

**DRIVERS AND BARRIERS OF COOPERATION IN
TRANSBOUNDARY WATER GOVERNANCE:
A CASE STUDY OF WESTERN CANADA AND THE UNITED STATES**

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EXECUTIVE SUMMARY

Jurisdictional fragmentation and relatively decentralized political systems in Canada mean that most water management activities occur at a local (here defined as 'sub-provincial' or 'sub-state') scale. Yet relatively little attention has been paid in the academic or policy literature to practices of local management of the transboundary waters. Rather, emphasis has been placed on bi-national legal agreements and on a few relatively large-scale, highly visible bodies of water (such as the Great Lakes and the Columbia River).

This 'scalar mismatch' is problematic, as transboundary water issues often arise locally, whereas resolution mechanisms usually operate at the national level. As a result, local and national mechanisms and actors are not always well linked. As documented in this report, recent trends in water governance may exacerbate this 'scalar mismatch', which may in turn make cooperation on transboundary waters more difficult. Yet cooperation is paramount to sustainable management of shared waters.

Little research has been conducted on cooperation between Canada and the U.S on transboundary waters. This report seeks to fill that gap, and provides:

- (1) An overview of water governance trends in Canada and the U.S. (Section 2);
- (2) Documentation of the roles and importance of local actors (both formal and informal) in transboundary water governance, through case studies of two regions: the Western Pacific (relatively water abundant) and the Western Montane regions (relatively water scarce) (Section 3);
- (3) Analysis of the drivers and barriers of cooperation on transboundary waters (Section 4); and
- (4) Documentation, via a detailed database of transboundary water governance instruments, agreements, and mechanisms between Canada and the US, at multiple scales: local (sub-provincial/sub-state), provincial/state, national and international. To our knowledge, no such database exists in a publicly available format⁴. (Appendix D).

The case studies are based on a series of interviews that the authors conducted between May and August (2005) in the Western Pacific (BC-Washington) and Western Montane (Alberta-Montana) border regions. Twenty-three interviews were conducted with water management professionals from both the United States and Canada during the period May to August 2005. A questionnaire which used both closed and open-ended questions was administered in interviews lasting approximately 1.5 hours (Appendix A), as part of an ongoing research project (Appendix B). Interviewee identity cannot be disclosed because of confidentiality requirements; however, a list of participating organizations is included in Appendix C. In addition, extensive bibliographic research was conducted, and approximately 30 transboundary water governance professionals were contacted by letter and email. These professionals

⁴ Key stakeholders were consulted (including the CEC, DFAIT, EPA, IJC, and State Department); none reported having such a database. Partial databases exist, but none are accessible to the public (or even widely available internally).

provided the data used to compile the tabulated list of transboundary water governance cooperation mechanisms provided in Appendix D. The findings are thus not necessarily representative of transboundary governance along the entire Canada-U.S. border.

Particularly noteworthy are the drivers of, and barriers to cooperation identified by interviewees. Key barriers included:

- a mismatch in governance structures and integration between Canada and the U.S. and intra-jurisdictional integration within countries (with issues being handled at a national level in the U.S., but at a provincial level in Canada, or vice versa);
- distinct and sometimes incompatible governance cultures and mandates;
- shortcomings in institutional capacity, financial resources, participation capacity, and data availability;
- distance (both spatial and social);
- and psychosocial factors such as mistrust and a lack of leadership.

Many of these barriers (although not all) were attributable to the formal structures of environmental governance that have evolved within and between Canada and the U.S. In other words, *our systems for governing domestic and shared waters were perceived to inhibit effective transboundary water governance.*

In contrast, drivers for cooperation were largely informal: leadership, contacts, personal relationships, and networks all facilitated cooperation on specific issues perceived to be priorities for cooperation. This cooperation was often driven by a crisis mentality, but was also opportunity-driven in response to funding availability and political priorities. Cooperation was facilitated by proximity, legal obligations, and bureaucratic transparency, as well as by psychosocial factors such as practicality and a sense of mutual respect and fairness, but these were not the most important drivers of cooperation. These were central to successful cooperation initiatives; where they were lacking, as in the Flathead Basin case study, cooperation failed and conflict resulted. In other words, *informal governance mechanisms, such as networks, contacts, and personal relationships were the key determinants of successful cooperation on transboundary water governance.*

These preliminary findings suggest a fruitful avenue for future research and policy development. We hypothesize that many transboundary water governance issues are addressed and resolved locally, due to the presence of the 'cooperation drivers' identified in the case studies. Where significant barriers to cooperation exist, and where drivers are lacking, conflict on transboundary water governance issues may emerge, and better-known and more high-profile conflict resolution mechanisms (such as the International Joint Commission) may come into play. This report argues that fostering successful transboundary water governance requires not only strengthening such conflict resolution mechanisms, as some observers have suggested, but also better cooperation mechanisms as a means of mediating or preventing conflicts.

1. Introduction:

Water remains a high priority for many nations because of its basic importance as a public good, and because of its capacity to flow across, or to serve as, political borders. The Canada-U.S. border is no exception. Disputes over water diversions and export, downstream and upstream water rights, as well as water quality and pollution issues have played out along the forty-ninth parallel for more than one hundred years.

Jurisdictional fragmentation has long characterized water governance in Canada, where the Constitutional division of powers divides responsibility between provincial and federal governments. Within this system, provