, Council of the Great Lakes Governors, Great Lakes Bi-national Program, Great Lakes Commission; Great Lakes Fishery Commission.</p>
<p><u>2) Nongovernmental organizations (NGOs) and non-profit organizations</u></p> <p>Non-profit environmental and conservation organizations including Alliance for sustainability, Bad River Watershed Association, Agriculture and Energy Research Center. Non-governmental entities representing agriculture, industry, environmental and conservation interests, public water suppliers, utilities; Environmental NGOs; local environmental groups and civic groups like the Rotarians and ratepayers' associations, Buffalo-Niagara Riverkeeper, Blue Flag.</p>
<p><u>3) Industries and Businesses</u></p> <p>Private industry and local businesses including shipping industry, mining companies, businesses using coastal water resources, development businesses, Real estate agents, restaurants, marina operators, beach managers, the barge operators, water and wastewater treatment facilities, the Shedd Aquarium. Business and industrial associations including local and state chambers of commerce, Council of the Great Lakes Industries, Charter Captains Association and real estate associations.</p>
<p><u>4) Universities, academia and researchers</u></p> <p>University researchers, scientists and academics from across Canada and US, for example, University of Windsor, Colleges in Sault Ste. Marie and Thunder Bay, St. Lawrence River Institute of Environmental Sciences (SLRIES), as well as City-University partnerships. Organizations like Sea Grant are trying to help local communities deal with these challenges by providing expertise and access to other experts for example, Pennsylvania Sea Grant, Illinois-Indiana Sea Grant, Michigan Sea Grant.</p>

<p><u>5) Native American Tribes and First Nations Communities</u> First Nations Chiefs, Councils, and communities; Aboriginal groups; Local Native American tribes including Bad River and Red Cliff, Great Lakes Indian Fish and Wildlife Commission.</p>
<p><u>6) Activists and advocates</u> Local action groups; public health and agricultural advocates; coastal interest organizations; Environmental Defence.</p>
<p><u>7) Local residents</u> All local coastal residents, property owners, beach-goers, public citizens, and informal lakeshore homeowner associations.</p>
<p><u>8) Fishing: commercial, recreational, tribal</u> Commercial, charter, recreational and Tribal fishermen and anglers. Local fishing and angling groups such as the Sons of Lake Erie and the Steelhead Association, Trollers Association, Steelhead Association, Commercial Fishermen Association.</p>
<p><u>9) Conservation organizations</u> Environmental and conservation organizations including: The Lake Erie Region Conservancy, Nature Conservancy, the National Resource Conservation Service, Essex Region Conservation Authority, Raisin Region Conservation Authority, National Wildlife Federation. Local chapters of conservation organizations ie. Ontario Wildlands League, Thunder Bay Field Naturalists, Duck Unlimited, Ontario Federation of Anglers and Hunters.</p>
<p><u>10) Recreation and tourism</u> Tourism committees of local communities and regional/provincial tourism associations, tourism and recreation representatives, non-profit recreation-oriented groups (anglers, trails, parks, etc.), hunters, local chapter of Snowmobile Clubs of the Ontario Federation of Snowmobile Clubs. Other recreational groups including: swimming, kayaking, boating, canoe and kayak clubs in each community, Thunder Bay Yacht Club, ATV and motorized recreation groups, the tour boat operators and the pleasure boaters.</p>
<p><u>11) Associations and Coalitions</u> Numerous lake associations exist including: Ontario Federation of Agriculture, The Alliance for Water Efficiency, Great Lakes and St. Lawrence Cities Initiative (a bi-national coalition of mayors and local officials), Lake Carriers Association, The St. Lawrence River Restoration Council, Alliance for the Great Lakes, Great Lakes United, Healing Our Waters Coalition, Lakewide Management Plan Workgroups and Forums.</p>
<p><u>12) Other stakeholders</u> Everyone is involved in some way; public health units in Ontario, policy think tanks.</p>

There are a number of overlaps among categories in Table 5, for example, a conservation-oriented NGO or a fishing activist group or a Sea Grant, which is a partnership between the federal government and a local university in a particular state. However, despite potential overlaps, I chose these categories due to the high frequency of examples provided by participants in each category.

Table 5 also reveals that the respondents in this study perceive most coastal stakeholders to be some form of government, whether federal, state/provincial, municipal or local. These perceptions may indicate that government coastal stakeholders in the Great Lakes area are more visible and active than others. At the same time, these perceptions may also indicate that the respondents envision the coastal environmental and resource issues as mainly a public policy matter. That is an interesting finding, especially considering that the respondents represent various groups of coastal stakeholders.

In terms of reflecting the diversity of coastal stakeholders and integrating their efforts and contributions, various associations seem to have the most potential (see section 11 of Table 5). Coastal associations and coalitions are comprised of numerous stakeholders united by their interest and expertise in the Great Lakes environment and resources. Such associations create a forum, a framework and a space for dialogue, collaboration, mutual decisionmaking and conflict transformation in the coastal areas of the Great Lakes. Through such associations and coalitions coastal communities get a chance to develop, share and use local conflict resolution approaches.

The key finding here is of an inclusive model where virtually **everybody** is involved in resource and environmental concerns, and virtually everybody faces conflicts of a different scope and intensity in this field.

4.9. Coastal conflicts between specific groups

This section outlines three dimensions of coastal conflicts that stood out during the interviews. It illustrates the variety and the interconnectedness of coastal problems and developments by introducing specific contexts within which coastal environmental and resource conflicts take place. Coastal conflicts are inseparable from coastal stakeholders. Most of the coastal conflicts are caused by and affect the stakeholders and, in turn,

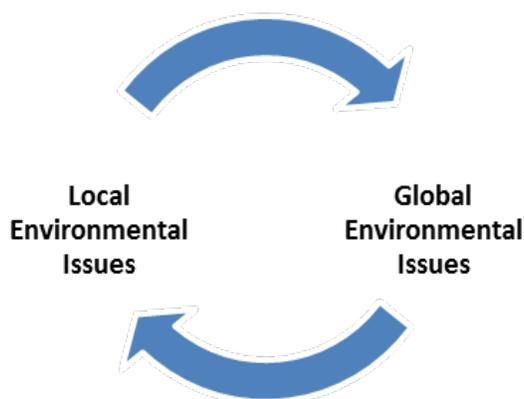
coastal stakeholders develop and implement initiatives to address these emerging conflicts. While there is a considerable amount of relevant environmental and resource conflicts among specific groups of coastal users, I have identified from the respondents' images the following three key conflicts, which generated interesting and surprising discussions within this study: (1) the global dimension; (2) the cross-border context; and (3) conflicts between Aboriginal communities and First Nations, Non-Aboriginal groups and the Government.

4.9.1. The global dimension

Several participants mentioned environmental conflicts or disputes on the global scale that would be relevant to the coastal areas of the Great Lakes. The few references to the global dimension of environmental and resource conflicts concerned issues related to climate change and global warming. While the respondents didn't elaborate with many details on the global dimension of environmental conflicts, most respondents were very specific and discussed in detail concrete resource conflicts relevant to their local, national and regional environment. It is possible that global ecological concerns are perceived to be too abstract or too distant, while local specific environmental and resource conflicts are more tangible and real. At the same time, it may be helpful to regard examples of local environmental conflicts in the broader context of global environmental threats and concerns. For example, various conflicts over fisheries in the Great Lakes can be related to global trends of fisheries-related issues, including the influence of invasive species on local water environments due to the increased international mobility of ships and international travel that are related to globalization. Moreover, there is a cyclical relationship between local and global dynamics in environmental and resource issues.

Numerous local conflicts form the basis of national and further global environmental trends while global changes, in turn, influence and alter national and local conditions.

Figure 6: Interdependence between local and global environmental issues



As illustrated in Figure 6 above, the relationship between local and global environmental issues is cyclical and has no distinct beginning; it is a continuous interdependent process.

4.9.2. The cross-border context

Surprisingly, few participants' stories shared examples of cross-border environmental conflicts between Canada and the US. This is interesting because considering the length of the borderline between both countries that passes through the Great Lakes area, conflicts over resources, space and environmental concerns could be anticipated. The cross-border concerns shared by respondents mostly relate to the challenges of regulation and policy coordination between the US and Canada on the Federal, State, Provincial, municipal and local levels. For example, a government employee and scientist from the US shared the following observation about cross-border conflicts,

Respondent AY: State-to-state (or province-province) and USA-Canada boundaries greatly compound problems as [it is] very **difficult** to have common policy processes and outcomes. Recognizing the Lakes as holistic ecosystems, it is clear that we do need consistent thinking and programs.

Another cross-border issue addressed by the participants concerned the consequences of introducing invasive species into the Great Lakes. A coastal land use specialist from Pennsylvania had this to share on the issue,

Respondent AP: In regard to cross-border matters, we're all in the same boat with Great Lakes concerns. Ballast water that brings invasive species, the Asian Carp threat from the Mississippi River, and the threat of export of Great Lakes water from the basin (now largely resolved) are examples of problems that affect us all and need to be addressed comprehensively. Joint Canadian/US efforts are a must. Communication is key. Financial resources must be dedicated to address critical concerns such as these. The Great Lakes Restoration Initiative is a great example of the positive use of federal dollars.

Overall, the participants discussed only a few perceived cross-border environmental and resource conflicts indicating the existence of effective policies and regulations, as well as the result of productive cooperation among residents and coastal stakeholders on both sides of the Great Lakes. At the same time, it could signify a lack of awareness of cross-border concerns and could point out the need for more research in this area.

4.9.3. Aboriginal and First Nations communities, Non-Aboriginal groups and the Government

Conflicts between Aboriginal and non-Aboriginal groups and government was another theme addressed by the study participants. The respondents discussed land use, resource use, resource management, and participation in the decisionmaking process regarding environmental and resource management. For example, a Field Unit Superintendent with Parks Canada from Ontario highlighted a serious conflict related to the removal of First Nations communities from their land. While one of the examples he provided was from the Yukon, he also noted that similar situations are relevant to the Great Lakes region,

Respondent AK: I guess one example comes to mind, but it is not from this area, but I have worked on it with Parks Canada, and it comes from the

Yukon Territory of Canada. And it really is related to the establishment of Kluane National Park and Reserve in South-West Yukon. As part of the story of National Park establishment in Canada, in the early days when parks were being established, often times local peoples were removed from the land, and it turned over, were created a holding by the Federal Crown. So that happened in Kluane and it happened in other places, for example, close to where you live now, Riding Mountain National Park, where the First Nations were removed from their land, their traditional territories, and essentially told that they couldn't go there. And that was back as early as the 1940s when this occurred, so since then until about 2002-2003 there was a sense of removal from their traditional territory, they had a sense that they were not welcome on those traditional lands, that are now a national park and reserve. These are the same kinds of descriptors that you will hear from other First Nations across Canada, as it relates to the removal from their lands... There are similar stories [around the Great Lakes area]. And I can say that Pukaskwa National Park, an area that I am responsible for, some of the same feelings and descriptors have been expressed.

Another critical issue related to environmental and resource conflicts involving Aboriginal groups was discussed by a Federal Government employee from Ontario who said that Aboriginal groups are marginalized within the decisionmaking process,

Respondent AA: Well for me, because I work with Aboriginal groups, I think, to me, Aboriginal groups in Canada are totally marginalized in all those decisionmaking processes. Although the law lays out... you know from the outside it looks like they are very sensitive, there is a lot of caveats in the law, that do not allow the sharing of power, that do not allow the sharing of equal decisionmaking and so what happens is that usually science and the scientists and federal organizations and actually, Ontario, because resources are delegated to the provinces, they are the ones that end up making the decisions, and they don't typically involve Aboriginal people to a degree that they wish to be involved, so they usually make decisions and then inform people, and what happens is that there is the sliding scale of consultation, depending on the extent of the infringement of the rights you should do less or more consultation but it is determined by the Crown, so the Crown is the one who determines the extent of the consultation and how much people are involved, so it completely marginalizes Aboriginal people.

The same Federal Government employee from Ontario also argued that "every conflict involving indigenous people is about land, every one." Further, this is what he shared with me about identity and the connection to land in Aboriginal communities,

Respondent AA: So you have a history of coming into these issues you know the community history and the way the federal government and the provincial government has treated your group of people and then you are being asked to look into those alternative ways, and you are always being asked to compromise, and I don't think that works, and if you compound that with the idea of identity, like what land means to Native people, if you believe that your culture is tied up in your land, in where you grew up, are you ever going to compromise on that? And I don't think people are. It has to be done, I mean, they have to do it, it has to be self-determined by the group of people rather than an external process coming in.

The conflicts related to land use and management, access to and management of natural resources, and participation in a decisionmaking process were among the important themes discussed by the study participants, specifically within the context of indigenous and Aboriginal communities. These issues have deep roots. According to McGregor (2009, 2) “a major component of the historically deteriorating relationship between Aboriginal and non-Aboriginal people in Canada has been the systematic exclusion of Aboriginal people from their lands.” Addressing these issues require a willingness, effort, time and commitment from all involved stakeholders to address them comprehensively and effectively.

4.10. Critical issues for coastal stakeholders

4.10.1. Multiple interests and needs

Managing multiple interests and needs emerged in almost every interview, and it was reflected in a variety of problems and conflicts discussed by the study participants, in the number of coastal stakeholders named by them, and in their specific references to particular coastal conflicts.

The multiple interests and needs of coastal stakeholders create a challenge for anyone trying to regulate coastal management or attempting to analyze existing approaches to conflict resolution in the coastal areas of the Great Lakes. At the same

time, this variety of interests and needs can be perceived as an opportunity to find common ground among stakeholders. There is more of a chance to pinpoint both similar and dissimilar interests and needs. Similar needs can be conceptualized as an incentive to cooperate and share experience, knowledge and resources to better achieve these goals. Dissimilar interests and needs point out the particular problems and encourages the analysis of differences to discover mechanisms of addressing the existing problems.

4.10.2. The issue of power

The role of power was considered by the study participants as a key critical component of resource management and ECR. For example, a Federal Government employee from Ontario illuminated the role of power in the context of environmental and resource management and conservation in the Canadian coastal areas of Lake Superior,

Respondent AA: There is a number of little disputes along the shore, like who has action or jurisdiction over cultural sites, there are groups that have bought up, like there is a cultural site in Nipigon Bay that belongs kind of to the local First Nations, but a private group, a conservation group, has bought it, bought the land, and so that's problematic. There are things that happened around there that are extremely complicated that conservation groups trying to add to the marine conservation area or protect more areas have an extreme amount of power and networking ability so what they do is they go kind of behind the scenes and they buy up land or they try to get it in ways that are not totally visible to stakeholders.

The above observation reflects some of the challenges connected with the dynamics of power among the stakeholders along the Great Lakes coastline. The term *power* takes many forms and has a variety of meanings in this context (Wrong 1995) including various examples of implementation of both peace power and power over (Chinn 2004, 12-15). First, the stakeholders' power of having the financial means to buy a desired amount of land, coastal space and numerous coastal resources is crucial. Financial freedom can ensure that the interests of a particular coastal group or community can be

met, whether these interests are in coastal development and construction, tourism related initiatives, land conservation or private ownership. Second, the power of having a certain status determines whether individual political authority or community land ownership also plays a significant role in the dynamics of addressing existing environmental and resource conflicts in the Great Lakes area. Third, the power of law is critical. Laws, policies and treaties regulate the use and development of coastal resources. It is necessary to know all the relevant policies and laws to be able to fully engage in coastal management and development and to be able to address the conflicts that may arise. However, while some environmental and resource related policies, laws and regulations include specific sections related to conflict or dispute resolution procedures, it is not always the case. Fourth, the power of knowledge is also critical, and it is connected to other forms/sources of power discussed above. Knowledge here is a very broad concept; it is the knowledge of the region and its history; awareness of the region's laws and policies; and possession of conflict resolution, communication and negotiation skills. Moreover, Castleden et al. (2009, 793) define power as "the capacity to make independent decisions and act on those decisions." Overall, power dynamics and power relations among coastal stakeholders are important in coastal management and should be taken into consideration within an integrated approach to managing coastal resources and the environment. In particular, in the ECR field power relations between stakeholders need to be incorporated as an important factor within both the analysis and the intervention strategy including its design and implementation.

4.10.3. The dilemma of funding

Funding was highlighted by the respondents as another important concern in the context of managing environmental resources and resolving conflicts in this area. For example, a

research manager working in the Great Lakes Basin in the US (Respondent AI) discussed the problem of “reduced funding for natural resources protection and conservation.” Further, a land conservation specialist from Ontario (Respondent AM) emphasized such environmental and resource management conflicts as “money for land conservation” and “lack of assistance from government.” A coastal land use specialist from Pennsylvania also raised the problem of funding and matching funds, especially in the present tough economic climate,

Respondent AP: Well, I don’t know how every state does it, I can tell you that Pennsylvania has had the money for conservation, and it is very limited now because of the economic crunch but there is still some money there that is for conservation purposes. There is a Department for Conservation and Natural Resources, and they will provide 50 percent of the funds to acquire a piece of property to conserve it. We have the Fish and Boat Commission that has dedicated funds... to acquire easements along tributaries so people will not post on their property “No Fishing.”

Funding is critical because many respondents perceive that very limited action is possible without sufficient finding. In terms of resolving environmental and resource conflicts many find that interventions require considerable funds to cover expenses associated with inviting external experts, initiating a research project to study a particular resource conflict, or setting up a mediation process to help multiple coastal stakeholders come up with mutually acceptable solutions. Funding is important. However, there are conflict resolution initiatives and interventions that can be done with very limited finding. Research, networking, and creative efforts might be needed to design such approaches. Some examples include issuing a call for volunteers among coastal residents for a shared beach clean-up project, or devoting as little as an hour per week to train youth in conflict resolution practices as well as in specific skills they might need to help resolve a local environmental issue. Examples of various ECR practices shared by the study participants are discussed further in Chapters 5 and 6 of this study.

4.10.4. The matter of trust

Trust building is one of the critical steps that is required in conflict resolution and peacebuilding (Yang 1998; Chinn 2004) (see Section 2.3.3 of this study). From the earliest stages of an intervention, and throughout the rest of the conflict resolution and transformation process, trust between parties is required to enable people to work together and address existing conflicts. According to an academic from Ontario (Respondent S), “distrust of governments/business etc. is often the cause of conflict.” A fisheries manager from Minnesota also reflected on the importance of building credibility and trust in resolving fisheries resources management conflicts,

Respondent X: Gaining the credibility was a huge, huge step in having people buy into the process and resolving some of the conflict because a lot of the conflict revolved around not having credibility and that revolved around not doing what you said you were going to do or like our history was – changing it every time someone got a phone call.

Trust is an intangible factor that is not always easy to develop. It requires time, effort, and space for people to work together, and a willingness to be open to change and transformation (Yang 1998). Trust is especially difficult to build for parties engaged in violent conflict. However, environmental and resource conflicts may also create hurdles for trust building in particular, because disputes over resources often include economic and social implications and involve such important characteristics as identity, interests, needs, rights and the subsistence of coastal stakeholders. Therefore, developing conditions and creating spaces in which coastal users can interact, share ideas and knowledge, explain their needs and ask each other questions is very important for constructive conflict resolution.

4.11. Discussion: Environmental and resource conflicts and stakeholders in the coastal areas of the Great Lakes

The practices of natural resource and ECR presented by the study's respondents address a variety of issues, disputes and conflicts in coastal areas. The issues behind these conflicts included, but were not limited to, competition for coastal space, access to coastal resources, competing interests regarding the use and management of natural resources, concerns related to environmental pollution and other ecological problems, conflicts of values and the cultural dimensions of coastal conflicts, as well as participation in the decisionmaking process and the governance of coastal resources. Twelve key points that stem from the stakeholders' discussion of environmental and resource conflicts in the Great Lakes area are presented below.

First, it is important to define some of the terms and language used in the study regarding the analysis of environmental and natural resource conflicts and conflict resolution practices. For example, the concept of **space** has different meanings within different contexts, including the notions of space as a physical location, land, spiritual, cultural, psychological or social category. Linda Smith (1999, 55) also notes that there are "different orientations towards time and space, different positioning within time and space, and different systems of language for making space and time real" within Western and indigenous knowledge. According to Western thinking, space is static and divorced from time; it is articulated through the ways in which "people arranged their homes and towns, collected and displayed objects of significance, organized warfare, set out agricultural fields and arranged gardens, conducted business, displayed art and performed drama, separated out one form of human activity from another" (Smith 1999, 51-52). In indigenous languages the conception of space has a different meaning. For example, Neal McLeod refers to Cree space as "both the spiritual and physical home of Cree" that

“could be understood as a metaphorical way of describing the narratives, the land, and all the things that allow [the Cree people] to express themselves in relation to their ancestors” (McLeod 2007, 86). Linda Smith (1999, 50) additionally stresses the lack of distinction between the notions of time and space in indigenous languages, including the Maori language where the “word for time and space is the same”, and other indigenous languages that “have no related word for either space or time, having instead a series of very precise terms for parts of these ideas, or for relationships between the idea and something else in the environment”.

The concept of *a space for dialogue* integrates multiple components and factors within its meaning (Lederach 2003, 2005). In the context of this study the term *space* adopts a broader meaning than just physical space or location. For example, *a space for dialogue* in this study refers to the availability of a physical space for meetings, a location for gathering, the time available for dialogue, as well as various means to dialogue (for example, in person, by telephone, via Internet, or through print media).

Moreover, within the discussion of coastal stakeholders and conflicts the term **coastal community** is important. The term *community* is presented by Linda Smith (1999, 125) as an idea “defined or imagined in multiple ways, as physical, political, social, psychological, historical, linguistic, economic, cultural, and spiritual spaces.” We often talk about community in various contexts – conducting community research, being part of the community, representing community interests, biologists’ and ecologists’ studies of communities of living organisms – but rarely define what exactly comprises a community. Rather, it is perceived as a general notion of a group of people who are united by one or several common factors, values or beliefs. Each community is unique in the same way each individual is unique. That presents a challenge to avoid generalization in defining various communities and, at the same time, in distinguishing between

different communities. In the context of environmental conflict studies in coastal areas *coastal communities* may be used to signify groups of people whose life and subsistence evolve around the coast and its resources. In this case, it is important to identify various coastal actors, stakeholders, and people living and working on the coast to present a comprehensive analysis of relationships between the coastal communities, the land, the resources, and the environment.

Another key term that needs to be discussed in more detail within this analysis is **conflict** itself. Conceptualizing conflict is important for understanding this complex phenomenon and for finding ways to address, resolve and transform conflicts. For example, Wilmot and Hocker (2011, 11) explain that “conflict is an expressed struggle between at least two interdependent parties who perceive incompatible goals, scarce resources, and interference from others in achieving their goals.”

At the same time, for the purpose of this study Wilmot and Hocker’s definition may be enhanced by adding such components as perceived incompatible *interests* and *needs*, along with *goals*. The meaning of conflict can also be expanded by adding *hidden* along with *expressed* struggle, as not all conflicts are openly expressed; some conflicts are more deep-rooted and less tangible than others.

The frequently cited reference to conflict is the one that stems from the Chinese language character *conflict* that unites together two symbols – *danger* and *opportunity* (see, for example, Wilmot and Hocker 2011, 9). Another way to conceptualize conflict is with the help of metaphors, for example seeing conflict as a battle, a tornado or a tide (Wilmot and Hocker 2011; Lederach 1995).

Based on the analysis of the respondents’ perceptions of environmental conflicts I suggest that **conflict is a challenge**. It is a challenge for conflict resolution workers and other participants to study, analyze, and understand conflict, as well as to design

approaches to address it, and implement interventions. What kind of solutions are available to choose from? Who should be involved in the resolution process? Intervene in the conflict or step back and let it run its natural course? These are some of the questions that conflict resolution workers are usually facing. Conflict as a challenge conceptualizes both danger and opportunity within conflict. Conflict as a challenge needs to be studied, analyzed, addressed and possibly transformed. Conceptualizing conflict as a challenge also includes a call for action and a space for improvement because, to me, it symbolizes active participation in addressing a conflict by seeking or developing relevant conflict resolution approaches.

Addressing terminology and linguistic nuances is important, as the language a researcher-practitioner uses reflects the meaning he or she puts on it, while the respondents and the public may attach a different meaning to the same words and expressions. It is important to be aware of possible differences in understanding language and concepts (for example, time, space and distance; the notions of community, development and sustainability) as well as ensuring that there is an accurate translation (from other languages, dialects, or ways of expressing concepts in the same language by different people) is critical for conducting comprehensive and meaningful research and for designing appropriate environmental management and conflict resolution approaches (Lederach 1995; Avruch 1998).

Second, based on the respondents' narratives about environmental and resource conflicts in coastal areas of the Great Lakes it is clear that it is necessary to **address the root causes** of a particular environmental or resource conflict within most conflict resolution processes. Each conflict has root causes. The causes of a conflict may include deep-rooted structural issues, a history of exclusion and mistrust, or policies that seem unfair to some and seem legitimate to others. Often these root causes of conflicts are

ignored or underestimated, which may lead to further escalation and may cause complications and delay resolution. Consequently, understanding the root causes of conflict is critical for conflict resolution professionals and stakeholders who attempt to resolve conflicting issues (Lederach 1997; Schellenberg 1996). It may not always be an easy task to identify the root causes that led to conflicts; it may require research, resources and time. Nevertheless, without an important step of studying and analyzing the root causes of conflicts, it may be difficult to move towards conflict resolution and conflict transformation. In particular, in terms of ECR a conflict over fishing practices may be rooted in long-term poverty and continuous unemployment. It can also go beyond the conflict within fisheries management and transform over time into a conflict over identity and the (un)fulfillment of basic needs. For example, an academic from New York emphasized the need to address poverty and provide for the basic needs of coastal communities in the context of effectively managing coastal areas,

Respondent AS: A comprehensive effort to tackle poverty and find alternate careers for commercial fishers - there are still too many - would eliminate a lot of the problems in the first place. I mention poverty as there is also a subset of anglers who fish because they desperately need the food - this group is in conflict with everyone. If they had resources, they wouldn't need to fish irresponsibly.

Third, according to the majority of the study participants **water is the key resource** that defines and unites the Great Lakes region. A lot of resource and environmental conflicts are related to water to a greater or lesser extent. The massive freshwater resources provided by the Great Lakes provide a space, which is shared by numerous stakeholders, who work, live, study and use the Great Lakes and their resources in so many different ways. Consequently, collaboration among coastal stakeholders is required to protect, manage, sustain and improve the quality of the Great Lakes water resources.

Fourth, the interconnectedness between coastal resources and, in particular, their relation to water creates **conflicts related to shared resources**. Despite the existence of such regulators as permits, resource user policies and laws, the use of some shared resources is especially difficult to regulate. For example, the Great Lakes water, as a key resource of this region, flows freely among the lakes and adjoining rivers carrying fisheries, absorbing pollution, and benefitting from the clean-up projects without recognizing the existing borders (for example, between the US and Canada) and other dividing lines built into the regulation documents. Hence, conflicts related to shared resources, like water or fisheries, take place despite the existing policies, which regulate the use of those resources.

Fifth, the study participants revealed the **inseparable character of the challenges and opportunities** provided by the sharing of coastal space including coastal land and coastal resources. In particular, some challenges of sharing coastal space included managing multiple uses of coastal resources and dealing with conflicting demands for coastal resources. Further, the opportunities provided by sharing coastal space included: (1) finding ways to creatively co-exist and share available resources; (2) developing public interest and fostering a common understanding regarding shared coastal resources; and (3) building relationships, developing dialogue and designing collaborative strategies to address the existing challenges of sharing coastal space and its resources. This finding contributes to the reasoning for conceptualizing conflict as a challenge earlier in this section of the study. While environmental conflicts are often perceived as challenges for the involved parties, they are also perceived as an opportunity for these participants to collaborate on addressing these challenges in mutually agreeable ways.

Sixth, conflicts related to **fisheries and invasive species** were among the most critical issues shared by the respondents. These issues are relevant to the entire Great

Lakes region and include, in particular, conflicts between commercial and recreational fishing, an overall decline in fisheries resources, as well as the introduction, management and the need for eradication of invasive species, which have adverse effects on the Great Lakes ecosystem and its resources. There are important implications of this finding for environmental policymakers and resource managers. In particular, this finding calls for developing specific conflict resolution and conflict prevention measures within policies related to fisheries and invasive species. Moreover, since multiple conflict prevention and conflict resolution approaches and tactics have already been developed and implemented by stakeholders in the coastal areas of the Great Lakes, establishing dialogue and collaboration among policymakers and other stakeholders in this area is of great importance.

Seventh, conflicts related to **pollution** may be among the more protracted and intractable conflicts because: (1) they may have been caused by both past and present contaminations; (2) those responsible for various types of pollution may not be easy to identify; and (3) air and water pollution may have profound negative effects on the entire Great Lakes ecosystem. Pollution is also closely related to another important environmental issue discussed by the study participants, namely, the conflict between **development and conservation** of the coastal areas surrounding the Great Lakes. The issues related to development versus conservation of coastal land and resources in the Great Lakes are important because this region hosts a large amount of people, businesses and industries. The conflicts between conservation groups and land developers highlight deep rooted differences in beliefs, values and interests of these groups to either protect and conserve or develop and use coastal land and resources. This type of conflict was discussed by several respondents in their narratives, and was conceptualized through emphasizing its connection to the sustainable development of the Great Lakes region.

Eighth, exploring the types of stakeholders involved in environmental and resource management and conflict resolution in the coastal areas of the Great Lakes generated a conclusion that virtually **everyone is involved** in these issues. Coastal stakeholders are important actors who are involved in numerous issues related to environmental and resource conflicts, ranging from causing and contributing to the escalation of these conflicts, to playing key roles in resolving existing environmental conflicts and in preventing these conflicts from happening in the future. All groups and individuals are involved in some way or other in most of the environmental and resource conflicts discussed by my study participants, whether directly or indirectly, actively or more passively, effectively or less effectively. This is an important finding that has broad implications in terms of developing an inclusive approach to environmental management policies, designing education and training programs as well as in seeking knowledge and expertise in developing and conducting interventions into environmental and resource conflicts.

Ninth, interestingly, **global** causes of environmental conflicts as well as **cross-border environmental conflicts** between Canada and the US are not the focus of most participants' responses. Most respondents did not mention major conflicts between Canada and the US in terms of the cross-border resource and environmental management. While some cross-border environmental and resource conflicts were shared with me (for example, the Great Lakes water diversions and the selling of Great Lakes water) most of the study participants didn't focus their narratives on these conflicts. Possibly, the reason for not considering the global causes of environmental conflicts by many study participants is because of their closer focus on more visible local environmental problems. Most study participants discussed various local environmental and resource conflicts in great detail. For example, environmental and resource conflicts between

Aboriginal communities, non-Aboriginal communities and the government became a focus theme of several of the interviews. Moreover, the study participants indicated that the conflict resolution practices, which had been developed at the local level seem to be more effective and more widely used in addressing local environmental conflicts. This signifies that coastal groups and stakeholders in the Great Lakes area are more aware and more knowledgeable of local environmental conflicts as well as local conflict resolution practices rather than global environmental threats and approaches of various countries to address them.

Tenth, environmental and natural resource issues are deeply rooted within Aboriginal and First Nations communities (McLeod 2007; Cruikshank 1998; Smith 1999). The conflicts emphasized by my study participants were related to the exclusion of Aboriginal groups from the decisionmaking process regarding environmental, land and resource management. Moreover, a holistic worldview shared by a lot of indigenous groups highlights an interrelated character of various components within our environment (Rice 2011). For example, Castleden et al. (2009) discuss the traditional indigenous worldview, which considers the relationship between humans and nature in the context of forest management. “Hishuk Tsawak” is a worldview of Huu-ay-aht First Nation in British Columbia, Canada, that emphasizes that “everything is one/connected” (Castleden et al. 2009). This holistic approach to the environment and its resources is an important guideline that may contribute to developing an integrated strategy of environmental and resource management and conflict resolution in the coastal areas.

Eleventh, a critical point raised by several participants throughout their narratives was **the role of power** in environmental and resource management and conflict resolution. For example, a power imbalance among coastal stakeholders also affects the degree of their participation in efforts to address coastal disputes and conflicts (Brown et

al. 2002, 135-137; see also Pearson and Lounsbury 2009, 73-74). Many existing coastal management frameworks emphasize the importance of public participation at the various stages of planning and in implementing coastal management policies and practices. However, power differentials between stakeholders, which affect their ability to influence these processes are not fully accounted for in many of these frameworks.

Twelfth, the **funding** dilemma was also discussed by coastal stakeholders within this study. The availability of funding and the willingness of coastal stakeholders to make an effort to act and seek funding for coastal conflict preventative and resolution measures is an important issue. Seeing funding for environmental conflict resolution and prevention is critical because while ADR is generally referred to as a less costly option compared to court litigation and direct confrontation, it still requires funds, space, a time commitment and other resources. In cases of developing and implementing integrated coastal management programs considerable funding is required for research, evaluations, expert consultations, and remuneration. The chances to develop these programs largely depend on the willingness of local and national governments as well as major non-governmental donors to invest in these programs and to sustain them. The availability of and access to credible funding information is also critical especially for smaller-scale local initiatives.

Finally, some of the respondents argued that **trust** is a crucial component in environmental conflicts. In a situation where multiple stakeholders are involved in an environment-related conflict the lack of trust among stakeholders may prevent dialogue and cooperation that may be necessary to resolve the conflict. And, at the same time, building trustworthy relationships among coastal stakeholders may lead to more open communication and more effective cooperation throughout the process of conflict

resolution (Homan 2011, 53) as well as to preventing potential conflicts from happening in the future.

4.12. Conclusions

Special concern within resource and environmental management raised by several study participants can be summed-up in the words of a land conservation specialist from Ontario (Respondent AM) who talked about “failing to understand the value of nature” as one of the important key conflicts. The coastal areas of the Great Lakes provide numerous resources to their residents and the wider community. Conflicts over shared environmental resources may bring challenges, and may endanger local communities and their environment. However, environmental and resource conflicts also bring an opportunity for coastal stakeholders to collaborate and to work together in developing appropriate approaches to resolving these conflicts. Chapter 5 focuses on the interviewees’ suggestions of numerous examples of ECR practices used by coastal stakeholders in the Great Lakes area.

Chapter 5: Public policy and conflict resolution in environmental and resource management in the Great Lakes

Introduction

The respondents shared with me a number of approaches that are used to address some of the environmental and resource issues and conflicts discussed in Chapter 4. Some of these practices are discussed in more detail in this Chapter. In particular, Chapter 5 presents an overview of specific ECR methods and practices that are or were used in the past by the respondents, as well as the conflict resolution methods that they have knowledge about. Furthermore, Chapter 5 focuses on the various components of coastal resource management that have been implemented, and have shown potential to resolve conflicts and disputes in the region. These various components emerged from the respondents' narratives, and I used a holistic approach to integrate them so that they could potentially assist coastal stakeholders in their cooperation in coastal resource management and conflict resolution. I identified some of these coastal resource management components prior to the interviews through a preliminary research of the academic literature, projects and policies of environmental management that were incorporated into the initial interview questions (for example, questions about the role of public policy, public participation and ADR in resolving environmental conflicts). These questions, in turn, received detailed answers and comments from the study participants. Other components discussed in Chapter 5 include the role of local, regional and bi-national committees in resolving environmental conflicts. These themes are the result of my analysis of the respondents' interviews using a grounded theory approach.

A research manager working in the Great Lakes Basin in the US provided a general overview that reflects the complexity of conflict resolution approaches used by various organizations to address environmental and resource conflicts,

Respondent AI: Multiple types of organizations address the [coastal environmental and resource] issues. US Federal Government funds and implements restoration and protection. State Government also implements some protection and conservation, and also conducts public education programs. Organizations of multiple agencies conduct information outreach. Universities are involved in information gathering and sharing.

Respondent AI reveals some of the methods that are used to resolve environmental and resource management conflicts in the Great Lakes area including the initiation of funding and the implementation of restoration, protection and conservation along with public education, outreach and information gathering and sharing. Chapter 5 presents a number of ECR methods, approaches and practices.

Table 6 below is based on the responses of study participants to the question “How are environmental and resource issues and conflicts addressed and by who?” Table 6 highlights the respondents’ examples of ECR practices in public policy and environmental resource management in Canada, US and at a bi-national level. It also includes examples of legal ECR mechanisms.

Table 6: ECR practices in the coastal areas of the North American Great Lakes: Public policy, resource management and legal mechanisms

1) Federal, state/provincial and local government actions, regulations and policies

Government policies:

Policies rewarding sustainable and environmentally friendly behavior; fee structure to regulate behavior; specific dispute resolution agreements included in policies; and consultation policy. Decisionmaking by politicians on a case-by-case basis.

Government actions and regulations:

- Counties must be notified, may review and comment on changes in land use regulations proposed at the municipal level in Pennsylvania.
- The US Coast Guard codified common practices by writing rules regarding waste removal.

- Native American tribes conduct impact assessments of munitions dumped into Lake Superior in the 1950s.
- There is the complex agreement between states and provinces to resolve conflicts with regards to water management.
- The Milwaukee Metropolitan Sewerage District and the Wisconsin DNR took the lead in addressing wastewater and flooding issues by conducting public meetings related to water quality, wastewater treatment and overflow, upstream components of pollution and flooding.
- Established cross discipline committees, which meet regularly in the region to address current and emerging environmental conflicts and issues.
- Water quantity issues are largely resolved at the municipal level via new supply development and/or conservation measures, or by requesting a permit for a Lake Michigan allocation from the Illinois DNR.
- The beach managers who are usually municipalities but may also include provincial parks, address conflicts related to water quality by installing lifesaving equipment, fencing off dunes, adding interpretive signs, etc.
- The US Federal Government funds and implements restoration and protection. State government also implements some protection and conservation, and also conducts public education programs. Multiple agency organizations conduct information outreach.
- The Canadian Ministry of Natural Resources formed its Advisory Panel to reach consensus decisionmaking within the negotiation process.
- The government is involved through legislative actions to clarify the legal requirements (i.e. permits are required for most activities) and administrative actions (i.e. issuing general permit guidelines),
- Environmental impact studies were conducted to address issues related to the New York Power Authority's (NYPA) operations.
- In Ontario many environmental conflicts have a provincial area of responsibility. Addressing these issues may or may not be done in consultation or in cooperation with local community interest groups.

Educational functions of governments:

- Governments have educational materials informing the public about environmental and resource issues, for example, algae and the problems associated with it.
- The Northeast Ohio Regional Sewer District (NEORS) has launched a public education campaign about how property owners can influence what is washed into a storm drain.
- Municipal, State and Federal governments encourage supporting science, doing outreach and education, and facilitating policy development and public discussions.

2) Environmental and resource management practices

- A major mechanism for addressing issues related to the Buffalo and Niagara Rivers is the Regional Action Plan (RAP) process.
- Watershed management organizations are involved, but can only guide the way development is done, not the amount or location of the development.
- Commercial fisheries management in the lake is complicated; most commercial fishermen on the lake are tribal members operating under the 2000 consent decree.
- Environmental and resource conflicts are addressed by a fisheries manager through a variety of methods: advisory groups, one-on-one meetings, management plans, topic oriented public meetings, media, letters, legislative hearings, local units of government meetings, etc.

3) Bi-national level: Cooperation between Canada and the US

Cooperation between the governments of Canada and the US is conducted through: the Canada-US Bi-national Executive Committee; Great Lakes Water Quality Agreement; Fisheries by Great Lakes Fisheries Commission; and the International Joint Commission (IJC) and its advisory groups acting as information gatherers and regulators. Federal governments also bargain over treatment of shared waters.

4) Legal mechanisms

Some water management issues are handled in litigation and in formal rulemaking procedures, for example, Ohio has a court case pending to determine how the public may access Lake Erie. Courts have been used to resolve disputes, for example, the diversion limit from the Lake was resolved by the US Supreme Court. Local residents and municipalities may also sue to secure drinking water or fight against threats to contaminate drinking water.

5.1. Public policy, policymaking and regulation

The complexity of public policy and its multifaceted and dynamic nature were reflected in the respondents' narratives. Moreover, an academic, activist and a member of an environmental NGO from Ontario (Respondent AJ) expressed an idea shared by a number of other participants stating that "public policy is too ambiguous a word." While public policy may indeed be perceived as too ambiguous, the term *public policy* is frequently used in the context of resource and environmental management; therefore, we need to explore what exactly is meant by this term.

In the framework of this study, a number of respondents provided their understanding and insight regarding the forms, functions and dynamics of public policy in environmental and resource management. For example, a research manager working in the Great Lakes Basin in the US (Respondent AI) says that public policy plays a significant role, specifically in "land-use planning and permitting; chemical regulation; [and] water treatment policy." An academic from Ontario (Respondent AE) also shared with me that public policy is "influential at all levels of governance, though not necessarily coherent." Moreover, a Government employee from Minnesota (Respondent

AH) perceives that while the role of public policy varies by issue, “in general [it] sets the ‘guideposts’ and/or standards and enforces these rules and guidelines.”

On the other hand, according to an environmental policymaker and academic from Michigan rather than managing or resolving conflict, public policy contributes to creating conflict,

Respondent AT: On Lake Erie the public policy laws and all that is the reason why conflict exists in the first place. So the public policies are the causes of the conflict. And here is what I mean by that. Michigan, Ohio, Pennsylvania, NY and Ontario all share Lake Erie and all are sovereign over their fisheries of Lake Erie. And they all have laws and regulations that deal with the management of that fishery. So Ontario has laws that relate to how it deals with the fishery in its waters, and Ohio its laws. And the problem is that the regulations that are put forward by each of the independent jurisdictions can be done completely independently of the other jurisdictions if they so please. So we have a long history of that in the Great Lakes basin with independent laws, regulations and sovereignty of each of the Great Lakes states and the province of Ontario creates an inherently chaotic conflict laden management situation. Another way to look at it is that of there were no states or provinces but just one jurisdiction in the Great Lakes, then the independent laws and regulations and policies in the region would not be there, there would be one authority. But that is not the case. So the fact that the authority is spread around means that conflict is something that happens inherently in managing the Great Lakes fisheries. So what role does that play? It is the cause of the conflict.

In addition, an academic from New York had this to share with me regarding the role and the meaning of public policy in addressing coastal issues,

Respondent AS: If by public policy you mean rules, they play about the role other than individual conscience. A lot of development in this area is at the level of the individual homeowner, and in many of the most sensitive areas state or federal laws are the only thing preventing people from laying waste to the coastline. Many homeowners go ahead and violate the laws and then see if they get caught, and if they do get caught, they stall. In my area of expertise, recreational fishing, the situation is more complicated. There is a subset of fishermen- people who really fish for love and have really taken the time to develop the skills necessary to be good at it- who are extremely conscientious about sustainable practices (littering, keeping only properly sized fish, [and] avoiding death of bycatch). This group will do their best to spread these practices to others, and will enforce the rules where they are to the best of their ability, but not always diplomatically. A larger group of fishermen, aided and abetted by the party boat industry, sees the ocean as a

fish atm machine – insert line, retrieve fish. This group has no respect for the ocean and the resource.... They are willfully blind to the sizable impact recreational angling can have on the resource, and refuse to accept that any curtailment of laissez faire rights might be needed sometimes. This group is also vehemently opposed to fishing license requirements – Southhampton, the richest township in the state, is suing to be exempted from the saltwater fishing license under agreements ratified under British Colonial Law (yes, pre-revolutionary 18th century agreements). Just pay the \$10. This group only obeys regulations when threatened with enforcement which, unfortunately, is thin on the ground due to our budget situation. Without regulations, this group would destroy coastal fisheries as soon as is convenient for them.

According to an academic from Ontario the role public policy plays in addressing environmental and resource issues depends on the context and on the scope of the issue,

Respondent AL: Yeah, well, it is interesting because this is part of the general shift in environmental governance that we are seeing around the world, frankly. Increasingly we are seeing that it is not within the realm of public policy to resolve these kinds of issues. In some cases it is. I guess you could argue that there was a public policy of some kind in the context of the Douglas Creek estate Six Nations problem, not sure what that policy it was. But the better example is back to.... Innisfil Creek example, in this case we basically made it up as we went along, there was some policy in the form of provincial statues. Officially, you know, Cabinet endorsed guidance, procedures of how to proceed, but the solution that was devised in that particular context was entirely one of peace made through negotiation and consultation among the various parties and that really in any way, shape or form represents public policy. So you get a real mixture, I mean it all depends entirely on the case, on the scale. Obviously if we are dealing more on international Great Lakes context, public policy might be more important, but at this local level a lot of these little places, they are making it up as they go along.

A Field Unit Superintendent with Parks Canada from Ontario also points to the need for integrated policies regarding the multiple coastal issues affecting the Great Lakes,

Respondent AK: Public policy regarding coastal issues along the North Shore of Lake Superior is formative. Each “government” (federal, provincial, municipal and First Nation) will attest to direction toward sustainability but there is no integrated approach to coastal zone management. In the absence of integration, policy gaps exist and are ineffective due to their scope. Scaling and nested policy functions require purposeful integration – suggesting a massive need for inter and intra governmental cooperation at an unprecedented level.

In addition, he went onto discuss the practical ways of working towards an integrated approach in environmental and resource policymaking,

Respondent AK: I think the principle of working with the people that are most directly affected by the decisions that are ultimately to come is the approach that grounds and should form all of the other pathways of options. So that is the starting point. It is at the community level that's in my opinion how do we address it, how to achieve an integrated approach.

The analysis of the role of public policy in environmental and resource management and conflict resolution has brought about mixed results. On the one hand, it is perceived as an important regulation mechanism, which ensures consistency and structure in resource and environmental management. On the other hand, it is perceived as a mechanism that can potentially constrain the creativity of the stakeholders who attempt to resolve their conflicts. Consequently, public policy is seen by another group of respondents as a source of conflict rather than as a tool of conflict resolution. While such a variety of respondents' perceptions exist about the role of public policy in managing the coastal environment and in resolving resource conflicts, they also challenge policymakers to address concerns regarding the effectiveness, implementation potential and long-term sustainability of public policy in environmental and resource management.

The respondents also offered a number of different definitions of public policy. Some of their ideas about the meaning and the purpose of public policy included the following: (1) policy is something specific to the issue at hand; (2) laws and regulations may be part of policy or they may not; and (3) policies are rules and regulations made by stakeholders along the way as the issue develops.

These ideas and definitions of public policy have highlighted the depth and the significance of public policy, which was discussed in more detail in section 2.3.1. The issues related to public policy shared by the study participants have also motivated me to

gain a deeper understanding of the meaning of what public policy is, especially in connection to environmental and resource management. Based on the collective narrative of the respondents, as well as on the literature on public policy, I have created the following working definition: *public policy is a set of guidelines and/or regulations, regarding a particular issue or development, which informs stakeholders and guides their actions related to that issue or development.*

There are a number of possible challenges to developing adequate public policy. First, implementing policy may sometimes be problematic, and it is not worthwhile if not implementable. Second, not all stakeholders and groups involved and affected by a certain issue or development may be aware of existing policies and their meaning. Third, policies may be very case-specific and may require development along the way through trial and error. Such a process can be time-consuming and challenging in a number of ways that may decrease the effectiveness of particular policies, especially in the short-term. At the same time, these challenges may motivate coastal stakeholders to invest time and effort into studying existing policies, and into working towards making them more effective and easier to follow and implement.

One of the major roles of public policy in environmental and resource management is in providing regulatory frameworks for action. In so doing, the public policy has to account for various issues, interests, needs, stakeholders and potential conflicts that may arise within the dynamic and interrelated coastal systems. Such complexity can be addressed through developing an integrated approach to policymaking that is multi-track, incorporating existing resource management approaches, mapping the stakeholders along with their interests and needs, and taking into account relevant laws, rules and regulations. Overall, such an integrated approach to coastal policymaking

would conceptualize the coastal area as one unique ecosystem with a variety of interconnected actors, issues and actions.

The discussions about the role of public policy in environmental and resource management have inspired me as a researcher, and as a practitioner, to gain a deeper understanding of the meaning, purpose and potential of public policy in resolving conflicts. While its potential may be clearly visible, the practical use of public policy related to the environment in preventing and resolving conflicts requires further investigation.

5.2. Initiatives by government departments, and local, regional and national committees

An important type of methods to resolve environmental and resource-related conflicts in the Great Lakes area involves the work of various **commissions and state/provincial government departments and committees**. Various branches of government, both in Canada and in the US, carry out initiatives and programs aimed at managing coastal resources and the environment in the area of the Great Lakes. For example, a government employee and scientist from the US provided the following overview of actors responsible for addressing environmental and resource conflicts in the Great Lakes area,

Respondent AY: Municipal, state and federal governments play specific roles on various issues. They encourage supporting science, do outreach and education, facilitate policy development and public discussions. Environmental and outdoor groups push these governments to act, in protective ways. Business interests support development decisions.

Respondent AY reveals the complex interdependent character of environmental and resource management and conflict resolution. The work of various actors complements each other and strengthens the overall performance in managing the coastal ecosystem and its resources. However, if conducted separately with little cooperation or

coordination among actors, coastal management initiatives may bring about a number of challenges and may potentially cause confusion over the allocation of roles, tasks and responsibilities. This, in turn, may significantly decrease the effectiveness of the overall coastal management performance, and can lead to disputes and conflicts among coastal stakeholders. An integrated and holistic approach to coastal management that would incorporate common goals, interests and the efforts of coastal stakeholders, as well as address their individual needs and concerns, is critical for such a complex and dynamic system as the coastal areas of the Great Lakes.

The respondents also shared with me numerous examples of specific ways in which government agencies address and attempt to resolve environmental and resource conflicts. For example, an environmental policymaker and academic from Michigan outlined the following regarding conflict resolution through committee work,

Respondent AT: The conflict over the allocation of the shared fishery is handled by a body called the Lake Erie Committee. It is made of high ranking officials of the province of Ontario, the state of Michigan, the state of Ohio, the state of Pennsylvania, and the state of New York. And so what you get is you get the fishery manager from each of those jurisdictions as a member of Lake Erie Committee and they use that process to meet, to come to consensus on science, to come to consensus on what the science means for the allocation of the fishery, and then they come to a consensus agreement among each other about how much [fish is] to be harvested from the lake that year. And they use the process because each jurisdiction has the independent authority to do what it likes. In other words Ontario can do whatever it wants in its waters, and Michigan can do what it wants in its waters, and they need a process to come to some sort of agreement because if they didn't, there would be complete conflict and chaos there. And because no one jurisdiction can tell the other to do something, Ontario can't make Ohio do something, the process is not bonding and voluntary. But they use that process because if the process didn't exist they have to invent some way to allocate that fishery.

He also shared with me the following detailed description of the process of resolving environmental and resource conflicts with the help of the Lake Erie Committee,

Respondent AT: In the Lake Erie case, the process to resolve disputes is the Lake Erie Committee. And that is more of the process to come to consensus

rather. When a dispute happens that they can't resolve themselves they can involve dispute resolution provisions of the plan under which they operate. The plan is called a Joint Strategic Plan for Management of Great Lakes Fisheries, you can get it off our website. You'll notice in the plan that if consensus can't be reached, here is the process you go through to resolve your dispute. That's been invoked twice since 1990. First one was a... perch quota and they never had to go to mediation because the threat of that was enough to bring them to go back and try and reach consensus. Well, it was "if we don't reach consensus on this issue, somebody's gonna tell us what to do". And so that was enough. And the old joint strategic plan had the option of arbitration and they were like "hell no, we are not going to, even though it says that we can do this in our plan, we actually still have some room for discussion here". So the threat of arbitration and going to this alternative dispute resolution was enough to have them go back to the drawing board and reach consensus. In 2004 they were operating under a plan that had been rewritten and we greatly softened the arbitration and made it more of a mediation process. And the mediation ran again from going back and trying to re-reach consensus to bringing in a couple of third parties who would offer their expert opinion, to having the Great Lakes Fishery Commission here and offer its opinion, to having something a little bit more definitive. And it was up to the parties than the Fishery Commission to decide how far they would go with that. When they had a dispute in 2004 over walleye the alternative dispute resolution process that they used was to ask the Great Lakes Fishery Commission to mediate. The Fishery Commission than found two retired experts, one federal, one state, one Canadian, one American, who kind of heard both sides of the issue and provided their expert reflection of what they talked about. And it is non-binding, and they said "ok, now we have something to go with" and they went back to the drawing board and they re-reached consensus. That is how it worked there. We only unfortunately have had two examples, but it is there and it worked.... Now, there are ways in which Ontario would resolve a dispute from its commercial fishers. The one that I talked about was for the whole lake. How did Michigan, Ontario, Pennsylvania, New York resolve a dispute that they have amongst themselves. When you are talking about internally, how does Ontario resolve a dispute that it has with its commercial fishers, there are many ways in which the States and the Province have internally dealt with the disputes. In fact just today, they invoked one of them. The commercial fishers have sort of a quasi-judicial type hearing because they were challenging Ontario's quota for walleye.

Another example of city and state government bodies working together to resolve environmental and resource issues was provided by an academic from Wisconsin. This is what he had to say on the issue,

Respondent AU: For example, the Milwaukee area has issues that relate to water quality, wastewater treatment and overflow, upstream components of pollution and flooding, and several entities with regulatory oversight. The Milwaukee Metropolitan Sewerage District, in cooperation with the Wisconsin [Department of Natural Resources] (DNR), has taken a lead in addressing many of these issues even though the District's main role is in wastewater conveyance and treatment. Recent heavy rains and flooding of basements, including sewer backups, has resulted in understandable frustration and anger. The Sewerage District has been very visible, along with city and county officials, at public meetings of citizens demanding answers and solutions. On other issues, the regional planning commission may be enlisted to engage experts and the local citizenry in a longer range study and planning process, with the resultant reports serving as guidance documents for future action.

Respondent AU and Respondent AT reveal, in their aforementioned stories, approaches to deal with environmental and resource conflicts through various degrees of *regulation*. An academic, activist and a member of an environmental NGO from Ontario (Respondent AJ) also included regulators (i.e. government agencies and Federal and Provincial levels) and information gatherers and regulators (for example, the International Joint Commission) in his narrative about the actors, and the ways and means of addressing coastal issues.

The respondents also shared with me their concerns regarding some environmental regulation and conflict resolution initiatives carried out by the federal and local government agencies of both countries. For example, a Field Unit Superintendent with Parks Canada from Ontario had this to share on the subject of local, provincial and federal government involvement in ECR,

Respondent AK: In the Province of Ontario, many of the issues identified have a provincial area of responsibility resulting in a provincial bureaucrat assigned the responsibility to address the issue. Addressing the issue may or may not be done in consultation or in cooperation with local community interest groups.... Many efforts are made to inform communities of steps being taken to resolve issues but in some cases the involvement is for information purposes and not for cooperative reasons. This is true of federal government as well.... Often local governments are tasked with the need to resolve the issue, which results in increased pressures on a poorly resourced

structure and, not surprisingly, ineffective application of approaches that do not match the complexity of the issues being examined.

An academic from New York also shared with me his images about the regulation limitations with regards to an ECR approach,

Respondent AS: None of these [fishing related] issues are addressed in any kind of a coherent way. Regulators in this state have very little power - in cases of egregious violations of wetland laws, fines are levied but in many cases the damage is not mitigated. Several groups, (frequently small, local non-profits, for example, Seatuck Environmental, based in Oyster Bay) New York Sea Grant among them, engage in regular outreach to angler groups, commercial fishermen, [and] marinas in an attempt to direct these groups towards best practices for preventing invasive species spread, [and] proper dumping. Regulations aim to prevent the worst damage, such as fisheries take rules and permit rules for development and waste disposal. Regulations do not, however, have many teeth.

Overall, government regulation mechanisms play a significant role in resource management and ECR in both Canada and the US. Government institutions and agencies at the federal, state/provincial and municipal levels develop environmental regulation policies, which may include specific dispute resolution provisions. Environmental conflicts may also be addressed through the direct involvement of government officials and/or committees specifically appointed to develop and implement conflict resolution interventions. ADR methods may also be used in this process. A case in point is when a government appointed committee resorts to arbitration or attempts mediation to resolve a particular issue. The government structures may be considered by some as one of the most suitable actors in ECR due to their considerable power and access to multiple resources. On the other hand, some study participants voiced their concerns regarding the use of governmental regulation as a primary ECR mechanism due to the insufficient inclusion of other actors and the lack of consultation and cooperation with coastal

stakeholders during the conflict resolution process, and because of the problems with the enforcement of certain regulations.

5.3. Cross-border environmental and resource management by Canada and the US:

The case of the International Joint Commission of the Great Lakes

Addressing the environmental concerns of the Great Lakes can serve as an example of a comprehensive process of cross-border resource management policy formulation and implementation. The Great Lakes area includes numerous stakeholders from Canada and the US: national, regional and local governments; ministries and government agencies; business, agriculture and transport; local residents; non-governmental organizations (NGOs) and activists; and media, scientists, researchers and educators (Johns 2009, 102-103). While some of the stakeholders influence or are influenced by the Great Lakes' environment more than others, it is important to consider all of the stakeholders who are an integral and cohesive part of a multifunctional and integrated system. Taking into consideration the wide range of activities in the Great Lakes region, it is important to identify concrete mechanisms that coordinate and direct these activities. The work of the International Joint Commission (IJC) that monitors and assesses the progress of Canadian-American cooperation in implementing the *Great Lakes Water Quality Agreement* (1972) (the Agreement) illustrates the evolution of cross-border resource management policy formulation, monitoring and implementation. The Agreement reaffirmed the rights and obligation of Canada and the United States under the *Boundary Waters Treaty* of 1909. Under the Agreement the Canadian and US Federal Governments, working in partnership with provincial, state and municipal governments, are expected to implement programs and report on their progress in restoring, preserving, and protecting the Great Lakes. The major issue at the time of the signing of the

Agreement was phosphorus over-enrichment (International Joint Commission, n.d.). The Agreement was renewed in 1978 when both countries specifically committed themselves to rid the Great Lakes of persistent toxic substances. In 1987 the Protocol to the Agreement was signed, which placed emphasis on human and aquatic ecosystem health, and introduced provisions to develop and implement Remedial Action Plans and Lakewide Management Plans (Ibid.).

The International Joint Commission was established under *The Boundary Waters Treaty* of 1909 as an independent international organization charged with preventing and resolving disputes over the use of waters shared by the United States and Canada. Two bi-national boards, the Great Lakes Water Quality Board and the Great Lakes Science Advisory Board, as well as a bi-national Council of Great Lakes Research Managers were formed under the Agreement. According to the Secretary of the Council of Great Lakes Research Managers, Mark Burrows¹⁰, “recent activities by the governments and the IJC associated with the review of the *Great Lakes Water Quality Agreement* (GLWQA) have reaffirmed the high level of cooperation and commitment shared by Canada and the US to the goals of the GLWQA... Efforts have been and continue to be very productive; however the level of success is directly tied to the level of funding and political will at the highest levels of government” (Burrows, interview via email, April 2, 2008).

There is general consensus within the Great Lakes community and beyond that the chief objectives of the 1972 Agreement were realized (Botts and Muldoon 1996). Success occurred in the reduction of phosphorus and major pollutants, the promotion of toxics control and an ecosystem approach to management, contributions to science, and the maintenance of stability of the US-Canada relationship (Ibid). Public participation

¹⁰ These are the comments of Mr. Burrows and they do not represent the official position of the International Joint Commission.

and citizen involvement in decisionmaking over the matters related to water resource management in the Great Lakes, especially through regional and international NGOs, have increased over time. For example, since the signing of the *Great Lakes Water Quality Agreement* in 1972, the IJC has met in a public forum every two years around the Great Lakes to review issues around water quality and to hear the views of the public. In 1975, about a dozen citizens participated, while 20 years later some two thousand joined the IJC in a three-day meeting (Kiy and Wirth 1998, 91-92). However, some of the obstacles to cooperation in cross-border resource management include the lack of funding at all different levels of cooperation, “lack of top-down leadership” and the “lack of clearly defined institutional arrangements that enable efficient multi-agency operations”¹¹ (Burrows, interview via email, April 2, 2008). Further challenges include the reduced political power of the Great Lakes community, the strained capacity of the nongovernmental community, a decreased emphasis on science, and a lack of communication with other international institutions (Botts and Muldoon 2005, 214-217).

The outline of the Great Lakes cross-border resource management process reflects the evolution of policy development and the shifting of focus from a single environmental issue to deeper concerns about human and eco-system health. It also reflects the structural evolution of governance from a single specific *Boundary Water Treaty* of 1909 to a systematic framework of cooperative actions, obligations and commitments under the *Great Lakes Water Quality Agreement* of 1972. Finally, there seems to be an increase in public awareness and participation in managing shared resources. In terms of conflict resolution, the IJC is assigned with three key functions: (1) a quasi-judicial function; (2) an investigative and advisory function; and (3) an arbitral

¹¹ These are the comments of Mr. Burrows and they do not represent the official position of the International Joint Commission.

function (Legault 2000). Further, the IJC follows the principle of a consensus-based approach through joint fact-finding, public participation and the engagement of local governments (Ibid, 6). While the IJC may provide a framework for environmental and resource dispute resolution in the cross-border management of the Great Lakes, its specific provisions for dispute resolution have so far not been realized to their full potential¹².

5.4. Legal mechanisms of resolving environmental conflicts

Addressing environmental and resource conflicts through **legal mechanisms** is another conflict management approach discussed by the respondents. According to an academic activist and a member of an environmental NGO from Ontario (Respondent AJ) the courts offer the means to deal with common law issues and appeals from regulators. A Field Superintendent with Parks Canada from Ontario (Respondent AK) also mentioned that “provincial legislation and federal legislation often contain direction for dispute resolution.” Moreover, a wetland ecologist from Michigan shared with me the following view about public participation in legal mechanisms of resolving environmental conflicts,

Respondent AG: The public participates through public comments in public hearings, in written responses to public notices, and through legislative interactions. When groups are organized (i.e., local landowner groups or environmental groups), they can be very effective at steering public policy.

Despite the considerable potential of legal mechanisms for resolving environmental and resource conflicts, this approach did not receive a lot of attention from the respondents. The legal system was discussed by several participants as the existing conflict resolution approach used by the key stakeholders or as a means of last resort for addressing

¹² See <http://bwt.ijc.org/index.php?page=speeches&hl=eng> for the participant talks who attended the Boundary Water Treaty Centennial Symposium at Wayne State University on February 5, 2009.

environmental disputes (see Section 4 of Table 6). However, when asked “how are environmental and resource conflicts resolved in your area?” most respondents discussed more specific local initiatives that involved dialogue among stakeholders, public participation through involvement, action and engagement in drafting policies and regulations or in addressing local issues by forming expert panels and advisory groups. At the same time, like most ECR initiatives discussed in this study, legal mechanisms are closely related to and interconnected with other environmental and resource conflict resolution approaches. For example, public involvement and cooperation with policymakers on drafting a certain regulatory program might result in incorporating legal mechanisms of resolving potential conflicts into a new water use policy. However, the respondents suggest that it appears that legal mechanisms are an existing, but not primary, conflict resolution approach. This is an important point because it illustrates the potential and the capacity of coastal stakeholders to resolve environmental conflicts with the assistance of their own resources and experience developed throughout many years of using, sharing and managing coastal resources in the Great Lakes area.

5.5. Third party interventions and alternative dispute resolution approaches

Several types of third party interventions into environmental and resource conflicts were discussed by the study participants including both formal and informal types of mediation. For example, an academic from Ontario emphasized the role of informal dispute resolution interventions as follows,

Respondent AL: I don't see a big role for these in Provincial land use planning kind of conflicts at the moment. It doesn't mean that they couldn't be, it is just simply that the frameworks don't provide them. I would say in general these are not areas where people are making formal use of these sorts of procedures, so negotiation and all the alternative forms. In my Innisfil example, you know, it was entirely informal, we didn't bring in, you know. I was acting as a consultant, but I am not a trained mediator or anything like

this, it is just people using common sense and basic principles of respecting each other's positions, and all that good stuff we suggest you should do. But in an informal sense, you know, because we haven't reached that stage yet where there was a conflict.

Another academic from Ontario (Respondent AE) also stated that while many ADR options have been used "most common have been more or less informal consultations among stakeholders, most usefully at early stages of deliberations on emerging issues."

A wetland ecologist from Michigan also shared with me an example of the application of ADR methods in coastal resource management,

Respondent AG: Shoreline Management and Policy Workgroup [gave] all interested parties a voice in setting public policy. The workgroup consisted of nearly 30 members from a diverse array of interests. Over several months, the group agreed on the established General Permit guidelines. Getting all interested individuals at the same table to discuss issues can be very effective for most issues.

In addition, a coastal land use specialist from Pennsylvania expressed an image, that was also shared by many other respondents, that ADR is not really used widely but would probably be useful if applied,

Respondent AP: I know that there are companies that specialize in conflict resolution, but I honestly can't think of a time where they've been used in our area. I would think mediation would be helpful much of the time.

A number of participants were not aware of the application of any ADR methods to address environmental and resource conflicts in the Great Lakes. Such a position was reflected by a land conservation specialist from Ontario (Respondent AM) who stated that "none [of the alternative dispute resolution methods are] available or used". However, when the respondents were asked further to describe how environmental and resource conflicts are addressed they went into great detail about methods and approaches they have used including, but not limited to collaborative planning, setting up advisory committees, inviting external experts and consultants, and using dispute resolution

processes written into thematic policy documents. Thus, a conclusion can be made that even though not everyone calls these methods *ADR* or *Conflict Resolution*, most people are actually using these localized conflict resolution processes. Two further conclusions can also be drawn. First, there is a relatively low awareness among coastal stakeholders of the field of conflict resolution in general and of specific methods and strategies of resolving conflicts and disputes that it provides. Increasing awareness about the conflict resolution field and introducing it into other disciplines, for example, into environmental and resource management could benefit the process of resolving, preventing and transforming conflicts in a variety of different settings. Second, conflict resolution professionals and scholars should not be discouraged by the impression that alternative conflict resolution methods are not widely employed. Instead they should look deeper and aim to discover the multitude of conflict resolution approaches that are used regularly in different disciplines, even though they are not called ADR and/or are not necessarily considered to be conflict resolution methods.

5.6. Evaluating progress

Evaluating progress and measuring success is a very important part of most project management approaches. In terms of environmental and resource management measuring success requires designing reasonable indicators of the effectiveness of each particular aspect of the resource management process. ECR approaches, strategies, and specific tactics also need to be evaluated and assessed for effectiveness, applicability to particular conditions, and sustainability. They may require adjustment, or need to be updated or redesigned altogether. Hence, developing indicators that help measure success and track the progress of environmental and resource conflict resolution interventions is critical. For example, an environmental policymaker and academic from Michigan shared with

me the following consideration regarding measuring the success of interventions into the conflict over the allocation of shared fishery resources by the Lake Erie Committee,

Respondent AT: If you measure success with ‘are they able to reach consensus on harvest quota every year?’ Then it is a huge success, because they meet regularly, they share data regularly, they come to an agreement, consensus agreement, and they have been successful for the most part in implementing it. And implementation is probably the key. You know, any fool can come to a committee and agree to something and then not implement it. And then if you don’t implement it rather, then can you call this process a success? No, because, sure, you agreed to something, but if you didn’t follow up on it, it is not successful by any definition. So the process is a huge success. They have only had to go to a sort of non-binding mediation twice since the early 1990s and then they did one in 2004, so it is a huge success.... Now, if you ask the commercial fishing industry, whether the process is a success, they will have a very different opinion. But they are also the ones who are being regulated, so their measure of success is different than the government’s.... If you are going to measure success, ‘have the governments developed the process to share a common resource without having to go to courts, or to sue each other, or to flip into the tragedy of the commons where Ohio is doing something, to hell with Ontario’, then it is a huge success because they reach agreement every year. And conflict would be between the states and they found the way to manage that conflict.

The issue raised above of who conducts evaluations is also very important because the outcomes of evaluation and the meaning of evaluation criteria may vary for different stakeholders. The difference may complicate the evaluation process and may create gaps between project implementation and the introduction of necessary improvements in resource and environmental management. Developing common criteria for evaluating environmental and resource projects in the Great Lakes region may facilitate tracking progress in environmental and resource management, and may assist in preventing environmental conflicts.

In the framework of this research project it was surprising to find out that very few respondents discussed or even mentioned project evaluation in their interviews. While there wasn’t a specific question about it among the interview questions, project evaluations appeared to be relevant to the discussion of environmental and resource

management and conflict resolution, specifically in connection to the questions about the role of public policy, public participation and ECR best practices.

5.7. Discussion: The potential of public policy in local and cross-border environmental conflict resolution in the Great Lakes

Eight important points flow from the respondents' perceptions about public policy and cross-border ECR in the Great Lakes area.

First, **public policy** plays an important but not always clearly visible role in the environmental management of coastal resources and in ECR practices. The challenges to developing effective public policy mechanisms in ECR include insufficient involvement of coastal stakeholders in time-consuming and long-term policymaking processes. On the one hand, it is a critical regulation mechanism, which ensures coordination of multiple actors and their participation in coastal resource management. On the other hand, public policy is perceived by some respondents as frequently an ineffective, ambiguous and often problematic tool in terms of both its implementation and enforcement. As a result, the significance of public policy in environmental conflict resolution as well as effective environmental policymaking methods, require more detailed and focused academic inquiry. Moreover, a multi-level and holistic approach to public policy development and implementation in the coastal areas of the Great Lakes could assist in integrating the interests and needs of multiple coastal stakeholders related to environmental and resource management and conflict resolution.

The ambiguity of the terms “public” and “policy” may contribute to the perceptions of many coastal stakeholders that public policy is often ineffective in resolving environmental conflicts. Multiple definitions of “public policy” (see, for example, Klein and Marmor 2006, 893; Kerr and Seymour 2010, 5; Adie and Thomas

1987, 191-195) and the lack of clarity regarding who the public is in each particular case cause further confusion. Encouraging coastal stakeholders to share their individual understanding of the terms “public” and “policy” and developing mutually acceptable definitions of these terms early in the process of ECR may facilitate their progress towards resolving coastal conflicts that involve numerous policies and affect many groups and individuals, or “the public”.

Second, many respondents in this study indicated that the key mechanisms of addressing, managing and resolving conflicts are through the work of **federal, state, provincial and local government**, and their committees. The respondents pointed out that government institutions and agencies really seem to play a major role in addressing environmental conflicts (see Section 1 of Table 5 and Section 1 of Table 6). The key role of the federal, state/provincial and local government structures in addressing environmental and resource conflicts may be in its **regulation functions and capacity**. Government committees and commissions develop and implement regulation policies and mechanisms relevant to environmental and resource management and conflict resolution on both the Canadian and American coasts of the Great Lakes. The government’s involvement in environmental and resource policymaking, and its overall power and resources may provide significant potential for effective conflict management within government structures and agencies. However, they may experience a number of challenges in resolving and transforming conflicts due to limited public inclusion, insufficient consultation with and cooperation among all participants, as well as difficulty with the enforcement of some regulatory policies. Hence, while the government’s regulatory power may be effective in environmental and resource *conflict management*, it may not have sufficient flexibility, openness or capacity for environmental *conflict resolution* or environmental *conflict prevention*. Therefore, encouraging public

involvement and participation in the decisionmaking and policymaking processes by facilitating public consultations, forums and conferences may strengthen the connection between government agencies and the public in their efforts to resolve environmental conflicts.

Third, the border location of the Great Lakes that leads to the inevitable sharing of their waters and other resources by Canada and the US creates a **cross-border context for resource and environmental management** processes. The cross-border dimension has to be taken into consideration if environmental and resource conflicts arise so that a process of designing and implementing a conflict resolution intervention takes shape. The cross-border dimension is important because both countries have their individual laws, regulations and policies relevant to environmental and resource management and conflict resolution. The challenge is in building cross-border institutions that would coordinate different approaches to dealing with environmental and resource conflicts in the US and Canada. Another important task of such cross-border environmental and resource management institutions is bringing together stakeholders and groups from both sides of the border in an effort to facilitate their communication, collaboration and cooperation in resolving existing environmental conflicts as well as preventing potential environmental and resource conflicts from happening in the future.

The IJC is an important actor in the cross-border environmental and resource management of the Great Lakes because of its expertise, resources, agreements achieved up-to-date, and its cross-border multi-level collaboration and engagement in environmental and resource management issues. The IJC has the potential to promote ECR in the Great Lakes region by implementing its quasi-judicial, investigative, advisory and arbitral functions (Legault 2000). While the IJC has the capacity to address cross-border environmental and resource conflicts in the Great Lakes area through such

mechanisms as government and public participation, collaboration, dialogue and engagement, the specific instruments for environmental conflict resolution implemented by the IJC may require further development.

The cross-border context for the environmental management of the Great Lakes resources creates an important challenge in harmonizing local, national and international efforts of coastal zone management and conflict resolution (see also Cicin-Sain and Knecht 1998, 140). The coordination of the efforts of different stakeholders, including local and national governments, may further be complicated by the lack of adequate legal policy frameworks in this field (Ibid, 162). Consequently, opportunities and space should be created for science-policy interaction, especially at the stage of developing specific ECR interventions in coastal areas (see Cicin-Sain 1998, 191-195). Hence, cross-border institutions, dialogue and collaboration across disciplines and among stakeholders are of critical importance.

Fourth, **connecting the theory and practice** within resource management and ECR has also emerged as an important issue in this study. While resource management and ECR has a practical focus, it can also contribute to PACS theory, in particular by analyzing various ECR practices in the coastal areas of the Great Lakes. These practices also have theoretical value for conflict prevention, conflict management, conflict resolution and conflict transformation. For example, Sandole (2009) discusses the potential of research as an important bridge between theory and practice/policymaking in conflict resolution. Within this study, one of the approaches that may connect theory and practice in resource management and conflict resolution mentioned by several respondents focused on including the description of a dispute resolution process in agreements, treaties and policy documents. Should a future conflict occur, participants could refer to these procedures to assist them collectively to resolve existing conflicts and

to find mutually acceptable solutions. This preventative approach could serve as an ECR model, and could be developed further with the assistance of research and theoretical analysis. Another example of connecting practice with theory is the work of Sea Grants that combine research, education and theory-building with practical experience and policy development.

Fifth, the respondents' stories highlighted that **legal mechanisms of resolving environmental and resource conflicts** are generally perceived as potential but not primary conflict resolution approaches. A relatively small number of study participants mentioned that legal mechanisms may be perceived as critical conflict resolution methods. A number of concerns related to these types of conflict resolution methods were also voiced. Among the critiques of the legal ECR mechanisms were the perceived limited opportunities for the participation of a wide range of stakeholders in co-creating and implementing conflict interventions, and in monitoring progress and measuring the success of a chosen conflict resolution approach. While legal mechanisms were characterized by the study participants as important and necessary 'safeguards', there seemed to be a general perception of a certain degree of insufficiency of such methods. Legal mechanisms were also perceived by some respondents as the means of last resort in a situation in which conflict cannot otherwise be resolved. These perceptions may emphasize that while legal mechanisms are available as potential conflict resolution approaches, coastal stakeholders have the capacity to develop and implement other approaches and resources to resolve environmental conflicts.

Sixth, while most respondents recognized the potential benefits from using **ADR** processes, they noted that these processes are not frequently used in resource and environmental management. Some of the reasons for not using ADR processes included the lack of awareness about these processes, the absence of confidence in the

effectiveness of these processes, and the fear that these processes would take control of the situation away from the immediate participants. The insufficient knowledge about ADR indicates the need for increasing awareness about ADR processes (both formal and informal) among coastal stakeholders and building the environmental managers' and policymakers' knowledge and expertise in ADR methods.

At the same time, of those participants who shared examples of using ADR in their work, the majority referred to their use of *informal* dispute resolution processes rather than involving professional mediators or applying formal resolution mechanisms. According to some of my respondents, coastal stakeholders are using local indigenous methods of addressing environmental and resource conflicts that evolved over time due to local needs. Consequently, the significant existing knowledge and expertise in conflict resolution theory and practice, which have accumulated to date do not seem to be fully realized in environmental and resource management. This finding calls for creating more awareness about ADR methods among coastal stakeholders and environmental decisionmakers. This could be achieved by conducting ECR conferences and workshops, as well as by initiating dialogue between environmental policymakers, resource managers, academics, researchers, educators, and conflict resolution professionals.

Seventh, **evaluating progress** of conflict resolution interventions is an important component within the process of conflict resolution, prevention and transformation (Lederach 1997; Costantino and Merchant 1996; Folger 1999; Preskill 2004). In particular, evaluation of conflict resolution interventions facilitates further application of conflict resolution and peacebuilding theory and practice (Gürkaynak et al. 2009, 297). Along with other areas of conflict resolution and peacebuilding field, ECR also benefits from designing and implementing evaluation techniques and mechanisms. However, few respondents discussed evaluation issues within this study. A separate research project

with a specific focus on evaluation of ECR interventions in the Great Lakes region would be required to cover the gap in this area.

Moreover, the links between legal and alternative approaches to conflict resolution require further research and analysis. In particular, within the framework of an integrated ECR approach, legal methods may be considered as an important but not the only possible type of methods to resolve conflicts. More coordination and collaboration among natural science and social science researchers and practitioners of both legal and alternative conflict resolution approaches may lead to the development of effective conflict resolution practices with the capacity to enhance complementarity and to comprehensively integrate both approaches (see Schmitz et al. 2012).

5.8. Conclusions

The discussion of several models of environmental and natural resource conflict resolution related to policymaking in the coastal areas of the Great Lakes has revealed a number of gaps within these strategies and, at the same time, provided a foundation for developing an integrated strategy of environmental conflict prevention and dispute resolution in coastal areas. Exploring the possible mechanisms to integrate existing conflict resolution approaches within a common policy framework, and taking into account the lessons learned from past experience in resolving coastal conflicts are important steps in designing a strategy (method, framework, approach) for addressing multiple interests, needs and responsibilities of stakeholders in coastal areas. The North American Great Lakes provides a rich field of study for exploring these issues because this vast region can be characterized by its diverse economy and multiple coastal stakeholders, including oil and gas industry, port and harbor facilities, fisheries, local residents, tourism and eco-tourism, as well as its beautiful nature and rich cultural

traditions. Most developments and activities in the Great Lakes region are closely linked to coastal areas. At the same time, economic and social developments in coastal areas may cause environmental and resource conflicts between coastal stakeholders. The next Chapter focuses on a number of collaborative ECR methods in the Great Lakes area. These methods, if integrated with the public policy approaches discussed above, could form a strong basis for developing an integrated ECR framework in the coastal areas of the Great Lakes.

Chapter 6: Collaborative environmental conflict resolution practices in the Great Lakes

Introduction

Chapter 6 focuses on collaborative ECR methods and practices that are used, or have been used in the past, by the respondents as well as the conflict resolution methods that they have knowledge about. Public participation and governance, resource management plans and advisory groups, environmental and conflict resolution education, dialogue and communication as well as creativity and cooperation fall into this category. Further, Section 6.8. explores directions for sustainable development in the Great Lakes and is the result of wide-ranging and comprehensive discussions of this topic by the study participants. Finally, some of the most effective ways or “best practices” for managing environmental and resource conflicts shared by the study participants are discussed in this Chapter. Table 7 below provides examples of ECR practices in public participation, research, education, training, dialogue and collaboration. Table 7 is formulated based on the respondents’ stories with regards to the question “How are environmental and resource issues and conflicts addressed and by who?”

Table 7: ECR in the coastal areas of the North American Great Lakes: Public participation, research, education and other collaborative practices

1) Grassroots participation, citizen involvement and local activism

NGOs and public groups:

Environmental groups that focus on local environmental problems, for example, area councils or watershed councils. NGOs ranging from community-based volunteer groups to state/province wide groups to national and international groups provide information and often make great effort to influence decision-makers, and conduct public education. For example, Cornwall and District Environment Committee (CDEC) is a grassroots public interest ‘watchdog’ organization. A2A is a not-for-profit conservation organization that applies a degree of accountability on the part of government agency and municipal actions.

Local citizens:

Local citizens are involved and participate by attending workshops, becoming representatives on council boards, reporting algae blooms, involving themselves in integrated assessment, doing local projects like removing invasive plants, and engaging along with experts in a long range of study and planning process related to water management that results in reports serving as guidance documents for future action. For example, a citizen-based volunteer program called Adopt-a-Beach™ allows volunteers to monitor beach health over time.

2) Research, education, training and raising awareness

Universities are involved in information gathering and sharing, social science and natural science research and studies, environmental assessments and assistance with policy development. Awareness about environmental and resource conflicts is raised through publications and documentaries, the media and Internet resources, presentations and workshops.

Sea Grants play a role by providing impartial, science-based information to inform the discussions; help communities by providing expertise and access to other experts. Sea Grant Extension agents educate the public about sources and remedies for environmental conflicts and issues.

3) Dialogue, collaboration and forming coalitions and advisory groups

Environmental and resource conflicts are addressed at meetings and conferences by many of the stakeholders; through informal communication between government departments; through dialogue, coordination of coastal management programs, building partnerships and forming advisory groups; by setting up cooperative management boards and water users cooperatives; and through negotiation. For example, a Regional Stormwater Protection Team (RSPT) is a collaboration of 25 agencies, municipalities, groups, and organizations with the common goal of coordinating public education and providing technical assistance to solve stormwater problems. The group has become a great networking and idea sharing platform for water quality issues in the Duluth area.

6.1. Public participation and governance

The question about public participation in environmental and resource management in coastal areas of the Great Lakes generated a lot of feedback from the respondents. They shared both their general considerations and insight about the effectiveness of public participation, and their specific examples of the way the public participates, which included both the success stories and criticism of the systems in place. In terms of general descriptions of public participation, a research manager working in the Great Lakes Basin in the US shared with me the following in her story,

Respondent AI: Public participation often takes the form of public forums (listening sessions) to gather public input on issues; many government-run programs have advisory committees with public representation; democratic processes such as voting affect implementation policy.

Public participation in environmental and resource management was conceptualized and articulated by a number of respondents in terms of the involvement of the public in resource and environmental governance. For example, an academic from Ontario had this to say about public participation in resource management and governance,

Respondent AR: I'm strongly of the view that the over-all structures and processes for governance matter and require a lot more attention at the Great Lakes Basin scale. If nothing else it could help design the smaller scale collaborative processes you seem to be most interested in and link them to the larger scales that provide necessary context and some background understanding for local efforts. The IJC advisory groups have both documented and concluded that at least for the lower Great Lakes, the [Areas of Concern] would now constitute the entire coastal zone.... More factors would now have to be considered than were known some 25 years ago when the concept was first introduced (and then institutionalized around the individual sites).

Further, he went onto specify what he meant by environmental and resource governance as follows,

Respondent AR: Basically, I meant the basic constitutional and legal frameworks for governance that have been developed over the years to direct the assignments and divisions of responsibilities for planning and management of particular sectors or issues that arise. It includes different levels and divisions among governmental administrations, a substantial private sector that use the resources of the Lakes in many ways, and many civil society groups that are involved in situations that affect them. The collaborative groups tend to cluster around the different uses of land and water, with those interests that need high quality environments ("drinkable, fishable, swimmable") disadvantaged by those who don't (for example, commercial navigation, pollution dilution). For any particular location and set of issues, say a [Remedial Action Plan], this overlay both structures and limits what can be done by collaborative efforts trying to address issues at that one particular scale.

Discussing the issue of public participation, a Field Unit Superintendent with Parks Canada from Ontario shared his experience and knowledge in terms of the current process of public involvement as well as his vision for a more effective governance,

Respondent AK: How does the public participate? The usual process of announcing a public meeting to discuss X topic. This has been expanded by the use of the Internet to advertise and provide mechanisms for public input. In some instances the government seeking opinion may form a working group with a specific mandate, usually advisory in nature.... If the issues affect First Nation rights and title then a separate and distinct consultation is required. This is not always done effectively and often is out of synchronization with the working group efforts or general public consultation.... What actions or policies are required? Entirely new ways of governance where sharing power and decisionmaking are truly achieved. We need to implement good governance and monitor and measure the implementation. A short sentence with magnificent implications for revamping fundamental approaches to public participation in making choices about those things that most directly affect them. As a principle, the people who are most affected by decisions should have direct and greater say in the processes that result in a decision than others. However, in order to achieve this, the processes must be resourced (human and fiscal) properly.... Being clear on the distinction between governance, governing and government is pretty critical as well. Because there is often times of blurring between what people are describing as governing as opposed to governance. There is a lot about where the power is, based on embedded constitutional and provincial and local laws and structures that create power points, and then trying to move that power from within those existing structures outward sometimes is very difficult because it is prevented by the laws themselves.

The respondents revealed different perspectives about public involvement in environmental and resource management and the effectiveness of public participation. Some respondents perceived that the public is actively and broadly involved in this process. For example, an academic from New York shared with me the following examples of public participation in his narrative,

Respondent AS: There are several methods. A lot of groups involved in various environmental projects enlist public assistance in tasks like... surveys following fish ladder installation. Groups of young people are also involved in many restoration efforts, such as the Harbor School. The Bronx River Alliance hires local youngsters to help clean the riverbanks. This approach is very common, combining education with restoration (there is a long list -

Roosevelt Island Sports Foundation, The River Project, Seatuck - of groups that take part in this approach). There is also an effort less at direct involvement than in education- my own group, coupled with New York State DEC, runs a program to take children fishing after receiving some education on local fish and ecosystems. The group (I Fish NY) also holds large public clinics. The emphasis on all trips is sustainable fishing practices, education, and an environmental approach to the waterfront, the theory being that young people can form a connection to the water through angling. There aren't too many ways to connect to nature in New York City, but even a polluted waterbody is teeming with hidden life. This educational approach is more long term, but it does plant the seed of coastal responsibility in current and future users.... As for effectiveness, it is very effective for participating groups. For instance, those who take part in a fishing trip or an alewife survey learn a lot from the experience and may be more inclined to keep an open mind about the water. How far this spreads beyond participants is unclear. However, for something that involves volunteering your time, it's a self-selecting group. The people that have absolutely no interest in stewardship are the ones doing the most damage and they are not the ones showing up at the meetings.

An environmental educator from the Great Lakes region in the US also provided a number of examples of successful public participation,

Respondent AZ: Public participation really depends on the issue, they will attend meetings, give presentations, focus on community awareness, write letters to elected officials, ensure they are abiding by best management practices, organize educational events or activist events — just as some examples.

Other respondents were less enthusiastic about the scope and quality of public participation in environmental and resource management. According to an academic, activist and a member of an environmental NGO from Ontario (Respondent AJ) public participation is effective “only if allied to a commercial interest like an industry or municipality.” The concerns about the lack of interest in participating, the lack of opportunity to participate and the lack of knowledge needed to be able to participate were shared by other respondents. For example, according to a member of a nonprofit environmental NGO from Michigan, the public requires guidance in order to find ways to participate in environmental and resource management,

Respondent T: Citizens are actively engaged in the land use decisions made in their communities. It is often difficult for them to know how to participate, but with resources and assistance from groups such as Freshwater Future, they are very successful in participating in decisionmaking processes.

In addition, an environmental policymaker and academic from Michigan also shared his thoughts regarding the challenges for public participation related to limited resources, lack of expertise, apathy and the lack of time in everyone's busy schedules,

Respondent AT: This is always the challenge that the public won't participate.... part of public participation requires the public being capable of participating. And there are several things that would limit the capability of somebody from participating. One would be resources: I don't have the money to travel to the meeting. Another would be expertise: they are asking me about, 'should we stock this [kind] of fish or this [kind] of fish, how do I know?' So there is an expertise question. There is an apathy issue, 'what good is my participation going to do?' But you know, most of the kinds of things that would affect public participation, you know, time 'there is just not enough time in the day'.

An academic from Minnesota also questioned the effectiveness of public participation in environmental and resource management,

Respondent AF: Direct public participation probably has little effect, although some small citizens groups have made a difference. The more important participation by the public comes in electing public officials who are sensitive to coastal issues.

According to a coastal land use specialist from Pennsylvania the public participates more when issues affect them directly,

Respondent AP: It depends on whose ox is being gored. Sometimes, issues don't interest the public at all. If it is perceived that neighboring properties are being affected, then people come out in droves. I think that public participation is the key to obtaining consensus, and based on my experiences that policy is often altered based on that input. It certainly legitimizes a decision if the voting power has held a public hearing or meeting to gain public input, not that it's much fun receiving that input sometimes.

On the other hand, an academic from Ontario also shared with me the following considerations related to public participation and its effectiveness in environmental and resource management,

Respondent AL: It depends entirely on how you define the public. So for example, in Innisfil Creek the people involved were the water users, so water users' cooperative, right. So if you are a resident of the watershed and are not using the water, you are not being asked to participate in this process. Now, that doesn't mean that you don't have an interest, but presumably if you want to participate in some way, you could. It is not that there is some sort of conspiracy to exclude or marginalize the public, it is simply that the people that care the most have gotten together. And certainly in other situations you will find that the more formal it becomes.... so for example, in a context of things like Official Plan policies related to the Waterloo Moraine or any other sort of planning kind of issue, there is a clear role specified in the statute or policy for public, which is to convene these public meetings and say what you want to say and etc. So it completely depends on the context.

Some respondents conceptualized public participation through the idea of creating a public forum that provides an opportunity for public consultation and public workshops. For example, a scientific researcher from Michigan (Respondent AO) shared with me that public participation is usually facilitated through the town-hall meetings, and noted that "public participation is important but is not fully realized." Moreover, an academic from Wisconsin (Respondent AW) also concluded that "participation is generally pretty strong, but the resulting actions are often mixed – generally depending on funding availability."

Public input can be very valuable for resource managers and conflict resolution professionals. For example, a lot of useful ideas for addressing conflicts by affected stakeholders can be generated through brainstorming or envisioning exercises (Evans et al. 2001). Public participation in resource and environmental management increases overall public awareness of the issues and conflicts that arise and increases the potential for the resolution and transformation of these conflicts. Furthermore, public participation is a critical component of collaborative dispute resolution processes of various scopes, from small-scale initiatives to addressing global environmental problems.

At the same time, a number of concerns related to public participation and its effectiveness were also voiced by the respondents. For example, the capacity of public participation can be limited due to the lack of time, limited resources, low interest in the issue at hand, insufficient knowledge about the particular environmental or resource problem, lack of guidance for participation or lack of knowledge about opportunities to participate in a collaborative policymaking process.

The idea of *governance* appears to be critical in both addressing the aforementioned concerns, and in creating an opportunity to fulfill the potential of public participation in environmental and resource management. In particular, the vision of public participation in environmental governance may be conceptualized as shared power, and collaborative decisionmaking among coastal stakeholders, especially in terms of including the people who are most affected by these decisions.

6.2. Resource management plans and advisory groups

Developing specific **resource management plans** for a particular area is a possible strategy to address coastal conflicts through a variety of approaches including prevention, resolution and transformation of environmental and resource conflicts. Another specific way environmental and resource conflicts may be dealt with is with the assistance of various **advisory groups**. For example, a fisheries manager from Minnesota shared with me his experience of forming an advisory group among the fisheries groups and stakeholders in Minnesota's portion of Lake Superior,

Respondent X: Basically my job in Minnesota is to manage Lake Superior Minnesota's portion of Lake Superior which is about 7 percent of the surface area, my job is to manage the fisheries, and also coordinate with the other States and the Province of Ontario, that we share the Lake with, and some Tribal organizations as well. So, in my work, when I first got here, like I said, almost 20 years ago now, there was basically no plan written on how do we manage the fisheries. We had a lot of different user groups down there, and

they were all interested in their aspect of the fisheries, whether it was a charter captain who wanted to catch fish and bring customers out on a boat so he can gain dollars, or whether it be a commercial fisherman who set nets in the Lake and harvested fish to sell, or whether it was an angling group who was very focused on a single species, Chinook salmon, or an angling group that is very focused on spring fisheries, the steelhead or something, and all these folks have very focused, very passionate interest and the agency is charged to manage for all these purposes and only had a limited amount of dollars, and a limited amount of staff, and a resource that is basically self-sustaining and is in a relatively pristine condition, our charge was, how do we satisfy these folks.... it becomes a relatively complex management scenario.... So what we did is we formed an advisory group and we brought together representatives from each one of those user groups. And we sat down with them and we told them that we would be willing to work with them for however long that took to develop the management plan and that it would be based on biology, not what they wanted, but it would be based on biology, if their desires would fit with that, we would do the best we could but that we wanted everybody involved and we would try to answer their questions as we moved forward. And so that's what we did, over the period of almost two years, it took a lot of effort, there was a lot of mistrust to begin with, because the agency wasn't trusted by the folks that we were managing for and the groups did not trust each other, but one of the things that was really interesting was that the dynamics changed in that everybody realized that once they heard about the biology and then they realized that nobody would get everything they wanted because the Lake was not able to sustain that, and it wasn't so much the DNR or the managers that were the issue it was just the reality of the situation.

The purpose of forming this advisory group was to assist stakeholders to co-create a fisheries management plan, which would assist them in resolving ongoing conflicts and disputes related to fisheries use, development and regulation.

Further, he goes onto share his extensive experience in developing and implementing a resource management plan as a fisheries manager,

Respondent X: It took a while but we came to some major agreement upfront to basically manage the conflict that was going to occur before it occurred. So we had these things in place and then we wrote this plan to be basically a ten-year plan. We said that we realize that in 10 years some things are going to change, and we would address those as they came up, but we wanted to try to keep this plan in place for 10 years rather than doing what the history of the fishery was when every time somebody called up the fisheries chief the whole management scenario changed. So we did that, and it actually worked fairly well. Like I said, it took a lot of time and a lot of effort and there were some groups that were not happy and are still not happy but for the most part

people accepted it and they realized that they weren't going to get everything they wanted.... So we have done that now for two rounds, we did that in 1995 and then we said we would revisit it 10 years later, which we did and we redid it again in 2005. So the second scenario went much smoother. People kind of realized what the process was, we didn't have to relearn that.... and we made some significant changes, but almost all the changes I would say really focused more on what the Lake could provide biologically rather than what individuals wanted.... The fishery got better in those 10 years, the agency created way more credibility because we were not changing gears every time the phone rang and we stuck with our plans and when we said we would make decisions we followed through on that.... As it turned out we made way better decisions as far as the sustainability and the long-term biological effects on the resource than we would have made with the old method of just calling up complaints, appeasing people, and doing it again and again.

The process of developing a fisheries management plan described above led to an even more extensive discussion among stakeholders. In particular, the groups engaged in resource and environmental planning beyond just fisheries management and extended into habitat management and sustainability in Lake Superior. For example, he also had this to say on the issue,

Respondent X: And we didn't only work with just the fishery, we did have a lot of discussion about habitat as well, which had really paid dividends because that is the one area where we could get all these conflicting user groups to agree. They all agreed that habitat was critical, they all agreed that we should be doing the best we can to protect it.... When we actually sat down and started doing the hard work, and I would really say that the big part of that first process was education, bringing everybody up to the level where they could understand. You know, they didn't understand the intricacies of fisheries management, but they had to understand the basics. And when they better understood, they realized that what they were asking for was unrealistic, for the most part. And some of them even knew it was unrealistic, but they were still asking for it... This initial work around the habitat has now paid dividends because we have turned more towards habitat management, because the fisheries can't sustain themselves if they don't have good habitat. We have been able to discontinue stocking of three major species programs and we have been able to turn our efforts more towards habitat for long-term sustainability.

The above example illustrates the preventative approach to addressing conflicts within fisheries management through an inclusive and participatory process of

forming an advisory group with the purpose of designing, developing and implementing a resource (fisheries) management plan. This example reflects both the challenges of multi-stakeholder collaboration in resource management and the opportunities arising from such collaboration. The opportunities provided by this approach include raising awareness about the issue, promoting education and sharing knowledge and expertise, as well as the participatory character of this conflict intervention and prevention approach.

An important point was also raised by Respondent X, when he discussed the need to provide the grounds and the reasoning for these particular fisheries management criteria. The fact that it has been based on biological science and the goals of sustainable habitat management is important. Basing a conflict resolution initiative (plan, proposal, decision or intervention) on clear and sound reasons adds credibility to it and may increase its effectiveness and help generate support among stakeholders. **Ecosystem sustainability** is one of the important goals that is especially critical for coastal areas, and it may be considered the grounds on which ECR practices need to be based.

6.3. Environmental and conflict resolution education

The majority of participants noted that education plays an important role and contributes to effective and sound environmental and resource management in the Great Lakes area. The respondents raised a number of arguments about why education is important and specifically how education can help resolve environmental and resource conflicts. For example, an academic from Ontario provided a helpful broad overview of how education can be important in environmental and resource conflict resolution,

Respondent AX: Education is used to inform people about activities in the area through newsletters, newspaper articles, meetings, lectures, workshops, water festivals, conferences, and special events. Education is seen as one of the more important aspects of environment and resource management as a tool to communicate information to all audiences, be it scientific or notice of action. More importantly, education facilitates a common language and knowledge base for all representatives, and promotes a broader awareness and engagement of the different issues and approaches entailed in environmental and resource conflict. This in turn builds solidarity and understanding.

A member of an environmental NGO from Illinois also captured some of the critical points related to the connection between environmental and resource management, education and conflict resolution practices,

Respondent AV: Education is always very important in conflict resolution. The more that is known about the issues and the positions of all parties, the more likely solutions can be found. At the same time, some have such strong feelings that compromise and middle ground is hard to find.

In addition, an academic from Wisconsin also shared his perceptions regarding the present day challenges of information overload, and suggested directions for improvement involving creativity and new methods of education to address coastal resource and environmental issues,

Respondent AU: I believe that creativity and education are key to addressing coastal issues. However, traditional methods of education may no longer be enough to sway opinion and to combat the mistrust of experts. As more people get their information in bites of 60 seconds or less, and expect to find information very rapidly, social networking techniques are becoming more important in disseminating information along with easy access to wikis and internet search results. The challenge is not in finding information, or in finding ways to disseminate information, but rather developing a citizenry that has the necessary skills to judge the credibility of information sources and the validity of the information presented.

This is indeed a critical point. Today the concern is not about the lack of information, but rather the excess of information, and often contradictory information, of all different kinds related to every single issue imaginable. In terms of using the information sources

for environmental education purposes in schools and universities, research is required to identify credible and comprehensive print, Internet and other media sources related to environmental issues relevant to the Great Lakes coastal areas. A number of essential on-line information databases are presently available, for example, at the websites of the US Environmental Protection Agency (EPA), Environment Canada and the Great Lakes Information Network (GLIN)¹³. Another systematic approach to address the concern about the difficulty of finding credible sources of information is to assist students in learning to analyze information sources based on a number of criteria (for example, origin, author, date, references provided and relevance to the region). Conducting class discussions and group projects on information search and analysis could also assist in developing students' analytical and evaluative skills.

In addition, an environmental policymaker and academic from Michigan revealed his understanding regarding the extensive role education plays in effective environmental and resource management, including its potential for resolving conflicts,

Respondent AT: Yeah, the education is part of everything that we do, whether we are talking to politicians or to the fishery managers, and what you don't want is you don't want people trying to make decisions in the absence of information. Because that is basically prisoner's dilemma, and you get the tragedy of the commons, and all that. So if there is an opportunity to educate, then it is important. Let me give an example. In Ontario the Minister of Natural Resources, like in other provinces as well, makes the decisions about fishery management. If the minister does not have a firm understanding or education in the bi-national nature of the fishery, or the level that Ontario has undertaken to understand the fishery, the Minister is not going to be in the position to make educated decisions about Ontario's allocation, but also about total allocation on the Lake. If the minister doesn't appreciate that it is a shared fishery, or that Ontario works very closely with Ohio before they even go to the minister with a recommendation. Then that minister without that education in the process would probably think quite parochially. And only Ontario's interests without taking into account the other elements of the Lake Erie fishery.... The same goes for the public. If the public doesn't understand really what it means to manage a shared fishery, they are going to be exerting enormous parochial pressures on Ontario ministry to do certain things, that

¹³ See: <http://www.epa.gov/>, <http://www.ec.gc.ca/> and <http://great-lakes.net/>

probably be to the long-term detriment of the Lake. So that is where education plays a key role because it explains to people “hey, we are sharing this resource” or “no, we can’t allocate that much... this year because the science tells us this or whatever”. So I can see how to avoid conflict in the first place. Education alone will never ever do that, but it will be very helpful.

According to a Federal Government employee from Ontario the role of education in environmental and resource conflict resolution can be in its potential for mutual learning.

This is what he had to say on this issue,

Respondent AA: Well I think what we are trying to do as an approach, we as resource managers, given that legal responsibility in Canada, what we try to do is we educate people, because we believe that if we educate them, they’ll understand, and then they will be more willing to compromise. Like if they understand the detrimental effects of certain kinds of activities on the environment, or if they understand more of those kinds of things we believe that maybe they will compromise. But I don’t think we go in to learn, what the issues are. Like we don’t go into mutual learning, we are going to teach them, what the problem is, because we have science on our side, and we have done the research, and it’s all here to educate you because you don’t really know what’s going on. You see what I mean? And for me in my research what I am going to be doing is looking at learning with each other by doing, and the whole concept is to try to say that learning has to happen on both sides, we have to think about history, and how we got to this point, and we have to be willing to learn and understand and be open to learning from each other. Now, we don’t do that.

Some respondents perceived quite specific roles for education in addressing environmental conflicts. For example, an academic, activist and a member of an environmental NGO from Ontario (Respondent AJ) finds that education as a source of technical information can help find a win-win solution to problems. Another study participant, a government employee from Minnesota (Respondent AH) pointed out the capacity of education mainly for conflict prevention stating that “education works best before people feel that they are being negatively impacted by a specific conflict.” On the other hand, an academic from Wisconsin sees the particular significance of education delivered through citizen participation in conflict resolution practices. This is what he had to say on the issue:

Respondent AW: Obviously important, but best taught through participation (of students and their respective institutions) in the conflict resolution process. My experience is that theory is an important learning tool, but rarely affects on the ground decisions.

A key point regarding education repeated by many study participants was also voiced by an academic from Wisconsin that a deeper knowledge about issues (for example, the root causes of conflict and the scientific information associated with it) can help solve problems. Specifically, he had this to say about the role of education in ECR,

Respondent AU: As an academic who has spent more than thirty years in education and outreach, I consider education to be very important in helping to solve such conflicts, and I have seen many examples where those who have taken the time to learn about an issue on more than a superficial level have been willing and able to work toward compromises and resolutions. Recent publications have indicated a rather disturbing trend toward a general distrust of science among the general citizenry, and an inability to judge the credibility of sources and to sort out opinion from tested hypotheses. If continued, that trend will work counter to effective education and conflict resolution.

It is also important to point out that becoming aware of and learning more about conflict resolution skills and techniques can assist in resolving environmental and resource problems. Consequently both components are required within an education approach, that is, both environmental education and peace education (Wenden 2004). Education can, therefore, assist in connecting science, policymaking and public participation. For example, a Field Unit Superintendent with Parks Canada in Ontario elaborated on the role of education in the following way,

Respondent AK: [Education] is a fundamentally critical need that is not being met. Firstly, education with school age children and then high school age young adults that addresses the fundamental teaching of ecology and economics so that a foundation of knowing that the study of the “home” (planet earth) and the management of the “home” are inseparable. Building on that fundamental stewardship message young adults can begin forming opinions associated with environmental and economic decisionmaking that is informed. What must be addressed is educating and informing existing adult populations likely through structures and mechanisms that permit shared decisionmaking and powersharing (governance structures) that is founded on social-economic systems.

Another point that contributes to the above discussion of the role of education in ECR was shared with me by an academic from Ontario who sees education as a piece of a puzzle, a building block that has to be used along with a variety of other methods,

Respondent AL: Education is an interesting one. And it is funny that we should be talking about it right now. This morning I just finished revisions on the manuscript we are sending off to Environment and Behavior where we looked at the extent in which education provided the basis for getting well owners to use proper well sewage and practices, and education is remarkably ineffective... Education is a precursor, knowledge is a precursor but there are a whole bunch of other reasons of why people didn't do what they should not have been doing. You know, other precursors were sort of attitudes, values, but also structural kinds of considerations, like how convenient or inconvenient something was. So education is a piece of a puzzle but I personally am long past the point where I think we are going to find the answers for a lot of these problems simply through education.

Like many other ECR processes discussed in this study, the question about education generated a wide-ranging discussion illustrating both the advantages of this approach and the concerns regarding its effectiveness. In particular, among the strengths of education the respondents named its capacity as: (1) a source of credible information; (2) a vehicle to communicate information to a broad audience including students, coastal residents and other stakeholders; (3) a tool for creating awareness, building capacity and promoting engagement; (4) a mechanism for encouraging mutual learning and sharing knowledge among coastal stakeholders and policymakers, and (5) an incentive for active participation in addressing environmental and resource conflicts.

At the same time, they raised some concerns about the effectiveness of education as an ECR process including: (1) its limited capacity; (2) the present day information overload and related difficulties with finding relevant and credible information, and (3) challenges in educating adults outside the school curriculum.

The metaphor of education as a piece of a puzzle along with environmental and resource conflict resolution, prevention and transformation strategies is very relevant to

the overall scope and purpose of this study. It illustrates the complexity and the dynamic nature of environmental and resource issues and conflicts, and demonstrates the interdependence and interconnectedness of approaches and processes of environmental and resource conflict resolution. All puzzle pieces might not necessarily be in the right order to create a perfect picture, but they are there to work with, and to attempt to create a functional and effective process of managing coastal environment and of resolving environmental conflicts.

6.4. Dialogue and communication

Dialogue and communication play a critical role in conflict resolution (Katz and Lawyer 1992). In fact, it would not be an exaggeration to state that effective communication is one of the key components in resolving conflicts and in building peace. In the case of the environmental and resource management of coastal areas, which host numerous stakeholders with their individual interests and needs, dialogue is truly essential. For example, the significance of dialogue and communication in resolving environmental conflicts and in resource management was discussed by a Field Unit Superintendent with Parks Canada from Ontario,

Respondent AK: You have to keep talking, keep meeting, keep discussing. We have to stop forcing resolution of issues against invented timelines; timelines invented without the involvement of those most affected by the imminent decisions. Senior representatives of government departments (members of the “Executive Group”) must be freed up to engage in the relationship building and turned outward rather than serving inward and upward. Serving outward achieves the longer term goals of governments while other internal staff at levels aligned to serving inward and upward – can do that. We need to locate in communities where we are working to live the decisions that we make with the communities. We have to get closer to the end point of our decisions and policy direction. We have to live the intentions and the consequences of our decisions. In my area we will be absolutely unsuccessful if we do not understand in depth and with heart, the realities facing First Nations communities. As the dominant power, it requires enormous capacity to recognize the authorities and privileges granted just

because of being the dominant power. Suspending the trappings of such dominance requires humility, humor and compassion; qualities necessary of leadership and authenticity.

Another study participant, an academic from Ontario noted that negotiation and consensus are critical for managing and resolving environmental conflicts effectively,

Respondent AX: Negotiation and consensus has been a focus of decisionmaking in the area. If there is any conflict, the issue is brought to an open table for it to be discussed at council meetings. Decisions are derived through negotiation with voting be the last resort although all efforts are taken to avoid such matters. At the St. Lawrence River Restoration Council, only once was there a vote when negotiation and consensus could not be reached.

There are different forms of dialogue and communication among coastal stakeholders, ranging from informal interpersonal communication to higher level international negotiations. Some forms of dialogue are highly structured while others involve routine everyday conversations. Some forms of dialogue are very interactive while others represent a one-way means of communication (for example, messages delivered through news media). One way of conceptualizing the value of dialogue in conflict resolution is that it creates a space in which stakeholders may share their concerns, address their differences and work together to problemsolve and design a mutually acceptable resolution approach. Being open to dialogue indicates a willingness to be cooperative and open to change. At the same time, the effectiveness of dialogue in conflict resolution can be strengthened by obtaining communication and negotiation skills as well as becoming knowledgeable about the subject being negotiated, and being genuinely interested in contributing to the resolution of conflict.

6.5. Creativity

Creativity was another topic widely discussed by the respondents who shared both their general thoughts about the role of creativity in environmental and resource conflict

resolution, and who provided specific examples of how creativity was used to address particular types of conflicts. For example, an academic from Ontario had this to say about the role of creativity in the conflict resolution process,

Respondent AX: Creativity contributes to an innovative and progressive process by fostering adaptation and ingenuity. It serves to inspire others to become involved and see the potential for future conditions and realities. In the Cornwall area, creativity sparked the creation of the St. Lawrence River Institute of Environmental Sciences (SLRIES). SLRIES evolved from a general interest for local ownership and contribution to scientific investigations of the river to a well-established institute that hosts an annual international conference as well as being a local source for education and outreach.

Another study participant, a government employee and scientist from the US was very positive and enthusiastic about the role of creativity in environmental and resource management, and specifically its significance for resolving conflicts. He shared the following insight with me,

Respondent AY: Necessary! Absolutely. And from my water council experience, it took some key creative moments to propel the group to workable answers. This requires flexibility, freedom to explore, trust enough to try tentative solutions. Implies need for relationship-building during policy process!

A critical point was raised by an academic from Ontario who discussed creativity versus a one format fits all approach in resource and environmental management,

Respondent AL: Creativity is hugely important. So for example, again, I am just going to go with what I know here, so in the Innisfil example there was an infinite menu of things that we could have done, right, and so I use that as a terrific example of the importance of creativity. My job in that process was to try and work with people and to seek a solution that was adapted for their particular need and would work in Ontario in that place with those people. To be exact opposite of the one size fits all cookie cutter kind of approach. And just to illustrate what I mean, once the project was completed some of the participants suggested “well, why don’t we write it up so that we can duplicate this all across the Province?” And I said, “well, forget about it”, because number one, we didn’t do anything that was terribly relative to the literature, we simply didn’t do anything that was terribly novel, so there wasn’t really a worthwhile journal article out there. But more to the point, what we did worked only and simply because of those particular

circumstances, this was a one off custom job. With a different cast of characters, it wouldn't have worked, so without John¹⁴ it wouldn't have worked and you know I'll bet you John, because I just sent you two newsletters produced by the group that formed. See John is the chair of this water users co-op and he was a retired farmer, a community leader, the other people looked up to him and it was when John nodded his head and said that "ok, let's do this thing". And with John's willingness came everybody's willingness generally to consider some things, so that to me was an example where creativity as opposed to the more sort of one-size fits all bottle was absolutely essential.... And what is even a bigger challenge too here is that government as a whole hates these one-off things, right, because it is not consistent. They like consistency, and accountability, and measurements, and monitoring, and reporting, and so this is exact opposite of the approach that government will really like. They want to be able to publish an annual report where they would have indicators that they measure and you can't do that if every single watershed is a one-off deal and every single solution is a one-off deal. Certainly in my experience, I mean they try and create some consistency, but the bottom line is if consultants would come to that watershed with the typical consulting approach, which is that they basically have a model that they are going to try to make work everywhere, they stamp them like Christmas cookies, it would have been doomed. It simply would not have worked, so we have to be able to adapt, adjust and be flexible and fit is incredibly important, institutional fit is hugely important in terms of what can work and what doesn't work.

Several important points are raised in the above narrative. First, creativity is perceived as a critical integral part of working with communities to resolve environmental and resource conflicts. An important point is that creativity implies that different approaches would work best in different situations. Therefore, the role of a resource manager or a conflict resolution worker is to use her/his knowledge, experience and creativity in designing a conflict resolution approach that would work best in a particular situation with these particular stakeholders. Second, creativity is conceptualized as a method that is directly opposite to a cookie-cutter one-size-fits-all approach to resolving conflicts. While this is by no means an important observation, the implementation of individual unique conflict resolution approaches in each particular conflict case could cause a number of complications. It could be time-consuming, resource-demanding and costly to

¹⁴ The name has been changed.

design a new unique intervention every time an environmental conflict happens. It could also create tension with existing environmental and resource policies and regulations, some of which include the guidelines for conflict resolution in case an environmental or resource conflict takes place. However, creativity can be understood and implemented in many different ways. One way to carry out creative ECR approaches is to find a reasonable balance between an existing structure and innovative input. Such balance would incorporate some effective practices that have worked in similar circumstances along with adapting them to individual case-specific conditions and requirements.

My respondents also discussed a number of other cautions and limitations regarding the use of creativity in environmental and resource management. For example, an academic from Minnesota shared the following observation with me,

Respondent AF: I've seen a few efforts to incorporate coastal issues into art and creativity activities. I'm not sure how effective they were, but such efforts could be an important part of education.

It matters how individual coastal stakeholders and decisionmakers understand and conceptualize creativity. For example, Respondent AF conceptualized creativity mainly through the use of art, while many other respondents used a more general understanding of creativity as doing something out of the ordinary that is new and innovative.

Another way to understand creativity is by seeing it as an approach that is opposite to the existing rules, regulations and policy goals. For example, a wetland ecologist from Michigan also cautioned about the use of creativity in ECR,

Respondent AG: I think creativity is very important in resource conflict resolution. I have to advise caution when being creative to resolve environmental conflicts. Sometimes being creative can interfere with the environmental protection goals.

Elaborating on the connection between creativity and environmental and resource conflict resolution, a Field Unit Superintendent with Parks Canada from Ontario shared the following concerns with me regarding the use of the term *creativity*,

Respondent AK: Personally, I'm not okay with the word "creative" as I think the study of involvement by citizens for the purposes of avoiding conflict is well advanced (see Co-management, Adaptive Co-management, Governance, Adaptive Governance, Ecosystem Based Management) it's just that we aren't using what is known. Having said that I think that Parks Canada through its increasing collective understanding of public involvement in decisionmaking and problemsolving through management planning has learned a great deal about how to involve citizens. We have also learned a great deal about how to engage with Aboriginal Peoples. I would also suggest that the direction found in Canada's National Marine Conservation Areas Act describes a number of areas where it is clearly intended that input by citizens and cooperation with citizens and Aboriginal peoples is required and expected. The language demonstrates a strong direction toward involvement – something that is a fundamental shift and records government catching up with public direction/aspirations/expectations.

Several other respondents also talked about creativity in relation to, or as opposed to, traditional approaches to resolving environmental and resource conflicts. For example, a Federal Government employee from Ontario had this to say on this subject,

Respondent AA: You know, I would argue, and I argue that in papers, that every conflict involving indigenous people is about land, every one. And, I think, defining what creativity means is important, I think that for a lot of traditional people the answers are there, and have always been there, and we have always engaged with the environment in a healthy way, you know, people can argue that if they want, but I see it every day. I know it because I work with people, and their traditions teach them that stuff, but we don't have enough respect for them, to honor those ways that they manage themselves, you know. We are disrespectful, and unfortunately, I think we are missing out, and again, it comes to listening, to me all these things around resource management have been a one-way listening. You know, "we have the answers, and this is what we are going to do for the better of this country". But you know, Native people have been completely ignored, completely. You know, only recently, I think some academics working with communities, are getting some new, new old ways of getting stuff, and I think the peace and conflict area is the area where, you know, restorative justice, sharing circles, you know all that is indigenous ways. I read some interesting articles from places like Ethiopia, where people collaboratively managed water resources for thousands of years, so what is the problem here, who is getting in and screwing it up? It's colonial powers that have these ways, you know twisted

power of engaging with the earth, or something, or where it went wrong? So to me creativity, part of it, is rediscovering things that always worked. I think you can't be creative if you are not willing to listen to people and you are not willing to share, honestly. I think conflict itself offers creativity, an opportunity for creativity. You know, I once heard an elder talk, an elder of the native people from the East coast of Canada who said, "when the white man came here, he was starving, he was freezing and many of my people put out their hands and we showed you how to live here and showed you how to survive. And what did you do to us? And there will come a day when you will need us again, and many of my people will put out their hand and will help you again".... Aboriginal people are very practical. And I would say, indigenous people, I haven't worked abroad, but I read a lot of articles about indigenous people, and we are very practical. So if there was something that we did, it was done for a practical reason. And I think when you look at restorative justice, it makes sense. It really makes sense. And I think it is the same way we engaged with environment, we did it because it made sense, because if we didn't do it, we would die, we had no choice. You know, and it is the same thing with restorative justice, we had those systems in place because if we didn't, we wouldn't survive, we needed each other to live.

Some other respondents had difficulty connecting creativity to the work that they are doing in environmental and resource management and conflict resolution. An environmental policymaker and academic from Michigan illustrates this general tendency in the following way,

Respondent AT: Nothing comes to mind. We work in very specific processes and, let me think. Nothing really comes to mind.

On the other hand, a number of respondents were positive about the role of creativity and shared examples with me of the use of creativity in their work. An academic from Wisconsin, for example, shared the following story with me,

Respondent AU: I do believe that creativity – thinking outside of the box – is very important in effective problemsolving and I believe that it will become more important in the light of the above-mentioned distrust of science and of "experts". As an example of a creative solution.... One of my Sea Grant colleagues worked to solve a resource conflict by developing and distributing a "product" to address the conflict. The conflict developed among commercial and sport fishers due to the deployment of commercial fishing gear in areas that were also used by sport anglers who were trolling gear through the water. Sportfishing gear was becoming entangled in the commercial nets with loss and damage on both sides of the issue. The

solution, at least in part, was to develop and distribute a fact sheet for sport fishers that described the subsurface nets and the markings present on the surface, and showed a typical layout for the submerged gear so that the sport anglers could more easily avoid trolling through the nets and becoming entangled. However, the commercial fishers also move the nets from week to week or even day to day, and it was important for the sport anglers to have an idea of where they might encounter these nets and perhaps avoid that area all together. My colleague convinced many of the commercial fishers that it was in their best interest to publicize the location of these nets, and Sea Grant makes this information available to the public and keeps it up to date. While not 100 percent successful, this effort has greatly reduced the entanglement and the resulting anger, and significantly reduced the conflict.

Consequently, there are many different ways of understanding creativity, and the examples of creative interventions can be numerous. The respondents noted a number of different benefits of involving creative solutions in resolving environmental conflicts. They also expressed several concerns regarding the use of the term “creativity” as well as regarding the actual implementation of creative conflict resolution approaches. This discussion raised critical points about the use of creativity in ECR that are incorporated as important components within the overall theme of integrated coastal zone management and conflict resolution.

6.6. Cooperation and collaboration

The importance of collaboration and cooperation was discussed by both practitioners and scholars who work in environmental and resource management, and ECR. For example, a fisheries biologist from Minnesota shared the following considerations with me regarding the role of cooperation in the area of fish management,

Respondent AD: Well, from the fish management standpoint, with various agencies, if you cooperate you can get more done, because none of us have the resources to do the job on our own. So by pooling resources, pooling equipment, pooling personnel we are able to get more fish management, more fish data than we could do on our own. And we cooperate with Minnesota [Department of Natural Resources] (DNR), and Wisconsin DNR, and with a couple of the other Lake Superior Chippewa Bands and working as a team we

are able to accomplish so much more than working on our own. And I mean it also comes to the basic funding, Minnesota DNR, Wisconsin DNR, they simply don't have the funding any more in their state budgets, so they can't do it on their own any more. So either data and the projects don't get done, or they cooperate with the tribes and sometimes even with the public associations and clubs, they are able to kick in either funds, or strong arms and backs to help do some of these projects and some of this data collection.

A number of important ingredients of cooperation are revealed in the above response. Not only does cooperation between several coastal stakeholders increase the effectiveness of their individual input, but also in some cases cooperation is the only way to make progress in carrying out environmental and resource initiatives. An academic from Wisconsin further elaborated on the significance of collaborative planning in environmental dispute resolution in the following manner,

Respondent AW: Disputes are generally resolved through collaborative planning where various stakeholders come together to develop a plan to address a particular issue. Generally collaboration is fairly successful, but action is often limited by funding.... Collaborative partnership formation (i.e., creating a decisionmaking framework that promotes communication and potential for compromise). Although this is not a novel idea, it is a pretty important decisionmaking tool throughout the region.

Furthermore, an academic from Ontario shared the following example of resource management with me through the formation of a water users cooperative,

Respondent AL: [This is an example of] conflict that didn't happen but could have. So this is an Innisfil Creek, a tiny little Creek area in Southern Ontario just south of Barrie, Ontario. This is the one I was talking about where we had a situation where a small creek, nothing terribly special, and you know nice little southern Ontario creek, heavily pumped for irrigation by farmers, golf courses, potato farmers, [and] nurseries. Society gave them a license to operate but then society revoked that license recently, because preferences have changed and it was no longer acceptable to drain this creek down to the gravel and kill fish, which is how we functioned historically. And so these people, the Ministry of the Environment, which is the regulator, has been quite clear that, look, you know this is not going to happen. So either we come in and we take away your permit, and too bad for you, you can't irrigate, or you figure out a way to resolve this concern amongst yourselves. And so that was kind of a neat, I would call it, conflict management process and I was intimately involved in helping come up with the solution, which involved the formation of the water users cooperative, where the farmers

collaborated to engage in a variety of things including long-term strategic planning and basically in water management. And also, and this is where it gets interesting for you, we have adopted sort of conflict management approaches where they would provide training to facilitators, they will work with the community members, they will apply moral suasion to their neighbors to try and ensure that the water resources were used equitably and appropriately and most importantly that the Ministry of the Environment does not come calling.

While collaborative problemsolving and collaborative strategic planning are indeed not novel ideas, these are important practices that are unfortunately not implemented everywhere. However, there are different ways in which stakeholders can cooperate together in their work, and there are different degrees of collaboration. The potential of a collaborative approach is significant because it may bring about benefits to all participating stakeholders and to the environment.

6.7. Working with Aboriginal communities

One peaceful intervention to resolve environment-related conflict in the Aboriginal community shared with me by a study participant was the “healing process”, which involved addressing the past in order to move forward together. Although the following narrative of a Field Unit Superintendent with Parks Canada provides an example from Yukon, it is also applicable to the Great Lakes region and specifically for cases including the removal of Aboriginal communities from their land. This is what he said on the issue:

Respondent AK: And in the Yukon what we did, was we began a program called ‘Healing Broken Connections’ and the idea was to reconnect the First Nations people to their traditional lands within Kluane National Park and Reserve, and use traditional knowledge and western science to help us develop a comprehensive monitoring program for ecological integrity. The point is that the willingness of first, the Government agency to take the risk to move forward on a project like that and committing over 4 years 1.2 million dollars to put that into play and then build the relationships to begin to identify the issues and then address and build strategies together to deal with the issues, that as a collective effort, in my thinking, addressed a conflict. There was a conflict in that area and it moved forward and progressed to the

point that one of the two First Nations involved with Parks Canada held a healing ceremony where they essentially forgave Parks Canada for a long time of feelings of removal and bad feelings about the organization and started a new relationship with Parks Canada. Because they forgave us, we participated in the ceremony and acknowledged that and moved forward and it was that, that particular ceremony hadn't been demonstrated in over a hundred years. So it was a major achievement I think on behalf of both cultures, the First Nations culture and non-First Nations culture, and that allowed room for conflict to move beyond conflict and engagement that was from a different perspective. So that I think is a helpful example in another part of Canada.

He also shared with me the following with me about the complexity of resolving environmental and resource conflicts, especially in the context of First Nations and Metis issues,

Respondent AK: Generally, it remains the responsibility of government to resolve issues through increased collaboration and involvement of local communities. While this is complex it is increased in complexity when First Nation and Metis issues are introduced to the problemsolving processes. Generally, provincial and federal entities do not have the people to address the complexity and number of issues that need to be addressed.

He also reflected on the most effective ways or “best practices” in working with Aboriginal communities,

Respondent AK: The most effective is really meeting the people that are most affected by the decisions, so coming right to the community level again for both non-Aboriginal and Aboriginal communities. That really is a key. I know that there would be very little conversation or success from a First Nations perspective if we are not engaged in their communities, with their people, talking about what the issues are. And it is only through discussion that we will find pathways to address whatever the issues are... It is a continuous process. You know, as First Nations people will tell you, they are here forever, so the decisions that are being made are recorded for them forever. And that is a different cultural perspective than non-Aboriginal communities bring... So indigenous knowledge and Western science need to come together because it is really about knowledge, and that is what we need to move forward.

In addition, he also shared with me an example of a conflict resolution process in the case of a Marine Conservation Area, which focused on dialogue and the engagement of communities,

Respondent AK: The process to establish Lake Superior National Marine Conservation area is the process that began many years ago with a regional committee of citizens being asked the question, ‘would you support the establishment of a national marine conservation area?’. The fact that the organization asked the question begins the process of dialogue and discussion that is essential to address issues, contested issues, or moving people from positions to interests, and dealing as you go with conflict. I think part of the actual process of establishing a protected area I guess in modern times, is that recognition of involvement, discussion, dialogue, discourse, dynamic tension and moving through those in a way that allows bureaucrats to engage in a different way, because we have learnt different approaches. So that is another example, the actual way that National Marine Conservation areas are established, I think, demonstrate a process and mechanisms to deal with conflict... Well the regional committee at the end of that process came to the conclusion that they supported the idea of a national marine conservation area being proposed for Lake Superior and made the recommendation to the Minister of Environment that such an opportunity should go forward. So that allowed for Parks Canada to begin the process of negotiating with the Province of Ontario the establishment of the National Marine Conservation Area.

A Federal Government employee from Ontario also shared with me his approach to resolving environmental and resource management conflicts involving Aboriginal communities, that focused on writing a policy within a First Nations community,

Respondent AA: You know, what I did with the Band in Northern Ontario is, what I am trying to do in resource management, is take power back by writing a policy within the community, as a community saying, you know, “this is how we choose to be engaged”, and lay that all out, and in that way if somebody comes there and they say “we have this big project and we want to consult with you” the Band can say to them “this is our policy and you must follow this”, and that’s all laid out. So that’s one way I think.

Respondent AA revealed the complexity of some of the environmental and resource issues relevant to the Aboriginal communities, and also provided some insight on approaches and methods of conflict resolution that were used by the study participants. Particular emphasis was placed on dialogue, communication, meeting

people, relationship building, engagement and inclusion within the entire process of addressing environmental and resource conflicts that involve Aboriginal communities.

6.8. Exploring directions for sustainable development in the Great Lakes

One of the interview questions was aimed at exploring the respondents' perceptions and images about the actions (initiatives, policies or measures) that are required to support and maintain sustainable development in the Great Lakes. A critical issue in discussing sustainable development is what the term actually meant to my study respondents. This problem is illustrated as follows by an academic from Illinois,

Respondent P: Need a definition of sustainable – do you mean to sustain economic development (most communities I interact with want to increase the rate of development and sell more water)? Sustain current levels of water consumption (per capital water consumption is actually decreasing; population growth, largely to immigration into the region and to the exburbs is driving increases in water demand)? Sustain the groundwater table (is the objective to protect the resource or to use it in the most sensible way to provide for development)? Sustain the Lake Michigan Diversion (which many of our neighbours view as excessive)? Sustain the existing level of 'sprawl' in the metro region? Sustain 'cheap' water and wastewater rates to encourage development? Part of the problem is that these policy discussions are not clear as to the objective; 'sustainable' is a catchword and not meaningful.

As a researcher I purposefully did not include my own understanding of sustainable development as part of the questions for the study participants because I wanted to elicitively draw on how the respondents themselves define it, and learn about individual components that they do and do not include in their respective definitions. Sustainable development seems to be a critical but, at times, an elusive concept that requires outlining the factors, approaches and techniques that are critical for maintaining sustainable

development, and attempting to integrate various understandings of this concept as outlined by the respondents (Mac Ginty and Williams 2009).

Another critical question discussed by the respondents was how sustainable development could be relevant to environmental management and conflict resolution. According to an environmental policymaker and academic from Michigan sustainable development requires careful coordination between numerous stakeholders in relation to coastal land use,

Respondent AT: Well, there has to be a more comprehensive look at land use, and each of the States and the Province evoking and issuing permits for wetland loss, if they are going to be sustainable, it has to be done in a coordinated fashion. You have degraded fisheries, and you have unsustainable development, physical development, just losses of critical habitat, and that will eventually limit your ability to sustain things like fisheries. Part of these threats to sustainability is the continued influence of invasive species that are coming in from the foreign countries and other parts of the country. And they will move and harm biodiversity and environmental quality. I think that the Great Lakes cities have a big role to play in sustainability and they need to work, continue to work closely together on things like land use and wastewater infrastructure, the things that would have effect on the Great Lakes environment. Water quality of course is going to be a big issue and a threat to sustainability. These are some of the top ones.

Sustainable development, according to an academic from Ontario, also requires a fundamental reshaping of society as well as more specifically, conducting cumulative effects assessment prior to decisionmaking and policymaking in environmental and resource planning,

Respondent AL: I would say that all of the examples, well it depends, the typical kinds of problems that you run into, you know, water shortages, water scarcity, conflicts over valuable ecosystems.... reflect a deep-deep tension in North American and the Western World, really, in terms of our relationship with nature, so it completely transcends, you know, the local and the parochial. The bottom line is there is this growth imperative that runs against the principles of living within your means, respecting natural world.... so in that sense, what actions are required to maintain sustainable development, well, fundamental reshaping of society I suppose would be a good place to begin.... Yeah, that is kind of hard, right, it is one of these things where we are gradually eroding, and chopping, and cutting and it is very difficult, that

obviously, you don't want to throw your hands up and say ok, we gotta stop, or we can't do anything, we just can't enjoy ourselves and buy more TVs. But one promising avenue, I think is to have a much better sense of the impacts of all the individual decisions that we make in societies, and as individuals. One way to do that is to be much more cognoscente of the cumulative effects that are associated with all of our activities. And so I am a big fan of a cumulative effects assessment kind of approach to making these kinds of decisions. So, for example, recognizing that, I will tell you, Olga, that I had a land use planner in a major city tell me that nothing she did pertained to water. And it just makes my head spin, because everything she does pertains to water, every subdivision is a water management decision, right. So if you look at these things from the cumulative effects perspective, the cumulative effects of energy, water, land... developments and activities I think that goes a tremendous way towards forming a greater sense for sustainability, as living within our means. I like to say, you can run, but you can't hide from the facts in those cases, as opposed to the typical scenario, where we have this tunnel vision where we look at each little development on its own and isolate it from everything around it, and on that basis everything turns.... Let's leave it at that, that is the main message.

An interesting point was made by a research manager working in the Great Lakes Basin in the US, who suggested the following approach to assist in translating sustainable development into the policymaking economic development language,

Respondent AI: I think it would be useful to apply a framework of ecosystem services to an approach for sustainable development. A full "cost-benefit" accounting of development, including life cycle cost-benefits, would make sustainability more understandable and approachable to development programs.

The topic of sustainable development was addressed with caution by a number of respondents. An academic from Ontario (Respondent AE), for example, shared with me that in his opinion, "very little of what we do now is sustainable and the trends are towards deeper unsustainability. So the issue is not how to support and maintain [sustainable development] but how gradually to reverse the overall direction." Furthermore, a scientific researcher from Michigan emphasized the connection between the functioning of coastal ecosystems, sustainable development, and effective policymaking in the following manner,

Respondent AO: Understanding ecosystem function and process is critical to successful sustainable development in the coastal area. We know very little about the ecology of the coastal zone (nearshore areas, river mouths, etc.), and sustainable development will require a better understanding of these processes. Once the system is better understood, we can then make educated policies to achieve sustainability.

The aforementioned image illustrates the significant disconnect between the natural sciences knowledge accumulated by many generations of biologists, microbiologists, ecologists, and water specialists on the one hand and policymakers and social scientists on the other hand. The extensive amount of knowledge and experience that has been produced and discovered by scientists is not always easily translated into policy documents and regulation statutes. The problem is not so much a lack of knowledge, but rather a lack of mechanisms to ‘translate’ scientific knowledge and findings into policy goals. These missing connections become especially noticeable in the context of the need for the sustainable development of coastal regions. The process of sustainable development requires a deep understanding of the interconnectedness between economic development and the environmental capacity of a certain region to sustain this development. It also requires establishing links between developments and activities in the coastal areas at present as well as making reliable predictions about the future consequences of these actions for the environment, for its limited resources and for the people living in these coastal areas. Establishing stronger links between science and policy is, therefore, critical for the sustainable development of coastal areas for resource management and, consequently, for developing ECR practices.

Another study participant, an academic from Wisconsin, was more optimistic about the use of sustainable development in coastal zones, and provided an example of the Great Lakes Compact and its implications for supporting and maintaining sustainable development in the Great Lakes,

Respondent AU: One of the more important actions recently taken was the signing of the Great Lakes Compact. Other measures that need relatively rapid action are effectively stopping the easy movement of species from one ecosystem to another, dealing effectively with non-point pollution and with the overflow of sewage into our waters. Another significant area relates to reducing erosion through realistic zoning and setback ordinances. Planning needs to focus on green technology and development and long-term sustainability of the region's resources.

A number of respondents were also critical of the sustainable development process and, specifically, of its practical significance for resource management and environmental policymaking. For example, an academic from Minnesota (Respondent AF) shared the following viewpoint with me: “Sustainable development is an oxymoron—any rate of development of a finite resource is unsustainable. People need to decide how much and what kind of coastal development is permissible, and then create policies and zoning that enforce that vision.” A similar consideration was expressed by a land conservation specialist from Ontario (Respondent AM) who said that “sustainable development is an oxymoron. We need fewer people and less development or growth. I can’t visualize economic benefit without detracting from the commons. We need more ‘no go’ zones like nature reserves until we get over 20 percent of the shoreline protected.”

The critical views expressed by my respondents regarding sustainable development reveal the frustrations of some of them connected to their images of ineffectiveness and perceived limited practical value of sustainable development. A number of respondents, scholars and practitioners alike have concerns that sustainable development is too broad, is hard to clearly define, is generally unclear and is often used as a catchword. In concurrence, I argue that the potential of the practical application of sustainable development in environmental conflict resolution hasn’t been fully realized yet. Taking into consideration the criticisms of sustainable development expressed by some respondents, and incorporating them into a further exploration of the meaning of

sustainable development can assist in building on the knowledge of sustainable development to make it clearer and more practically applicable in environmental conflict resolution. Tying sustainable development to a specific coastal region with its own ecosystem and its unique environment may assist in addressing the vagueness and the broadness of this concept to make it more clear and grounded in particular environmental conditions. Further, identifying the actors (stakeholders) and their activities (types of local development) in a particular coastal region may assist in formulating with more clarity the goals of sustainable development in this region, and what that actually means for coastal stakeholders. In most cases, working towards sustainability in coastal environmental management requires an integrated approach that brings together coastal stakeholders, scientists, practitioners and policymakers within a long-term collaborative process.

For example, a coastal land use specialist from Pennsylvania shared his views with me regarding sustainable development and the necessity of setting limits to growth,

Respondent AP: I like Portland-style growth boundaries that require most development to occur within targeted areas would be wonderful. More realistically, since that's not going to happen here any time soon, I believe that policies at the federal and state/provincial levels need to strongly support development/redevelopment within existing urban areas, keeping in mind the importance of historic preservation, three things need to happen: 1) redevelop/restore town centers; 2) strongly encourage conservation design development in suburban areas (saving 50+ percent of properties proposed for development); and 3) conserve as much rural area as possible. Remediate brownfield areas. Green up grayfields such as parking lots using street bulb outs with curb cuts and plantings that enable stormwater to percolate back into the ground. Use porous pavement whenever possible. Plant trees. Save greenfield areas. All of these should be supported with tax incentives and government grants/loans.

An important point was also raised by an academic from Ontario who conceptualized sustainable development as an integrated approach to environmental management and resource development in the Great Lakes area,

Respondent AX: Long-term and consistent programs and initiatives are crucial to sustainable development in the Great Lakes. If there is a continual presence of sustainably minded activities, then there will be increased awareness and then hopefully interest to act on the parts of all citizens. This can be achieved through workshops, newsletters, events, but also programs with other organizations and select communities such as the Farm Stewardship Program and the Marsh Monitoring program. That being said, this relies on the compunction of individuals to get involved, therefore, policies and legislation must also act as a drive for sustainable development. This can be in terms of water usage such when, how and how much water can be used, legislation on species introduction and planting (such as bilge policies, but local homeowner awareness) as well as inspection regulations to ensure processes are functioning properly (i.e. Septic tanks). Moreover, provincial and/or federal legislation can harmonize activities across a region, which localized programs are unable to achieve.

The integrated approach to coastal environmental management and conflict resolution outlined above highlights the importance of not only including various issues relevant to coastal development, but also in the participation of numerous actors. The cooperation between policymakers and the public is emphasized, specifically in the context of a long-term and all-encompassing approach to work towards sustainable development in the region. There is a strong two-way connection between decisionmaking and policy implementation, and without public support and successful participation, the implementation of sustainable development measures may be problematic to say the least.

One conclusion that can be made based on the above discussion is that sustainable development means different things to different people in different contexts. When discussing sustainable development, we need to clearly understand who and what is a particular form of development sustainable for? Is it sustainable for the environment? Is it sustainable for local residents? Is it sustainable in terms of bringing in a steady income? *Sustainable for all and everything* hardly seems possible. Keeping that in mind, it seems appropriate to have to define what exactly we mean when we refer to sustainable development in each particular case. And in many cases it might require, in the words of

a natural resources manager from Minnesota (Respondent V), “research on what truly constitutes *sustainable*”. She further added that in terms of maintaining the sustainable development of the Great Lakes we need “better accounting of ‘real’ costs of goods and services that takes environmental sustainability into equation [and] policies that cross political boundaries to encompass watersheds”.

6.9. Effective practices (best practices) for managing environmental and resource conflicts

The question “what are the effective (or best) practices for managing environmental and resource conflicts?” led to various responses, ranging from general considerations about best practices to criticisms of the use of this term to providing examples of interventions and methods of specific techniques used by the respondents to resolve environmental and resource conflicts. This question alone could potentially form the basis of an independent study of the most effective practices in environmental and resource management and conflict resolution. However, the issue of best practices is integrated into the overall theme of this study, which is aimed at learning and analyzing conflict resolution practices to discover links and connections within an integrated approach to environmental and resource management. Therefore, as a researcher I have chosen only a few of the examples of best practices provided by the respondents in particular those that: (1) are integrative; (2) were each mentioned by several study participants in different forms; and (3) addressed a number of different issues or conflicts discussed earlier in this study.

For example, an academic from Ontario provided the following vision of best practices in managing and resolving environmental conflicts,

Respondent AX: The best practice for coastal issues in this area is to continue to strive to be inclusionary, participatory, adaptive, and visionary. There has been twenty years of councils, management plans and strategies in the area

that have focused on particular issues related to the [Great Lakes Water Quality Agreement] (GLWQA). Now with that ending, there's opportunity to expand these initiatives and form relationships with other regions and coastal partners. Thus, monitoring and research of species composition, diversity, distribution, water quality and levels, habitat composition, land-use practices ought to continue along with conferences, workshops, and events that bring coastal citizens, stakeholders, [and] partners together.

The aforementioned narrative illustrates a truly integrative approach to resolving coastal conflicts. It highlights the importance of connecting science and policy in an inclusive process, which involves envisioning, research and collaboration among stakeholders.

Several study participants challenged the use of the term *best practice*, which is reflected in the response of a Federal Government employee from Ontario,

Respondent AA: I think, first of all, I would never use the term 'best practice'. Because for me, I think I would use "effective practices". And I think that is a really good point, what you just said. Policy people are looking for best practices, and they say, well, this is the best practice, and then we start doing it, and it doesn't work, and I think part of it is that we are always managing the expectations of the public, and that is what causes them to lose faith. So it is like I was saying, have we lost faith in science? I forgot that guy's name. Bowling, or something, but those questions are super important, and scientists are responsible for the faith that people lost, because they show up and say, I am the expert and this is the answer. But this is not the way science works. It's not absolute, you know what I mean, it is an evolving process. And I think for policy people, they need to get away from that stuff. What is effective and how effective is it? Because maybe one of the problems is, if you have 10 ways of doing things, and each of them are 10 or 20 percent effective in different areas, maybe the best thing is to take 10 percent from each of them and combine them, and take the best of the best, and just do that, you know what I mean. You know, I am challenged with that all the time, in my work every day, because everybody wants best practices, everybody wants a tool kit, everybody wants these buzz words, and you know, with the issues that I deal with, those things don't work. So then, what is the best practice? What is the most effective way to go about it? And I think we are doing ourselves a disservice by raising that expectation.

Other respondents discussed best or effective practices in resource management by sharing with me their examples of collaboration, cooperation and dialogue between stakeholders and groups involved in and affected by environmental and resource decisionmaking. For example, a fisheries biologist from Minnesota talked about the

importance of getting together and listening to each other in the process of making resource-related management decisions,

Respondent AD: What I have seen as a pretty effective means is to get everyone into a room at the same time so that all the various groups can hear the managing agencies presentations and feedback on some of the decisions they made, and then all groups can sit at the table and lay out their opinions, thoughts and desires, and various groups can see where the other groups are coming from, and it seems like more of a team effort, and then it is not just the Department of Natural Resources indicating their way of how fish management is going to proceed, there is the sense of input, public input. Not everyone gets everything they ask for, but everyone at least feels like they are being listened to.

A research manager working in the Great Lakes Basin in the US also shared with me her vision of effective ways or best practices to address coastal problems both in a general sense and by providing specific examples,

Respondent AI: Partnerships between federal, state, and local organizations; extensive interaction with the public in a discussion about issues (through listening sessions, forums); access to scientific information about natural resources in the form of maps, public forums, museums and aquariums, and a dialogue between managers, scientists and the public.

Moreover, a State employee from Minnesota conceptualized the most effective practices in addressing coastal environment and resource conflicts through the continuous work of established committees,

Respondent AC: The best methods are the established committees gathering regularly to discuss on-going and current issues – There has to be a citizen component within these committees to rely on the pulse of the stakeholders and landowners in the region. These committees are a known commodity and [are] respected.

The collaborative approach was also mentioned as a best practice by a number of respondents. For example, a Government employee and scientist from the US had this to say on the issue,

Respondent AY: I am a huge fan of a collaborative process to find a workable balance for environmental policy issues. If it can work for water allocation it

can work for anything. [It] requires patience, planning ahead, relationship building.

The qualities and actions addressed above including patience, planning ahead and relationship building are some of the key components within conflict resolution interventions specifically those involving the collaboration of various actors. Building relationships among coastal stakeholders is a necessary step towards better understanding, mutual learning and cooperation in helping to resolve their conflicts. This process requires a willingness to participate, a desire to make a difference, as well as possessing patience, resources and time. Careful planning ahead can also be critical in preventing lengthy and costly conflicts from happening or escalating. It also addresses the dynamic nature of environmental and resource developments and can help predict and prevent conflicts, which would have been unexpected otherwise.

Integrated sustainability assessment was another critical “best practice” in environmental and resource management of coastal issues discussed by an academic from Ontario as follows,

Respondent AE: I’m fond of multi-scale, integrated sustainability assessment, but there are hosts of particular mechanisms and foci. The key is broad, open and critical deliberation and experimentation, recognizing that we know very little. That and patience, good will and craft breweries.

Another academic from Ontario also addressed the necessity of having more effective water and environmental governance in the context of best practices in addressing coastal conflicts,

Respondent AL: I think it all comes down to being able to have more effective governance, for water, for the environment. It is recognizing that the world has changed and that we cannot rely on the state for getting us out of these problems, that responsibility and authority have been shifting and are distributed much more widely, and we have this mixture of state and non-state actors, and it comes back to this idea of creativity we have to be willing to explore different kinds of solutions. We have to be aware of the fact that we will have to be flexible and adaptive, be aware that what works in this

place on this scale, that doesn't work in different place and on different scale, right. I mean, I think that is important, I think, you know, speaking of the waterfront, for example, I have been active for twenty years now, trying to get people to think about water issues, and in my experience we are not getting enough traction by appealing to people's sense of good and right. They are not getting enough traction by moral suasion, by pointing to the need to protect mother earth, we are not getting enough traction by drawing attention to the human health dimensions. I think we need those too, we need to make the environmental case, we need to make the human health case, you know, protect our children, yada-yada case. But I think the bottom line we have gotten just about as far as we are going to get with that, in terms of motivating key sectors, key decisionmaking sectors inside and outside of government to get their butts in gear to do what needs to be done. And so the big question, of course, is, alright, what do we have to do then? And for me, the answer is, in a water side, I think we absolutely have to demonstrate how water is significant to the economy. And so sometimes people will hear that and instantly jump to the conclusion that I am advocating selling water to the Americans, or something stupid like that. No, what I am saying is that water is a critical and completely neglected driver of economic prosperity. And you only have to ask a farmer how important the water is. So if you are an irrigation farmer, you are paying nothing in Ontario for the water but if you don't have the water, you are out of business. What a paradox. All kinds of industry and our society depends on access to adequate quantity of water, on acceptable quality for human beings and for the environment, and if we don't find that balance we are going to wreck our economy. So the answer for me now is I push all three of those arguments, you know I try to draw people's attention to the environmental consequences of unsustainable behavior. I try to draw attention to the human health consequences, but at the same time to capture the attention of business-minded types, of the critical economic decisionmakers who won't respond to any other argument. I push very hard on the lever that says, we need to pay attention to water, on the environment, more broadly because it is significant for our economic wellbeing and security, and you get a helluva more traction with that argument, I find, than with the other ones I have used.

The above examples illustrate the diversity of existing approaches to address environmental and resource issues in the coastal areas of the North American Great Lakes. Once again, the principle of balance comes up in terms of meeting somewhere halfway between using general conflict resolution approaches and designing approaches specifically for a particular conflict case. Common questions in policymaking such as what do we do, and what is the best practice, are confronted with the idea that a cookie-cutter approach is irrelevant in resource management and conflict resolution. On the other

hand, learning from previous experiences of similar conflict situations can be a very valuable preventative tool that could assist in preventing the escalation of potentially violent conflicts and could provide guidelines for designing case-specific ECR approaches. In this Chapter, the purpose of including examples of best practices is to share and generate knowledge about existing ECR approaches to reduce the time, effort and resources needed for designing these approaches anew every time an environmental or resource conflict takes place in coastal areas.

6.10. Discussion: Collaborative conflict resolution approaches and practices in the coastal areas of the Great Lakes

Chapter 6 has illustrated that there are a number of specific environmental conflict resolution mechanisms in place in the coastal areas of the Great Lakes, even though sometimes they are not referred to as ‘conflict resolution approaches’. Specific examples of such approaches range from forming thematic advisory groups and committees, to creating long-term resource management plans, and designing various collaborative approaches of working with coastal communities. At the same time, there are also numerous conflict resolution methods and tactics practiced by different coastal stakeholders ranging from public participation to education and other creative ADR approaches.

These conflict resolution approaches, methods and processes may be very helpful if applied individually, but they may also be even more useful if utilized in an integrative manner. Individually they can form the basis of a toolkit that could consist of a number of possible ECR processes and tactics that can be used in various combinations depending on the particular circumstances (for example, there is a need for education on different levels from elementary to graduate school programs about the environment and how

people can cause pollution and how they can protect the environment). Furthermore, depending on particular circumstances, more comprehensive ECR processes can be designed based on the examples provided by the participants in this study. In this case, instead of ‘re-inventing the wheel’ when each individual environmental or resource conflict arises, coastal stakeholders would be able to consult the toolkit, use the existing options and modify them to local conditions. Having an opportunity to see some of the existing options could also inspire coastal stakeholders to create their own approaches. Sometimes it can be very helpful to ‘see what is out there’ before embarking on a challenging journey of developing a specific conflict resolution approach for a specific coastal management project.

The study participants shared with me numerous examples and approaches to resolve environmental and resource conflicts relevant to the coastal areas of the Great Lakes. In terms of grounded theory building, the general image associated with ECR that I have developed is *bridgebuilding*. ECR associates with bridgebuilding in a number of direct and indirect ways, including the attempts to create links (bridges) between: different stakeholders, policymakers and scientists, decisionmaking and inclusive participation, Canada and the United States, local residents and communities, and the people and the environment.

A number of important points that flow from the mapping and discussion of conflict resolution practices in environmental and resource management in the Great Lakes addressed in this Chapter can be summarized as follows.

First, the respondents shared numerous examples of **collaborative approaches** to environmental conflict resolution that involve the active participation of a number of interested stakeholders through dialogue, cooperation, forming alliances and coalitions (see section 3 of Table 7). This finding is significant because it illustrates realistic

opportunities for people to integrate various coastal issues with a common dialogue process implemented collaboratively by numerous coastal stakeholders. These new approaches to create coalitions and partnerships between various coastal stakeholders involved in environmental and resource management may be among the most effective, participatory and inclusive methods of creating a space for them to cooperate together to resolve and prevent environmental and resource conflicts. The value of cooperation and collaboration in resource management and ECR was discussed by the study participants in terms of their contribution to: (1) increasing the overall effectiveness of the environmental management process; (2) allowing for the sharing of resources, equipment and personnel; (3) cutting the overall costs of environmental management projects; and (4) establishing a collaborative decisionmaking process.

Second, **public participation** in environmental and resource management and policymaking is also a critical issue. The study participants discussed many different forms of public participation including: (1) launching public forums; (2) establishing advisory groups and committees; (3) voting and communicating concerns and suggestions to elected officials; (4) the involvement of public and different coastal groups and stakeholders in environmental and resource governance; (5) dialogue, discussion and collaboration on specific issues related to environmental and resource management during public meetings, and with the assistance of the Internet and other media; and (6) young people's involvement in specific environmental projects, which combines education, environmental restoration and public participation. An important implication of public participation is that it legitimizes policy decisions. When representatives of coastal groups and stakeholders participate in the policymaking process their input of practical experience and knowledge of environmental and resource management assists in creating more comprehensive, relevant and effective policies.

At the same time, the degree of participation in decisionmaking and the implementation of measures for resource and environmental management and conflict resolution in coastal areas is a key problematic issue. For example, the study participants voiced concerns regarding the effectiveness of public participation as well as the lack of willingness and/or opportunity to participate in environmental planning and management processes. Gaby Jacobs (2007) also discusses the “ladder of participation,” which presents a typology of participation in community dialogue and in building “dialogic relationships.” In addition, the seven stages of participation developed by Pretty et al. (2003) include: no participation, passive participation, participation by information, participation by consultation, functional participation, interactive participation, and self-mobilization. A number of respondents highlighted the poor turnout of coastal stakeholders at meetings and events aimed at including the public into the policymaking process. The participation of stakeholders in coastal management, decisionmaking and conflict resolution practices depends on many factors including their interests, availability of time, resources and funds, as well as their responsibility and access. Public participation was also conceptualized by several respondents as a form of environmental governance that includes various coastal stakeholders working together on environmental and resource policymaking.

Another important issue regarding public participation in environmental and resource management and ECR is defining who exactly the public is. My respondents’ comments and observations lead to two key conclusions. On the one hand, the public is understood as everyone involved in and affected by environmental and resource management and ECR processes. On the other hand, however, the public is not a homogenous group of people that represents the same interests and has the same needs. The public includes individuals each having their own unique perspectives, experiences,

needs and interests that have to be accounted for within the process of resolving environmental and resource conflicts.

Third, the example of a **preventative conflict intervention** designed by a fisheries manager that included forming an advisory group representing different stakeholders with the aim of designing, developing and implementing a fisheries management plan, illustrated an important preventative component within an ECR process. Consequently, inclusiveness, the collaborative participation of stakeholders, trust building, investing time and available resources, as well as a long-term perspective in developing links between the biological capabilities of the Great Lakes and resource management policy have contributed to the continuous success of this intervention. Conflict prevention is an important component within the process of addressing interpersonal, intergroup and international conflict (Lederach 1997; Kriesberg 1998; Davies and Gurr 1998; Byrne and Senehi 2012). Conflict prevention may also be conceptualized as an important component within an integrated framework for addressing environmental conflicts along with conflict management, conflict resolution and conflict transformation (Byrne and Senehi 2012). The particular significance of environmental conflict prevention is in its potential to use an early warning methodology that could uncover and help prevent dangerous environmental threats and conflicts (McLusky and Elliot 2004).

Fourth, the study participants perceived multiple important roles for **education** to play in resource management and ECR. For example, it was noted that education: (1) is a source of information and a means of communication; (2) promotes awareness and facilitates engagement; (3) happens on different levels (for example, educating children, the general public, and the politicians); and (4) is the mutual process by which all stakeholders learn from each other. At the same time, my participants noted the challenge

of finding credible sources of information in the process of modern-day education, as well as active learning through participation rather than by studying theoretical knowledge. Overall, education was perceived as a critical, but not the only component required for the implementation of effective resource management practices and for resolving environmental conflicts.

Fifth, the theme related to **creativity in ECR** generated a wide-spread discussion among my study participants. Creativity was found to be a necessary and integral component of ECR approaches as education, outreach, relationship-building, designing conflict resolution interventions for specific circumstances versus a one-size-fits-all approach, as well as coming up with recommendations and solutions to conflicts that have proven to be difficult to resolve with the assistance of conventional methods alone. The respondents also raised a number of cautions about using creativity in resource and environmental management: (1) the danger that creative approaches would interfere with existing policies and regulations; (2) the lack of confidence that creativity can be sufficiently effective; and (3) the concern about using the term ‘creative approaches’ rather than referring to them as already existing traditional approaches that span many generations that may not always be used, or are simply unknown by resource managers. Perhaps, the true value of creativity is in finding an appropriate balance between the existing practices of environmental management and innovative approaches that would enhance the effectiveness of these practices and develop case-specific ECR approaches using existing knowledge and expertise. Creative interventions may also be used in designing inclusive and long-term dialogue processes among various coastal stakeholders with a focus on ECR, prevention and transformation.

Sixth, **communication** among stakeholders is truly critical for them to be able to comprehensively address the root causes of conflict as well as to design and implement

ECR interventions. All of my study participants highlighted their experiences and opinions about the significance of communication and dialogue in resolving environmental and resource conflicts in the Great Lakes. They contend that most issues and conflicts discussed throughout this study can be addressed through dialogue, whether it is in raising awareness about the issue, conducting educational activities, negotiating mutually beneficial solutions, or discussing options to resolve and transform existing conflicts in both formal and informal settings. Individual opportunities for such dialogue exist, but they usually address only one or two specific issues that are the most critical for a particular local area. At the same time a number of obstacles to building effective communication were also noted by my respondents, including the lack of opportunities to communicate, having a space for dialogue, possessing knowledge about the importance of communication and communication skills. Despite the existence of a number of structures and organizations that provide the opportunity for a forum, more needs to be done to encourage and facilitate communication between stakeholders. However, because of the highly interdependent and interconnected context of the Great Lakes, more links and connections across disciplines, stakeholders and issues need to be built so that a more integrated approach is available.

Seventh, the **interconnectedness** and the dynamic nature of ecosystems, and all of the activities of numerous coastal stakeholders, really define and direct coastal developments and shape relationships between people and their environment. **Sustainable development** may have the potential to facilitate the integration of multiple coastal activities and developments in promoting the common goal of the responsible and sustainable use of resources. This process would include people's responsible resource consumption that takes into account not only people's present-day needs and wants, but also the needs of future generations of coastal groups and stakeholders. The importance

of green technology combined with a long-term sustainability focus in decisionmaking and planning are also critical. Green technology contributes to more sustainable use of energy and other resources, which helps protect long-term ecosystem health. Moreover, collaboration among coastal stakeholders to coordinate their efforts to minimize pollution and other negative effects on the natural resources and their environment is also required, because coastal stakeholders are interdependent with each other and with the entire Great Lakes' environment. The interconnectedness of coastal stakeholders and their environment highlights the necessity of using coastal resources in a responsible and sustainable manner.

However, the idea of sustainable development was also criticized by a number of my respondents for being too general, ambiguous and unclear. To clarify this concept and make it more usable it may be necessary to regard sustainable development in relation to a particular case of 'development' answering the following questions: (1) What type of development needs to be sustained?; (2) To what degree does it need to be sustained and what are the limits to growth?; (3) What other factors related to this particular case of development need to be addressed in order to promote and maintain sustainable development? More research is required to generate knowledge and build on local experience and capacities related to applying sustainable development within resource management and ECR.

Finally, my study participants emphasized that the most effective practices of resource management and ECR involve **stakeholder participation, relationship-building and collaboration**. In addition they noted the need to approach environmental conflicts by including a multitude of interrelated factors and involving numerous participants in designing and implementing integrated conflict resolution strategies.

Moreover, all resource management and ECR approaches discussed above require dialogue and communication among all participants and stakeholders.

6.11. Conclusions

Overall, the findings indicate the necessity of addressing various levels of conflicts and disputes within environmental and resource management because of the need of **finding a balance** between numerous existing approaches and mechanisms of environmental and resource management. For example, Respondent AV, who is a member of an environmental NGO from Illinois (see p. 6) discusses the importance of finding the balance. I agree that seeking a balance in ECR is one of the key requirements for environmental stakeholders. There are several meanings of this ‘balanced approach’ that includes: the balance between conservation and development; between public and private spaces; and between what nature and natural resources have to offer and how much people take from it. Finding a balance may not always be an easy task because it requires coordination among users and a willingness to cooperate at different stages (for example, during visioning, project planning, project development and evaluation). Resources need to be provided to be able to invite experts such as resource managers, city planners and ecologists to participate in environmental conflict resolution processes. It requires time to gather facts, accumulate knowledge, do research, consult and seek advice. However, these ‘costs’ may pay off providing a more balanced and effective approach to managing environmental resources and resolving environmental conflicts. Chapter 7 builds on the data analysis and incorporates the idea of a balanced ECR approach in contributing to developing an integrated framework for resolving, preventing and transforming environmental conflicts.

Chapter 7: Addressing the policy gaps: Towards an integrated framework of conflict resolution and prevention in environmental policymaking in coastal areas

Introduction

Chapter 7 develops a conflict resolution system to address environmental and resource conflicts that can generally be characterized by the involvement of multiple stakeholders in addressing various interdependent issues related to their shared environment and its numerous resources. I use the term ‘conflict resolution system’ rather than ‘dispute resolution system’ based on the data analysis of environmental conflicts in the Great Lakes coastal areas. The choice of the term ‘conflict’ rather than ‘dispute’ signifies the depth, the multidimensional character and the importance of environmental issues to coastal stakeholders.

According to Ury, Brett and Goldberg (1988, 21) a dispute resolution system is “an organization or a relationship, which in turn exists in a larger social, economic and cultural environment”. Therefore, a dispute or conflict resolution system may be perceived as an organizational tool, which may facilitate the resolution of conflicts affected by numerous interdependent factors and developments. Further, Ury, Brett and Goldberg (1988, 4) suggest three key directions for dispute resolution: “reconciling the interests of the parties, determining who is right, and determining who is more powerful.” They include in their system’s design the following criteria for comparing different approaches to resolving disputes: transaction costs, satisfaction with outcomes, effect on the relationship, and recurrence of disputes. Thus, they argue that in general, “reconciling interests is less costly than determining who is right, which in turn is less costly than determining who is more powerful” (Ibid, 11, 15). The *dispute systems design* intervention proposed by Ury, Brett and Goldberg (1988, 42) is based on six fundamental

principles: (1) focusing on interests; (2) building in “loop-backs” to negotiation; (3) providing low-cost rights and power back-ups; (4) building in consultation before and feedback after; (5) arranging procedures in a low-to-high cost sequence; as well as (6) providing motivation, skills and resources. Overall, this dispute system design is a conceptual framework of dispute resolution, which can be used in various contexts, settings and organizations.

Another important contribution to the theory and practice of dispute system design was made by Costantino and Merchant (1996) who focused on *designing conflict management systems*. According to Costantino and Merchant (1996) a conflict management system design includes several steps: (1) entry and contracting; (2) organizational assessment; (3) constructing conflict management models; (4) training and education; (5) implementing a designed system; and (6) evaluation. Moreover, conflict management systems have the following characteristics: boundaries, purpose, inputs, transformation, outputs, and feedback (Costantino and Merchant 1996, 24-25). A conflict management system approach is grounded in organizational development, has a dispute systems design, as well as ADR and the “best practices” approach (Ibid., xv).

This study has demonstrated the significant need for an integrated approach to dispute and/or conflict system design in dealing with coastal issues in the Great Lakes area. The considerations and recommendations regarding designing an integrated approach to resolving environmental and resource conflicts in coastal areas presented in this Chapter are based on my analysis of the data within this study. In this context, it is also important to discuss a systems approach to conflict resolution and peacebuilding, and an ecosystem approach to environmental science and policymaking.

A *systems approach* within the PACS literature includes multiple tracks and integrates various methods of conflict resolution and peacebuilding within a

comprehensive, multidisciplinary and all-encompassing perspective of resolving conflicts (Byrne and Keashly 2000; Diamond and MacDonald 1996; Costantino and Merchant 1996; Ury, Brett and Goldberg 1988).

The term *ecosystem approach* was defined in the framework of the Fifth Conference of the Parties to the Convention on Biological Diversity as “a strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way” (UNEP 2000, 103-104). According to Odum (1993, 273), “the wisdom of many [researchers] as well as the output of global models, conforms rather well to basic ecosystem theory, especially three of its paradigms: (1) a holistic approach is necessary when dealing with complex systems; (2) cooperation has greater survival value than competition when limits (resources or otherwise) are approached; (3) orderly, sustainable development of human communities, as with biotic communities, requires negative as well as positive feedback.” An ecosystem approach to environmental management includes the primary management goals of ecosystem health, integrity and sustainability (Manno 2004, 615). In terms of environmental and resource management, an ecosystem approach can be conceptualized as an integrated and holistic approach, which includes the consideration of the interplay of all elements and components of an ecosystem, and is based on the principles of sustainability, stakeholder cooperation, and environmental conservation.

An *integrated holistic approach* to resource and environmental management and conflict resolution would provide the much needed links within the coastal ecosystem and within the decisionmaking system on several different levels. In particular, it would link science and policy, natural science and social science, as well as policymakers and coastal residents. The diversity of issues, stakeholders and opportunities for conflict prevention and resolution could be addressed in an integrative manner if they are

conceptualized within the unity of a coastal ecosystem. Local, regional and global linkages can also be developed through an integrated approach to resource management and environmental conflict analysis and resolution. This point was reflected by an academic from Ontario who had this to say on this issue,

Respondent AR: When you view the Great Lakes or anywhere else as a complex set of inter-active social-ecological systems it means that the substantive issues are themselves linked across a wide range of spatial and time scales. These have to be discerned in order to develop effective approaches at different selective scales to resolve them. Or, to put it differently, problems and issues that occur locally, or regionally, are not always caused there, so looking at just the one scale for solutions probably won't work.

Environmental and resource management and conflict resolution programs can be characterized as both interdisciplinary and multidisciplinary due to the existence of multiple interlinked disciplines and issues within them. The terms *interdisciplinary* and *multidisciplinary* are very similar in their meaning, but, in my understanding, they do have some subtle differences. In particular, the term *multidisciplinary* refers to a conceptual framework that integrates multiple disciplines within the ECR field (similar to a Multi-Track Diplomacy approach in peacebuilding developed by Diamond and McDonald 1996). The term *interdisciplinary* indicates that various disciplines that are relevant to the study of environmental conflicts are interconnected within a complex system of ECR theory and practice (similar to the approach used by the editors of the volume *Conflict: From analysis to intervention*, Cheldelin, Druckman and Fast 2003, 4-5).

This study now presents an outline of the newly developed ECR system design based on the study of relevant academic literature, public policies and participants' interviews that contributes to developing an innovative integrated coastal zone management approach for the Great Lakes area. The framework for the proposed ECR

system design includes: (1) An Overview Structure of an Integrated Coastal Management Approach in the Great Lakes Area (see section 7.2.1.); (2) Environmental Conflict Analysis and Resolution (ECAR) Guidelines (see section 7.2.2.); and (3) A Vision of an Integrated Approach to Preventing Environmental Conflicts (see section 7.2.3.).

7.1. Addressing environmental and resource conflicts: Some approaches

Some of my respondents initially stated that they experience no conflicts in their work related to resource and environmental management. Therefore, they concluded that there is no need for ADR or any other specific conflict resolution mechanisms to be put in place to resolve conflicts. However, when we discussed many of my questions in more detail, many interviewees noted that there were indeed a number of environmental conflicts in their areas of work but they generally did not consider these issues to be real “conflicts”. Then they proceeded to describe in detail the methods and tactics they used to resolve environmental-related conflicts and prevent them from happening in the future. The question, therefore, is how we define conflict and how we understand it. Overall, there is a need for more awareness and a more comprehensive understanding that:

- a) conflict is just a fact of life (Wilmot and Hocker 2011, 2) and, therefore, we have to find ways to deal with it constructively;
- b) conflicts can be tangible and intangible;
- c) conflicts can be constructive and destructive;
- d) we may deal with conflicts constructively or destructively; and,
- e) extensive knowledge on conflict and conflict resolution already exists worldwide.

We can learn from it and we can also learn from each other’s experience.

Taking this discussion further, two separate approaches to conflict resolution in environmental and resource management have emerged. First, what I call a **narrow**

approach to conflict resolution includes a very specific set of actions, policies and rules that were developed for the precise purpose of resolving particular environmental and resource conflicts. Examples of the narrow approach include dispute resolution sections in policy documents, specific coastal resource management plans, or mediation processes.

Second, I also note a **broad approach to conflict resolution**, which may include a larger variety of options to prevent, resolve and transform conflicts with the assistance of both direct and indirect means. Such options may include education about the issue at hand, special conflict resolution skills training, developing communication skills, researching traditional practices of resolving conflicts, and storytelling among others. Chapters 5 and 6 of this study discussed some examples of resolving environmental conflicts, which can be used as components within this “broad” approach to conflict resolution in coastal areas.

It is critical for conflict resolution workers to be knowledgeable in both the narrow and broad conflict resolution approaches. Narrowly-focused and issue-specific conflict resolution training that includes learning conflict resolution theory and practice is often critical, but what is also needed for the third parties is to be open-minded and willing to accept that there are many methods and tactics that different communities around the world use to resolve their conflicts. Sometimes these traditional methods might be much more effective than the conflict resolution methods such as mediation and negotiation that are more familiar and more developed theoretically. For example, mediation is one of the most researched and documented conflict resolution methods, and it is an exceptionally valuable conflict resolution tool (Moore 1996; Domenici and Littlejohn 2001). However, mediation works well in certain circumstances and when a number of conditions are met. For example, conditions are conducive for mediation when

both conflict parties are willing to engage in this process, there is time and space available, while a certain degree of trust is also present, and there are resources available to fund the mediation process. Such conditions might not be easy to meet in the case of a conflict between two remote communities over the terms of commercial and recreational fishing. Therefore, when the parties are open to other conflict resolution options, they may be able to design an integrated conflict resolution process for a particular situation or community if necessary with the assistance of a conflict resolution worker.

An **integrated** intervention in environmental conflicts should include multiple actors and resources such as policymaking, stakeholder dialogue and cooperation, peace and environmental education, an evaluation process as well as best practices (O'Leary and Bingham 2003; Pearson d'Estree and Colby 2004; Leal Filho et al. 2008). A framework that goes beyond ECR towards conflict prevention and transformation by promoting an integrated approach to managing environmental conflicts is needed to address the complex and multidimensional environmental and resource conflicts. Such an integrated and holistic approach is aimed at designing creative nonviolent interventions that are based on the following fundamental components:

- Integrating environmental security, human security and nonviolence;
- Conflict transformation and prevention through an inclusive public policy (i.e. public participation in the policymaking process, stakeholder dialogue and cooperation) and accessible conflict resolution practices; and
- Respect for human rights, cultural identity, the environment and diversity, as well as encouraging creativity and collaboration.

Environmental security and human security are interrelated (Homer-Dixon and Blitt 1998). This integrative, holistic and exploratory study of coastal areas of the Great Lakes illustrates the interdependence between a coastal ecosystem, the resources and

space it provides and the communities, businesses and all other coastal residents and users. These interconnections were made visible in the narratives of the study participants with regards to the coastal conflicts they have experienced, the stakeholders involved in these conflicts, and the methods and approaches that are used to resolve these conflicts. The connections between environmental and human security (as well as safety, co-existence and mutual interdependence) also emerged during my efforts to categorize conflicts, stakeholders and conflict resolution practices within this study. While I have introduced various types of coastal conflicts and numerous stakeholders involved in these issues, as well as different approaches and methods used to resolve these conflicts, most types of conflicts and conflict resolution practices seem to overlap and/or complement each other. In addition, some respondents presented similar conflicts and conflict resolution practices in a variety of ways.

Moreover, policymaking is important because it can create foundations for peaceful relations and effective cooperation among stakeholders. The public policy field should draw on the theory and knowledge of conflict, peace, conflict resolution, peacebuilding, environmental and human security, culture and sustainable development (Pearson d'Estree and Colby 2004; Conca and Dabelko 2002a). It is also critical to include *all* stakeholders in the process of policymaking to ensure that the needs and interests of all actors are included (Hessing and Howlett 1997; Dorcey and McDaniels 2001). Holding referendums and community forums on environmental policies both at the national and local level are examples of public consultations with the community concerning the issues at stake. Another possible alternative is to use problemsolving workshops that include not only top leadership and decision makers, but also middle range leaders and all interested grassroots stakeholders (Lederach 1997). Moreover, while challenging discriminatory environmental policies might be a difficult task, the

nonviolent struggle for environmental justice might bring about positive results. In particular, stakeholder dialogue and collaboration assists in bringing conflicting issues to the table and in addressing them in a manner designed collaboratively by the participating stakeholders (Herath and Prato 2006).

A safe space for dialogue and conversation is also required for stakeholders to be able to share both their concerns and their knowledge and experience to help facilitate conflict resolution and prevention (Lederach 2003, 2005). Respect for human rights and human needs is critical in designing appropriate intervention strategies (Galtung 1990; Lederach 2003; Kriesberg 2009b). Moreover, failure to respect human needs and human rights may intensify existing conflicts and may lead to breaking out of new conflicts (Burton 1990b). Furthermore, the traditional indigenous methods of addressing conflicts in a particular region must be incorporated into conflict resolution and peacebuilding strategies along with other relevant approaches (Smith 1999). Traditional methods of conflict resolution exercised by indigenous communities may enrich other conflict resolution approaches and assist in resolving environmental conflicts in ways that are acceptable and manageable for all stakeholders. It is also important to encourage envisioning and creativity, and to listen to all voices within the community, industry, scholars, government, indigenous peoples, and youth (Chinn 2004). Those who take the lead in ECR must work with confidence and dedication to resolve environmental problems successfully.

Finally, addressing multidimensional and transboundary environmental and resource conflicts in coastal areas gives the stakeholders and participants an opportunity to create **mutually beneficial partnerships** in order to successfully address these issues (Cicin-Sain and Knecht 1998, 147). These types of partnerships might evolve from sharing responsibilities at various stages of developing policies or designing conflict

resolution interventions. For example, local ministers (such as, energy, agriculture, construction or transport) could coordinate research within their particular sphere of competence that involve local universities, NGOs and scholars at the stage of conducting a needs assessment to fully comprehend a particular coastal resource or environmental issue. Another possibility for creating partnerships is in organizing community forums whereby representatives of coastal communities and other stakeholders can meet, share experiences, discuss their individual interests and needs, and design mutually acceptable and creative processes to intervene in coastal conflicts. Some examples of such partnerships in the Great Lakes area include The Alliance for Water Efficiency, The Alliance for the Great Lakes, The IJC, and The Council of the Great Lakes Governors.

7.2. Towards an integrated coastal management program: A conflict resolution system design

An important finding flowing from this study is the need for an integrated and holistic coastal management process for the Great Lakes, which would include practical guidelines for resolving potential conflicts and disputes in coastal areas of the Great Lakes. In the context of developing an ECR strategy, which would involve various stakeholders as well as complex power relations and clashing interests, it is important to study existing and traditional models of conflict resolution and resource management in coastal areas of the Great Lakes (McGregor 2008). Further, it is critical to identify all key stakeholders and communities and learn what their needs and interests are, what their views on environmental issues are, and how they propose to address these issues. The next step might be to bring representatives of all the stakeholders together for a facilitated meeting that would provide a creative and open space for dialogue to exchange opinions and brainstorm possible solutions (Schwartz 2002). Stakeholder dialogue on the issues

that impact natural resources and the environment is really about sharing knowledge, listening to the stories of other parties, reflecting on the issues and conflicts, negotiating respectfully and envisioning a more just and peaceful future.

7.2.1. An overview structure of an integrated coastal management and conflict resolution approach in the Great Lakes area

While the general design of an integrated coastal management program for the Great Lakes may be similar to the Integrated Coastal Zone Management process used by the EU (Schernewski and Schiewer 2002b; Integrated Coastal Zone Management in Germany 2006), it should also focus on characteristics that are specific to the Great Lakes environment and should include a special section on conflict resolution measures. I revised the EU Integrated Coastal Zone Management (ICZM) approach (see Section 2.4.2. of this study) idea based on the research findings of this study. In particular, along with such key components of the EU's ICZM strategy as coastal protection, nature and resource conservation and economic development, it is important to include other critical components as outlined below.

An Overview Structure of an Integrated Coastal Management

Approach in the Great Lakes Area

- (1) Sustainable use of environmental and natural resources;
- (2) Environmental and resource conservation;
- (3) Human and environmental health and security;
- (4) Protecting biodiversity;
- (5) Sustainable development and use of green technology;

- (6) Adopting an inclusive approach, which promotes collaboration and dialogue among all coastal stakeholders and groups;
- (7) Protecting the rights and needs of Aboriginal and First Nations communities;
- (8) Enhancing bi-national cooperation between Canada and the US on the issues of environmental and resource management and conflict resolution;
- (9) Identifying and mapping existing ECR approaches practiced in the region;
- (10) Focusing on conflict prevention and collaborative problemsolving;
- (11) Ongoing education; and
- (12) Incorporating continuous evaluation and openness for improvement.

Integrating critical aspects of environmental and resource management can be very beneficial for conflicting parties. First, it could assist them in collecting, documenting and sharing the knowledge relevant to managing the coastal environment and its resources that would allow coastal stakeholders to work more efficiently and spend less time and resources on resolving environmental conflicts. Second, this strategy could, in the words of an academic from Illinois (Respondent P), “provide coordination to avoid duplication [of] efforts.” Integrating important aspects of environmental and resource management within a common ECR framework would also facilitate the prevention of environmental and resource conflicts. This ECR framework would integrate a large amount of information relevant to a particular coastal region, which can assist in monitoring environmental risks and threats as well as in implementing timely preventative and/or restorative measures.

The idea of creating an integrated coastal zone management program with a specific component focused on conflict resolution and prevention could also become an effective international strategy. For example, this program can be realized within the

framework of the United Nations Environment Programme (UNEP) that would spell out the basic coastal zone management and conflict resolution principles and then encourage individual countries to adopt and implement them on the ground.

7.2.2. Environmental conflict analysis and resolution guidelines

My Environmental Conflict Analysis and Resolution (ECAR) guidelines below present a set of guiding principles that could assist stakeholders in resolving conflicts and disputes within environmental and resource management, policymaking and decisionmaking processes. The purpose of this conflict resolution system design is to serve as a consultative tool. The guidelines presented in the system can be adapted to different programs, projects, legal documents or initiatives in environmental and resource management in coastal areas and to the needs of local communities.

Environmental Conflict Analysis and Resolution Guidelines

1) Environmental conflict analysis and resolution (ECAR)

Generally speaking, ECAR is a process that involves a comprehensive conflict analysis that is designed to assist stakeholders resolve conflicts related to environmental and resource issues. This process may vary in each particular conflict case depending on such factors as: (1) the nature and scope of the conflict; (2) the number of participants; and (3) the availability of conflict resolution skills and resources.

2) Step-by-step ECAR process

a. Identify what the conflict is about

There are a number of useful tools, which can assist with conflict analysis and conflict resolution. For example, a “**TRIP**” approach facilitates

conflict analysis by breaking down conflict goals into four categories: topic, relationship, identity and process (Wilmot and Hocker 2011, 71-89). While these categories may overlap and shift during the course of the conflict, this approach assists in identifying what the underlying causes of the conflict really are.

b. Identify the root causes of the conflict

Identifying the origins of a conflict is the critical step in a conflict resolution process (Byrne et al. 2001). It is important to keep in mind that conflicts may have multiple root causes, which may range from clear and recent events or actions to intangible deep-rooted historical, cultural and social causes (Polkinghorn 2000).

c. Conduct stakeholder analysis

Stakeholder analysis is a critical component of a comprehensive approach to studying a particular conflict with the goal of designing a conflict resolution intervention. Stakeholders are key actors in conflict management design (Costantino and Merchant 1996, xv). It is important to identify which groups are involved in the conflict and what are their individual needs, goals, concerns, and suggestions. There may be a number of clearly visible participants as well as those that are less obvious and are more difficult to identify. All participants, however, need to be included in the conflict analysis and resolution process.

d. Bring conflict participants together and create a space for dialogue

It is important to create a space for the conflict participants to meet, communicate, discuss the conflict and have an opportunity to collaborate on designing a conflict resolution intervention. Possible dialogue spaces

(including virtual spaces) for conflict participants may include stakeholder forums, coastal issues conferences, advisory group meetings, or on-line discussions using one of the networking websites (for example, Facebook or a specific networking website for the stakeholders from the Great Lakes area).

e. Brainstorm resolution options

The brainstorming process regarding possible solutions to a particular conflict should include as many participants as possible. It is important to include *all ideas* shared during the brainstorming process, and based on these ideas to cooperate on developing concrete suggestions for a realistic conflict resolution process (Homan 2011, 193).

f. Design a conflict intervention strategy

A resolution approach to environmental and/or resource conflict can be designed based on the results achieved through implementing steps 2.a-2.e. and with reference to the existing ECAR options (see step 3 below).

3) Some existing ECAR options

Consider and, if necessary, research further some of the following ECAR options that can be used as models (best practices) or as the guidelines for designing a ‘customized’ conflict resolution method for each particular conflict case.

- a. *Advisory groups*
- b. *Mediation*
- c. *Dialogue circles*
- d. *Cooperative management boards*
- e. *Education and training in particular issues related to conflict*
- f. *Elected officials*

4) Timeframe and evaluation

It is important to create a timeframe for the implementation of the above interventions and include such critically important steps as continuous evaluation, consultation and dialogue among stakeholders along the way (Lederach 1997).

The ECAR Guidelines presented above provide flexible guiding principles, which can assist conflict resolution professionals, environmental and resource managers, policymakers, coastal residents, and all other stakeholders in designing an appropriate conflict resolution process for a particular environmental conflict in the coastal areas of the Great Lakes. This approach encourages an integrated, inclusive and interactive process of environmental conflict analysis and resolution. This process could be conducted with or without the assistance of a conflict resolution professional. However, inviting in a third party with theoretical and practical experience in conflict resolution might be very beneficial, and might increase the likelihood of reaching a resolution that would be acceptable to all parties involved in a particular conflict.

7.2.3. A vision of an integrated approach to preventing environmental conflicts

Another critical component that can prevent and resolve environmental and resource conflicts in coastal areas involves conflict prevention measures. Conflict prevention builds on the existing knowledge and practical experience in environmental and resource management and acts as a preventative measure that doesn't allow serious and violent conflicts to occur or to further escalate (Byrne and Senehi 2012). Envisioning a more sustainable and effective coastal resource and environmental management approaches by coastal stakeholders may facilitate their implementation and the development of more sustainable resource management practices in their everyday work (see Boulding 2000).

According to Boulding (2000, 29) “the very ability to imagine something different and better than what currently exists is critical to the possibility of social change.” The following vision of environmental conflict prevention measures are based on the research findings of this study.

A Vision of an Integrated Approach to Preventing Environmental Conflicts

1. **Conflict resolution education.** K-12 as well as undergraduate and graduate college and university programs could include conflict resolution education and training. The K-12 programs can offer general conflict resolution education, while post-secondary education programs can offer conflict resolution education within the particular study area, along with the existing specific conflict resolution degree programs. Further, most workplaces would benefit from including conflict resolution training within employee skills development programs, workshops and seminars focused primarily on potential conflict issues related to their particular work environment (Byrne and Senehi 2012).

There is a need to invest in, and increase young people’s awareness about ADR approaches. There seems to be a perception in the wider public that dispute resolution professionals should only be invited into extreme cases, and that they should be avoided if at all possible. There is also a concern, according to an expert in environmental policy from Minnesota (Respondent W) that conflict resolution professionals will monopolize the process of conflict resolution and will take decisionmaking power away from the participants. There is a need to educate coastal stakeholders and policymakers about conflict resolution skills.

2. **Environmental education.** K-12 education programs might also include elements of environmental and natural resource related education. Further, post-secondary education programs might include environmental and natural resource education and training related to their particular field of work and/or study.
3. **Conflict resolution professionals' and environmental experts' participation.** In each particular work, study, or recreational setting environmental and resource related conflicts may arise. In cases where such conflicts are escalating, inviting in an expert (or experts) on a particular issue can be very useful to the process of conflict prevention and resolution. In some cases, the experts may be most knowledgeable about the environment, conflict resolution or both.
4. **Collaboration among participants.** Resolving and preventing conflicts requires collaborative efforts from the participants and stakeholders. The participation of all affected and interested groups and individuals in dialogue, communication and mutual problemsolving ensures that the actions taken are more likely to be mutually acceptable, effective and durable. The idea of putting together a shared coastal space is insightful in visualizing the connections between all of the participants and their ties to their environment and the resources it provides.
5. **An integrated view of conflict and conflict resolution.** Conflicts are complex, dynamic and multilayered. An integrated and holistic approach that takes into consideration the multiple characteristics, parties, and root causes of these conflicts is required to prevent, resolve and transform them.

7.3. Implications for environmental policymakers and resource managers

There are several dimensions in which environmental policymaking can be conceptualized including the local, regional, cross-border, international and global contexts. Policymakers can draw on effective international environmental policymaking practices and policies from different countries globally (Jeong 2000). An international organization or institution that has the capacity to integrate various policies and practices of coastal zone environmental and resource management into its mandate, and would make them available globally could empower both international and local environmental policymaking efforts. For example, this initiative could be carried out within the framework of the United Nations Environment Programme (UNEP). International coastal zone management and ECR principles could be developed through an extensive review, and the research and analysis of existing practices of coastal environmental and resource management carried out throughout the world.

Regional and local institution-building aimed at enhancing the capacity of coastal communities and stakeholders in environmental conflict resolution and prevention is also critical. The importance of institution-building within natural resource management, and, in particular, within community-based resource management, was also highlighted by Armitage (2005), Pomeroy (1996) and Berkes et al. (2005). Moreover, there is a necessity to create institutions that would build the capacity to include multiple coastal actors and their different levels of involvement in ECR.

Consequently, one of the main conclusions based on this research is the need to **create a forum** in which all stakeholders of the Great Lakes are able to participate and contribute to a more sustainable usage of the multiple resources provided by the Great Lakes. There are a number of existing structures and institutions that have the potential to fulfill this task. For example, the IJC has the capacity and the resources to connect

stakeholders from all around the Great Lakes. The Great Lakes Information Network (GLIN) is another inspiring example because it is a network that provides an online link for various groups in the Great Lakes area, and offers a large volume of information and data on such relevant topics as the region's history, environment, geography, economy, tourism, culture and education¹⁵.

Another way to connect coastal stakeholders would be to create a new initiative such as a conference, a forum or a network that would bring together various coastal stakeholders, and would provide them with a space for dialogue and collaboration on environmental and resource issues relevant to the entire Great Lakes Region. One strategy to bring together the groups and communities from the Great Lakes would be by creating **Coastal Peace Parks**. The idea of establishing protected natural parks at the border between two conflicting areas as a jointly administered untouchable zone “in the interest of both peace and the environment” was developed by Johan Galtung (2010, 86). Peace Parks may serve as buffer zones between two conflicting communities or countries, or they may create an opportunity for active cooperation and peacebuilding (Lejano 2006). A practical example of a Peace Park is an International Peace Garden on the border between Manitoba, Canada and North Dakota, USA. The International Peace Garden is a non-profit organization that is devoted to World Peace and is co-managed by an equal number of Canadian and American representatives¹⁶.

Coastal Peace Parks can be shared by many different stakeholders at the same time and used for leisure, tourism, sports and fitness, conservation, dialogue, education and other simultaneous activities. A Coastal Peace Park can be envisioned as a place where people can spend time to exercise, enjoy the environment, relax, meditate,

¹⁵ More information on the Great Lakes Information Network can be found at <http://www.great-lakes.net/>

¹⁶ For more information about the International Peace Garden see <http://www.peacegarden.com/>

communicate, keep the place clean, learn about the environment, and preserve biodiversity (see for example, Appendices 4G and 4H depicting images of a coastal space on the Canadian shore of Lake Ontario that may be conceptualized as a Coastal Peace Park).

The idea of a Coastal Peace Park provides various coastal stakeholders with an opportunity for meetings, dialogue and potential conflict and dispute resolution efforts and activities. However, it also offers a larger link between coastal stakeholders, their environment and peacebuilding. The Coastal Peace Park idea is also building on the essential connections between ecological security and world peace discussed by Wenden (2004). As a safe, comfortable, clean and healthy environment, coastal areas may serve as potential peacebuilding and peacemaking spaces. Coastal Peace Parks may be considered favorable grounds for addressing both environment and/or resource conflicts, and other types of conflicts as they arise. In particular, coastal areas may be conceptualized as the grounds for building bridges and connecting people with diverse needs, interests and goals who at the same time share the common coastal space.

Connecting coastal communities and stakeholders is important, whether it is through an online networking tool, a public forum or a Coastal Peace Park. Sharing knowledge and experience can benefit everyone who participates in these collaborative endeavors. As coastal communities and stakeholders collaborate together, they also build their skills, develop their expertise and facilitate further cooperation on preventing and resolving environmental and resource conflicts.

7.4. Conclusions

In this study I learned about environmental and resource conflicts from the respondents' stories. I also learned about conflict resolution approaches practiced by various coastal

stakeholders from the North American Great Lakes. One of the important goals of my research was to explore the relevant management tools for setting and maintaining a balance between the inevitable growth of industries and the maximum possible nature conservation for the benefit of the residents of the coastal areas of the North American Great Lakes and their unique environment. One of the critical steps in addressing the gaps within existing ECR models in coastal areas might require designing a methodology aimed at investigating the issues around the gaps discussed in this study to design a conflict resolution intervention process. This holistic, integrative and exploratory study of coastal environmental and resource management in the Great Lakes might provide a valuable example for both the theoretical and practical areas of conflict resolution in the coastal zones.

Chapter 8: Conclusions. Environmental conflict resolution practices and policymaking in coastal areas of the Great Lakes: Challenges, opportunities and considerations for the future

Introduction

Integrated coastal management policies may have the potential to create a foundation and a general framework for ECR in coastal areas. The efforts to create frameworks and provide structure and guidelines for the implementation of coastal management practices by national governments and international organizations, including ECR initiatives is an encouraging and positive undertaking (Integrated Coastal Zone Management in Germany 2006; Action Plan 2010).

However, it is important to further develop practices and interventions that would promote specific approaches to conflict prevention and dispute resolution in coastal areas within the framework of integrated coastal management. These initiatives might include public education in the broad sense (peace education along with teaching about nature protection, conservation, specific conflicts and possible ways to resolve them); the promotion of stakeholder dialogue over conflicting interests and values regarding coastal resources; and, investment in training, capacity-building, as well as in initiatives aimed at building trustworthy relationships among coastal stakeholders (Wenden 2004; O'Leary and Bingham 2003; Leal Filho et al. 2008).

A member of an environmental NGO from Michigan provided the following overview, which captured important points related to environmental and resource conflict resolution in the Great Lakes area,

Respondent AB: Each coastal user has a different perspective, and trying to find a balance can prove extremely difficult. One property owner sees weeds on his beach, another sees a thriving coastal wetland. A shoreline property

owner sees high water levels as a threat to his/her home while the shipping and recreational boating industry sees it as a boom to business. There are examples of such conflicting viewpoints throughout the Great Lakes Basin that come from sharing the same coastal space and resource.... Yet, at the same time, there is also an opportunity – there are 42 million people who rely on the Great Lakes for drinking water, 4.3 million recreational boaters, 8 states, two countries – all who share the Great Lakes and feel a connection to this magnificent resource. If capitalized upon, this could be an impressive force used to ensure protection of the resource.

The viewpoint presented above illustrates and summarizes a number of important considerations, challenges and opportunities revealed in this study. The study participants outline different interests and needs, different perspectives on and perceptions of similar issues, the difficulty of finding a balance, as well as an opportunity that is there for collaboration and sharing knowledge, experience, resources and space. The respondents highlight the role of education, collaboration and compromise in resource management and in ECR. While the existing challenges are made visible, hope and confidence are clearly expressed, and numerous opportunities for resolution are noted.

The objectives of this study included exploring the types of environmental and resource conflicts, the stakeholders involved in these conflicts and the approaches and methods used to resolve environmental and resource conflicts in the Great Lakes area. Moreover, I attempted to integrate the issues related to environmental conflict resolution, such as public policy, ADR, conflict analysis, project evaluation, dialogue and public participation, education and other creative interventions within a holistic and inclusive strategy of integrated environmental and resource management in coastal areas. Further, the objective included creating an ECR system design that would assist in environmental conflict analysis and resolution.

8.1. Theory, policy and practice in environmental conflict resolution

This study integrates theoretical and practical approaches to conflict resolution with a specific focus on addressing conflicts in the coastal areas of the Great Lakes. The main frameworks for this ECR study included *conflict resolution and conflict prevention*; *environment and security*; and *policymaking*. In addition, the framework themes discussed were: *culture and environment*; *sustainable development*; *education, training and capacity-building* in peace and the environment; *stakeholder dialogue and collaboration*; and *creativity* in addressing environmental conflicts. The components of each of these frameworks could contribute to designing an appropriate integrated ECR program for the region by providing the specific ‘lenses’ for conflict analysis, policy prescription, and for developing peacebuilding practices to resolve environmental conflicts.

An environment and security framework, as well as the theory of conflict and conflict resolution provide the theoretical background for understanding environmental conflict and for developing ECR strategies and interventions. These frameworks, combined with the knowledge of the geography and culture of a region affected by a conflict (for example, a coastal area of a large urban center) are critical for analysis, research and policymaking aimed at addressing conflict. Moreover, human security and environmental security illustrate that people and the environment are connected as both are affected by conflicts and, at the same time, they are both important actors who have the potential for resolving environmental conflict peacefully (Homer-Dixon and Blitt 1998). Further, conflict transformation, conflict prevention and peacebuilding provide an opportunity for responding to emerging environmental conflicts and threats by suggesting preventative and transformative practices developed within the PACS field (Lederach 2003; Curle 1990; Miall 2004).

Public policy, on the other hand, might be perceived as an overall framework for implementing ECR practical tools (Moran et al. 2006). Effective policies, regarding the environment and the use of natural resources, which support public participation, citizen governance, and stakeholder dialogue and participation may contribute to ECR (Hessing and Howlett 1997; Pearson d'Estree and Colby 2004). Moreover, clear and comprehensive public policy, which includes nonviolent conflict resolution practices may assist in resolving and preventing environmental conflicts. Education, training and capacity-building are also critical components of ECR and conflict prevention specifically when all key stakeholders are involved in these practices.

In the study of ecological conflicts Gunnar Sjöstedt (2009) finds that there are specific features and factors that give environmental conflicts a distinct character, affect the dynamics of these conflicts and shape the conflict resolution process. Among such general features of environmental conflicts are: their trans-boundary character, deep complexity, a complex combination of participants, their distribution of negative rather than positive values, uncertainty problems, as well as their propensity to be framed as a crisis or risk or their need to become securitized (Sjöstedt 2009, 230-238). Coastal conflicts are further complicated by vulnerability, high pressure on and demands from coastal areas, as well as the need to balance their value as a strategic region, or as a source of subsistence, as well as the merits of their cultural heritage (Jacques and Smith 2003; Brown et al. 2002, 111). Such complexity reflects the need to integrate existing frameworks of conflict analysis and resolution, policy formulation and practical interventions in resolving environmental conflicts in coastal areas.

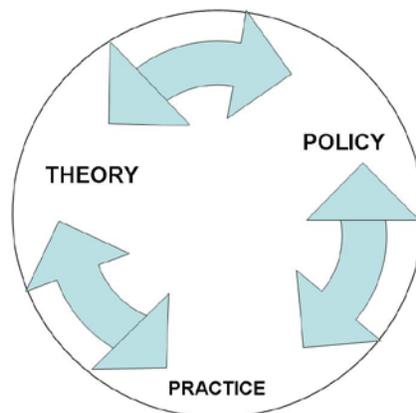
While each of these frameworks contribute to environmental conflict resolution in a number of ways, the following schema may be useful in visualizing the connections between these frameworks:

Figure 7: Policy as a link between theory and practice in environmental conflict resolution

Theory	→	Policy	→	Practice
conflict, peace, security and environment; theoretical knowledge in conflict resolution		government, governance, resource management, environmental laws and regulations		practical approaches to conflict resolution, conflict prevention, stakeholder dialogue, education, training

Figure 7 presents public policy in natural resources and the environment as a potential link from theory to practice in the resolution of environmental conflicts. At the same time, it is important to consider the interplay of theory, practice and policymaking in environmental management and conflict resolution (Fig. 8) as interconnected components that inform and enrich each other in a continuous and dynamic process (Cicin-Sain and Knecht 1998, 191-196; Schernewski and Schiewer 2002a).

Figure 8: Interplay of theory, policy and practice in environmental conflict resolution



There are a number of “tensions” between both frameworks. First, there is the problem of ‘legitimacy’ and a jurisdictional tension. While PACS theory, environmental and human security and other theoretical concepts may guide policy, their function is mainly informative. Public policy may have different jurisdictions: it may be mandatory;

it may have a prescriptive character; or it may serve as guidelines for action (Moran et al. 2006). Furthermore, practical approaches to conflict resolution, like mediation, negotiation or peace education are generally voluntary and depend on the willingness of the parties to engage in dialogue and resolve their conflicts peacefully and effectively (Ury 2000; Bercovitch 2009a). These “tensions” between both frameworks can be addressed by integrating them into a comprehensive ECR program in coastal zones, which would link theoretical, practical and policy components within a sustainable coastal areas management program (Integrated Coastal Zone Management in Germany 2006; Action Plan 2010).

Another “tension” might be found in the different scopes and contexts of these frameworks. Conflict resolution and peacebuilding deal with both tangible (for example, conflict over access to resources or over ownership rights to coastal space) and intangible issues (for example, cultural heritage and identity, connection to coastal areas through family roots, perceptions of the environment as part of life and subsistence versus a source for making profit) (Sandole et al. 2009; Jeong 2000; Webel and Galtung 2007).

Depending on the scope and the context of a specific conflict, appropriate practical approaches to resolving conflict should be used. However, policy requires a precise definition of the actors, participants and the issues at stake, which may not always be possible in conflicts over perceptions, identity or cultural issues (Hessing and Howlett 1997). This debate was also raised earlier in this study concerning the critiques of human security, sustainable development and culture (Paris 2001; Mac Ginty and Williams 2009). These critiques indicate that the concepts of human security, sustainable development and culture are too vague and general, are unsuitable for policymaking, and inappropriate for the guidance of concrete conflict resolution measures (Smith 2005; see also Section 6.8. of this study).

Finally, there is a “tension” between frameworks pertaining to the involvement of different stakeholders in the processes of research that informs theory, involvement in policymaking, and participation in conflict resolution practices (Stoll-Kleemann and Welp 2006; McGregor 2008). Public participation and involvement in these processes is often limited (Brown et al. 2002). Addressing environmental conflicts in coastal zones, however, requires a comprehensive approach that is based on respecting the needs and interests of *all* stakeholders and parties to a conflict and on responding to these needs (Leal Filho et al. 2008). An integrative and holistic approach can contribute to the sustainability of chosen conflict resolution measures as well as enriching the ECR theory and creating best practices for conflict prevention.

8.2. Key overall findings

One of the key findings of this study reveals that because of the **multitude of issues** and the **variety of stakeholders** in the environmental and resource management of the coastal areas of the Great Lakes, an integrated and holistic approach to analyze and resolve environmental and resource conflicts is required.

Environmental coastal conflicts are **multi-dimensional** (Leal Filho et al. 2008; Brown et al. 2002; Cicin-Sain and Knecht 1998). Individual components of environmental and resource-related conflicts are closely interlinked with other structural elements, including economic, cultural, social and political developments (Pearson d’Estree 1999). For example, in order to address global environmental challenges it is critical for countries and peoples to cooperate to protect water, air and land from pollution, develop renewable energy sources and increase energy efficiency as well as preserve the world’s ecosystems (including coastal areas ecosystems) and design

sustainable policies for resource use and management (Odum 1993; Schiewer 2008; Gore 2006).

One of the main challenges of environmental conflict resolution and prevention is in addressing the complex and multidimensional character of resource and environmental conflicts through an integrated framework for analysis and for designing appropriate interventions (O'Leary and Bingham 2003). The methods used to intervene in various specific disputes within coastal areas must be studied and can be integrated within a comprehensive model of coastal conflict resolution. For example, in the case of the European Union (EU), an integrated coastal management program is a framework focused on integrating multiple issues and stakeholders that has required individual member countries to "supplement" this general framework with efforts to develop and implement coastal zone management programs at the local level (Schernewski and Schiewer 2002a; Dolzer and Thesing 2000). These local experiences bring new knowledge to the table and create best practices that can be further developed and shared among other countries in the EU in order to introduce both conflict resolution and conflict prevention measures in their coastal areas (Glaser 2002; Roberts 2005; Coccossis 2005). Thus, both bi-national and local coordination is required to address environmental and resource conflicts in the coastal areas of the Great Lakes. The example of the current Great Lakes Restoration Initiative in the US reveals the potential for stakeholder collaboration, as eleven federal departments and agencies work together on multiple environmental and resource issues in the coastal areas of the Great Lakes (Action Plan 2010). In addition, because coastal conflicts are dynamic, change and the need for flexibility in adapting to change should be taken into consideration during the research process (see Corbin and Strauss 2008, 49-50), and while designing interventions into natural resource and environmental conflicts in coastal areas.

Nine important findings of this study flow from the analysis of the data. First, the wide range of **coastal stakeholders** in the Great Lakes region raises a number of important issues: (1) who are the coastal resource users and who are the coastal stakeholders?; (2) who are the decision makers?; (3) who is excluded from making decisions and why?; (4) who is affected by these decisions?; and, (5) how can one design a process that would bring together all the participants (stakeholders, users, and decisionmakers) to make the policymaking, resource management and decisionmaking processes more effective and inclusive? A critical step in conflict analysis, resolution and prevention is to conduct an organization and stakeholder analysis (Costantino and Merchant 1996, 105). Stakeholder analysis is of particular importance for multi-dimensional environmental and resource conflicts because they involve numerous actors who have various needs, interests and multiple issues at stake.

Second, **communication is critical** in resolving environmental and resource conflicts. In order to create an opportunity for all the stakeholders to communicate with each other a number of conditions need to be met: (1) a space for communication has to be created, which is safe, comfortable, inclusive and available; and (2) there needs to be an awareness of communication techniques and skills among coastal stakeholders. It might be beneficial to invite a facilitator to assist with the dialogue and communication process. It is also important to enhance people's communication skills so that coastal stakeholders can effectively collaborate on resolving and preventing potential environmental conflicts. Creating spaces for communication among coastal stakeholders may facilitate their dialogue, enhance relationship building and encourage collaboration which, in turn, might assist with collaborative problemsolving and conflict resolution.

Third, there is a strong need to **connect science and policy** within environmental and resource management and conflict resolution. The use of scientific knowledge is

necessary for effective policymaking and decisionmaking on matters of environmental and resource management. Moreover, practical experience in resolving environmental and resource conflicts may contribute to the development of theoretical knowledge in conflict resolution and peace studies. For example, the work of the IJC in cross-border environmental and resource management encompasses collaboration in both policymaking and scientific areas of practice and research. In particular, the IJC monitors and assesses Canadian-American practical cooperation in cross-border resource management, environmental policymaking and conflict resolution in the Great Lakes area as well as facilitates academic dialogue and theory building among scholars and practitioners from both countries.

Fourth, coastal stakeholders need **conflict resolution education**. My respondents commented on the significance of education, and provided a number of different reasons why it is important. In particular, they noted that learning specific conflict resolution skills can significantly enhance the capacity of coastal stakeholders in ECR. This finding also builds on the strong connection between environmental/ecological education and conflict resolution/peace education and training discussed by Wenden (2004). According to Wenden (2004) the links between environmental and peace education include sustainability, global environmental issues, environmental justice, legal rights and responsibilities as well as providing an ethic of interdependence amongst all key stakeholders.

Fifth, coastal stakeholders have an extensive and wide-ranging existing **knowledge, experience and expertise** in resolving conflicts related to the environmental and resource issues in the coastal areas of the Great Lakes. For example, Alger (2007) found that almost all organizations have the potential for peacemaking and peacebuilding, and based on the findings of this study, I conclude that practically all coastal stakeholders

in the Great Lakes area have the resources, the local indigenous knowledge and the potential for resolving conflicts peacefully and effectively. Their conflict resolution resources and skills are grounded in their expertise, practical experience, theoretical knowledge and the necessity of sharing the coastal space with other stakeholders.

Sixth, based on the research findings and observations outlined above, it is reasonable to suggest that Canadian and American **universities should start playing a more concrete role** in managing and resolving environmental conflicts through increased cooperation, winning national and cross-border research grants, as well as providing training in conflict resolution and peacebuilding to local people and in creating spaces for dialogue and cooperation between different coastal stakeholders. For example, the State Sea Grants in the US could be used as a possible facilitator of such cooperation¹⁷. Moreover, a multidisciplinary community-based approach to learning that integrates sustainability, social justice, environmental sciences and human rights (James and Schmitz 2011; Schmitz et al. 2010) has the potential to enhance the capacity of local communities in environmental conflict resolution and prevention. Bi-national forums and conferences in environmental management, policymaking and conflict resolution are also potential platforms for Canadian-US collaboration in this area. International cooperation and the sharing of information, knowledge and technology are all critical components of addressing environmental and resource conflicts, which do not always respect international borders and do not always follow predictable paths (Giordano et al. 2005; UNEP 2004, 2006a, 2006b). Overall, ECR institution-building on both international and local scales is critical in addressing multidimensional character of environmental and resource conflicts.

¹⁷ See *Sea Grant Overview* at <http://www.seagrant.noaa.gov/aboutsg/index.html>

Seventh, a **dispute (or conflict) resolution system's design** (Costantino and Merchant 1996; Ury, Brett and Goldberg 1988) might serve as an integrated framework for the analysis and resolution of environmental and resource conflict. An ECR system design might include such important components as conducting conflict and stakeholder analysis; identifying the root causes of conflict; bringing conflict participants together; brainstorming resolution options; using some of the existing ECAR options and designing new ones; and building in continuous evaluation processes (Pearson d'Estree and Colby 2004; O'Leary and Bingham 2003; Leal Filho et al. 2008).

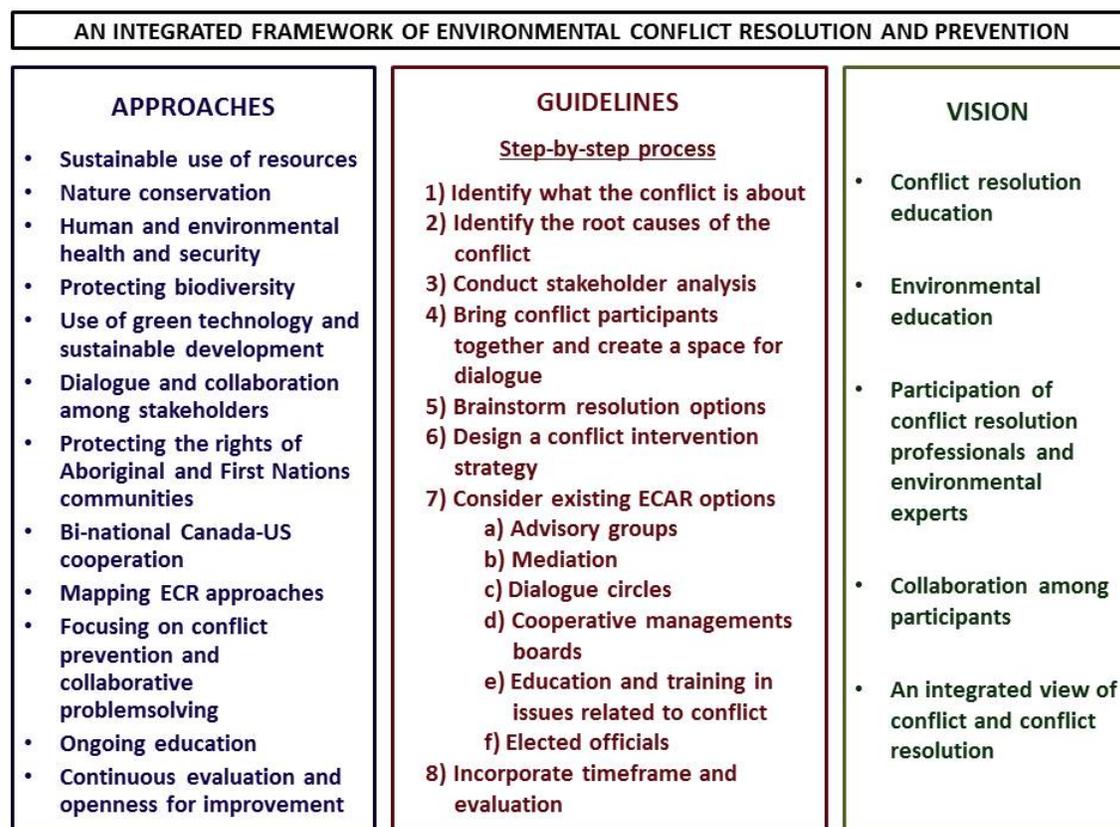
Eighth, a **holistic and inclusive worldview** shared by many indigenous groups highlights that the environment, its resources and living beings are interconnected (Rice 2011). Moreover, Castleden et al. (2009, 794) found that the ideas of Huu-ay-aht First Nation that "everything is one/connected" have the capacity to contribute to the "evolving Western worldview on the human-nature relationship". Such holistic indigenous approach to the environment and its resources may provide guiding principles for an integrated management of coastal resources and for resolving environmental conflicts.

Finally, based on the research findings of this study, the **key principles** of ECR and conflict prevention in the coastal areas of the Great Lakes may be formulated as follows:

- (1) Sustainability in coastal development and resource use;
- (2) Dialogue and collaboration among coastal stakeholders in environmental and resource policymaking and governance;
- (3) Wide-scale education and training in environmental studies and in conflict resolution theory and practice; and,

- (4) An integrated framework of environmental and resource management, environmental conflict resolution and prevention (see Figure 9).

Figure 9: An integrated framework of environmental conflict resolution and prevention



8.3. Recommendations for future research

A number of gaps within and between the frameworks of resource management and ECR have emerged including:

- The lack of awareness among stakeholders about issues, theory, and possible conflict resolution approaches that are also connected to the lack of public interest in getting involved;
- The shortage of educated professionals working in coastal zones conflict management and resolution who would have expertise in both conflict resolution

- and in their respective area of work (for example, in oil and gas, ecology, health, and management);
- Insufficient recognition of and respect for specific needs and interests of various stakeholders, especially those of local coastal communities;
 - Not enough involvement of the First Nations and Metis people living along the shores of the Great Lakes in both the US and Canada; and
 - Scarcity of integrative policies for the coordination of coastal developments and environmental management.

The gaps in various ECR practices in coastal areas discussed in this study necessitate designing appropriate research methodologies to address these gaps.

First, the “participation gap” is reflected through the uneven participation of stakeholders in the processes of decisionmaking and policymaking, as well as in designing and implementing conflict resolution initiatives (McGregor 2009; Brown et al. 2002). Applying participatory research techniques (McIntyre 2008) to different stages of a research project ensures that the voices of all stakeholders are heard and it may assist in gaining a deeper knowledge of the roots of the “participation gap” in environmental management as well as may lead to developing more participatory and inclusive environmental management and ECR practices.

Second, the gap between scientific research and the policy implementation of ECR initiatives (Cicin-Sain and Knecht 1998) may be addressed by conducting a more thorough evaluative research of programs and a comprehensive study of documents, scientific reports and data (Druckman 2005; Weiss 2004).

Third, there is relatively little research about the cultural factors that lead to conflicts over natural resources and the environment in coastal areas. The inclusion of key stakeholders’ stories and narrative analysis within a qualitative research methodology

can focus on the role of culture in conflict and conflict resolution. Studying the links between the environment and culture may assist in our understanding of the root causes of some environmental and resource conflicts, as well as in finding ways to resolve these problems and in designing appropriate intervention strategies.

Fourth, the importance of creating an institutional foundation within environmental and resource management and ECR is in coordinating the efforts of numerous environmental and peace organizations to facilitate sound policymaking, enhance effective practices, and promoting shared knowledge through peace and environmental education (Boulding 2000). A number of large international organizations including UNEP, UNDP, UNESCO, World Bank and NATO form an institutional foundation for international policymaking relevant to environmental and resource management issues. However, a number of academics and practitioners voiced concerns regarding the capacity of large international organizations, and in particular UN organizations, to resolve conflicts and address global challenges (Mingst and Karns 2007). Therefore, more research is required into the issues that affect the institutional foundation of ECR both locally and globally. In particular, local examples of institution building in the areas of environmental and resource management in the Great Lakes region require deeper research and analysis.

There is also a need to study effective local practices of ECR, such as co-management and other environmental management partnership practices (see Plummer and Fennell 2009; Berkes 2004, 2007; McGregor 2008). Studying cross-level institution building practices such as community-based resource management highlights such critical issues as interdependence within complex adaptive systems and multiple levels of governance (Berkes 2006). Furthermore, the evolution of co-management requires a

“two-way feedback between government policy and local institutions” (Berkes 2009, 1693).

Finally, the changing and dynamic nature of environmental and natural resource conflicts in coastal areas presents a challenge for designing comprehensive interventions. While changes and new developments in coastal areas are inevitable, incorporating periodic evaluations of interventions and programs with the consultation of stakeholders may direct both research efforts and practical conflict resolution interventions (Weiss 2004; Wholey 2004; Gürkaynak et al. 2009).

It is important to note that a research project may be perceived of as a long-term research process rather than a brief encounter with the people and the research area (Smith 2008, 16). While research results may lead to positive changes in policy, or to the launching of a community-based initiative, it is also important to see research as a process of building relationships between a researcher and the community as well as assisting stakeholders to build trustworthy relationships with each other. For example, reporting the research results and findings back to the people is an important component of a research process, which goes beyond completing a final report and includes a deeper engagement with the community where the research was conducted (Smith 2008, 15-16).

An integrated approach to resolve and prevent environmental conflicts is critical to address the above gaps. It should include the components of resource management and ECR practices and frameworks discussed in this study to design specific intervention frameworks suitable for local conditions, and available resources. In particular, an interdisciplinary ECR process includes such integral components as policymaking processes, facilitating dialogue and cooperation between all stakeholders, promoting public awareness through education and training, supporting community activism, as well as providing a comprehensive evaluation of existing practices and interventions to raise

their effectiveness and to create best practices (Leal Filho et al. 2008; Pearson d'Estree and Colby 2004; O'Leary and Bingham 2003).

An integrated approach to resolving and preventing environmental conflicts requires further practical application and development. For example, current territorial claims in the Arctic, which is surrounded by Canada, Russia, the US, Norway and Denmark (via Greenland), present an environmental, resource, geographical and political issue, which may cause potential conflicts if it remains unresolved. The ECR model developed in this study can be adapted and used for the analysis of territorial claims in the Arctic with the purpose of developing a constructive and peaceful resolution approach.

In conclusion, more profound and focused research is needed to connect environmental and resource management and conflict resolution both in terms of interdisciplinary studies and specific exploratory and comparative case studies. The ECAR field is still developing and requires further research in particular in terms of:

- a) Studying specific ECAR methods conducted by individuals, organizations and governments;
- b) Developing effective practices (or 'best practices') that could potentially serve as models to be adapted for the resolution of other environmental conflicts;
- c) Designing and implementing processes that would incorporate the experience, interests, needs, goals and suggestions of coastal stakeholders into policymaking and decisionmaking practices;
- d) Enhancing the research of environmental conflict prevention and early warning mechanisms;
- e) Exploring possible ways of using sustainable development as a practical tool in environmental management and in ECR; and

- f) Strengthening collaboration among researchers, practitioners and policymakers to develop stronger links between policy, the legal mechanisms of resolving conflicts and alternative conflict resolution approaches. This may potentially enhance the capacity of resolving conflicts and promote the development of integrated and multi-level conflict resolution interventions.

8.4. Conclusions

Both theoretical and practical approaches, methods and models within the resource management and ECR frameworks discussed, analyzed and developed in this study provide important insights pertaining to resolving the deep roots of coastal environmental conflicts. The major findings of this study revealed that it is important to integrate these approaches into a framework for a particular conflict context to ensure that the chosen conflict resolution model covers all local issues and developments within the conflict. The multifaceted and cross-disciplinary character of conflicts in the coastal areas of the North American Great Lakes provides conflict resolution professionals with a challenge to respond to these issues adequately and to resolve conflicts peacefully. At the same time, this challenge may be regarded as an opportunity to use available resources, knowledge, expertise, energy, and creativity to design and implement comprehensive, practical and efficient conflict resolution and conflict prevention strategies in the Great Lakes area and beyond.

Appendices

Appendix 1

Interview Schedule

Have you received the consent form and having read it, agree to contribute to this study?

- a. Yes b. No

General questions:

1. What is your name?
2. What is your age?
 - a. 20-29 b. 30-39 c. 40-49 d. 50-59 e. 60-69 f. 70-80
3. What is your gender?
 - a. Male b. Female
4. What is your achieved level of education?
 - a. Secondary
 - b. Post-secondary (please specify)
 - c. Technical
 - d. Other (please specify)
5. What is your area of work?
 - a. Activist
 - b. NGO
 - c. Academic
 - d. Bureaucrat
 - e. Other (please specify)
6. What geographical area do you work in (or live in, for coastal residents)?
7. In the dissemination of this research would you like to be identified:
 - a. Using your name
 - b. Referring to your professional occupation
 - c. Referring to the geographical area where you work
 - d. You prefer to remain anonymous

Specific questions, in order to learn about perceptions and opinions of participants based on their knowledge, experience and expertise:

1. What environmental and/or resource issues (problems, disputes, conflicts) exist in your geographic area (for example, in water management, coastal land management, sharing coastal space and resources, etc)?
2. Which coastal groups (for example, local residents, organizations, businesses, associations, tourism and recreation, fishermen, etc.) are involved in these issues?
3. How are these coastal issues addressed and by who?
4. What role does public policy play in addressing coastal issues in your area?
5. How does the public participate in environmental and resource management in your area? How effective do you think public participation is?
6. Do you know of any alternative dispute resolution methods (i.e. mediation, problemsolving, negotiation, etc.) which are applied to address environmental and resource conflicts in your area? Please describe these methods. How effective do you think they are?
7. What is the role of education (in the broad sense) in environmental and resource conflict resolution?
8. What is the role of creativity in environmental and resource conflict resolution? Can you think of any creative intervention that has been implemented in order to resolve an environmental or resource conflict in your area? Please describe this intervention.
9. What actions (initiatives, policies or measures) are required to support and maintain sustainable development in the Great Lakes?
10. What challenges and opportunities are provided by sharing coastal space (locally among coastal users, as well as in the cross-border dimension between Canada and the USA)?
11. What, in your opinion, are the most effective ways (best practices) to address coastal issues (problems, disputes, conflicts) in your area?
12. Could you recommend another person or people who I would be able to interview on the same subject? Are there any other sources or resources you could recommend for this study?
13. Is there anything else that you would like to add to this discussion?

Appendix 2



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Participant Informed Consent Form

Research Project Title:

Conflict resolution practices in environmental and resource management in coastal areas:
towards an integrated approach (Canada, USA and the case of the Great Lakes)

This is to invite you to participate in research conducted by myself, Olga Skarlato. I am a PhD Candidate at the University of Manitoba. Please contact me at any time with any questions or concerns.

Researcher

Olga Skarlato, PhD Candidate

Arthur V. Mauro Centre for Peace and Justice at St. Paul's College

University of Manitoba, Canada

Address: 252-70 Dysart Road, Winnipeg, MB R3T 2M6

Email: [REDACTED]

Telephone: [REDACTED]

This consent form, a copy of which will be left with you for your records and reference, is only part of the process of informed consent. It should give you the basic idea of what the research is about and what your participation will involve. If you would like more detail about something mentioned here, or information not included here, you should feel free to ask. Please take the time to read this carefully and to understand any accompanying information.

Purpose: The purpose of this interdisciplinary case study is to survey the perceptions, experiences and perspectives of coastal stakeholders and groups from Canada and the USA on environmental and resource conflicts as well as on conflict resolution practices in the area of the Great Lakes.

Participation: I am interested in learning about challenges and opportunities of resource and environmental management, sharing coastal space by numerous local and international stakeholders (groups) and the practices of resolving environmental and resource conflicts. In this study I will ask you to share your perceptions and opinions regarding your experiences as a coastal stakeholder in a face-to-face, telephone, web-cam or online interview. Interviews will take between 30 to 90 minutes. Face-to-face, telephone and web-cam interviews will be recorded on a digital audio recorder. You will be asked to review a written record of your interview to make certain my understanding of what was said is correct and to provide you with an opportunity to make changes or remove information.

Risk to Participants: Participation in this study is not intended to cause any distress. However, completing this interview may involve minimal risks and answering some questions may cause uncomfortable feelings while relating personal experience connected to environmental conflicts. Should this be the case and participants find that they are experiencing too much stress, they may

discontinue participation at any time. Below are the contact details for counselling services in Canada and in the USA that may be of help in addressing any anxiety or strong feelings that may arise through participation in this interview:

<p>Centre for Addiction and Mental Health (CAMH) 1-800-463-6273 (toll-free) 1-416-535-8501 1001 Queen Street West and 60 White Squirrel Way Toronto, Ontario, M6J 1H4 http://www.camh.net/ or</p> <p>Telehealth Ontario 1-866-7970000 (toll-free in Ontario) 24 hours, 7 days a week service</p>	<p>Psychology Help Centre at the American Psychological Association 750 First Street, NE, Washington, DC 20002-4242, USA Phone: 1 800 964-2000 or 1 202 336-5500 Email: helping@apa.org http://www.apa.org/helpcenter/index.aspx or</p> <p>Crisis Services 2969 Main Street, Buffalo, New York 14214, USA 24 Hour Hotline: 1.716.834.3131</p> <p>Email: info@crisisservices.org http://www.crisisservices.org/index.asp</p>
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Confidentiality: If it is your wish, no personal information of any kind will be made available to others in order to ensure that your identity will at no time be revealed. Files containing notes, contact information, and interview responses/transcripts will only be available to me for the purposes of this research and files will remain in a locked cabinet. Files will be destroyed five years after research completion. This research will be used toward my Doctoral Thesis and may become published. I may also share some of my findings at academic conferences.

Withdrawal of Participants: I recognize the sensitivity of this material and would like to assure participants that they may withdraw at any time from this research project by informing me by email or telephone ([REDACTED] [REDACTED]).

Results: Research results will be made available by email or mail.

Would you like a copy of the research results? ___ Yes ___ No

Please indicate where you would prefer results to be sent by providing your email or address:

Your signature on this form indicates that you have understood to your satisfaction the information regarding participation in the research project and agree to participate. In no way does this waive your legal rights nor release the researchers, sponsors, or involved institutions from their legal and professional responsibilities. You are free to refrain from answering any questions you prefer to omit, without prejudice or consequence. Your continued participation should be as informed as your initial consent, so you should feel free to ask for clarification or new information throughout your participation.

Participant's Signature

Date

Researcher's Signature

Date

This research may contribute to future studies.

Would you be interested in being contacted for further research questions in the future?

___ Yes ___ No

The Research Ethics Board has approved this research. If you have any concerns or complaints about this project you may contact any of the above-named persons or the Human Ethics Secretariat at 1-204-474-7122; or e-mail margaret_bowman@umanitoba.ca; or contact my academic advisor Dr. Sean Byrne at 1-204-474-6052 or via email Sean_Byrne@umanitoba.ca

A copy of this consent form has been given to you to keep for your records and reference.

Thank you,

Olga Skarlato

Appendix 3

Map 2: The Map of the Great Lakes



Original map source: Wikipedia, http://en.wikipedia.org/wiki/File:Great_lakes_basin.jpg

Appendix 4

Photographs of coastal areas of the Great Lakes

Appendix 4A: Toronto Waterfront, July 2010



Photo by Olga Skarlato

Appendix 4B: Toronto Waterfront and private boats, July 2010



Photo by Olga Skarlato

Appendix 4C: Toronto Waterfront and a ship *Kajama*, July 2010



Photo by Olga Skarlato

Appendix 4D: Lake Ontario, July 2010



Photo by Olga Skarlato

Appendix 4E: Toronto Island, Lake Ontario, July 2010



Photo by Olga Skarlato

Appendix 4F: Lake Erie, Middle Sister Island, May 1994. The scientific expedition from the Institute for Great Lakes Research studying the zebra mussel populations in Lake Erie



Photo courtesy of Dr. Irina Telesh

Appendix 4G: A playground on the shore of Lake Ontario, July 2010



Photo by Olga Skarlato

Appendix 4H: The Coastal Space on Lake Ontario: A vision of a Coastal Peace Park, July 2010

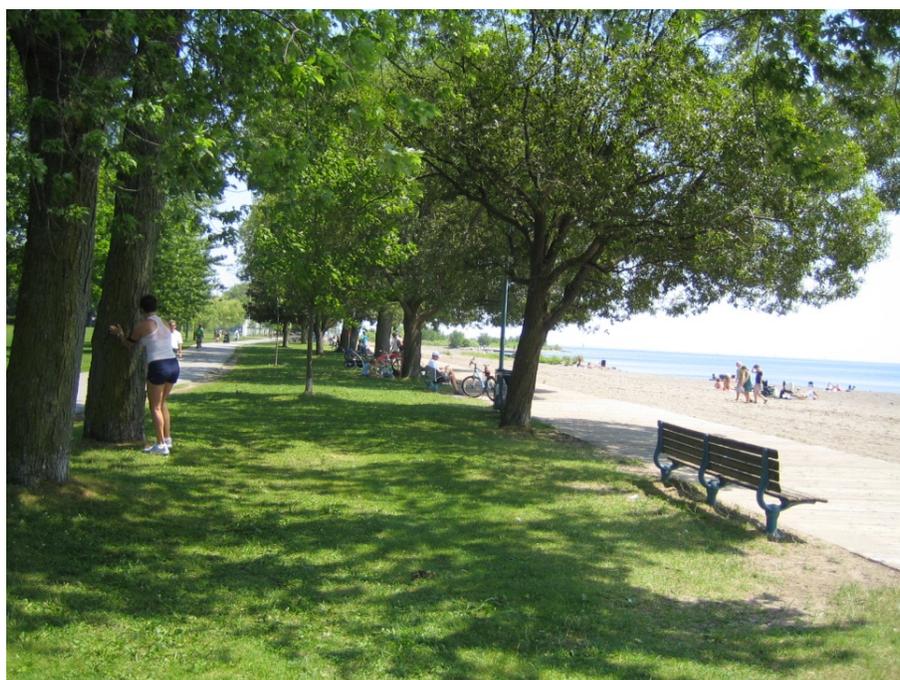


Photo by Olga Skarlato

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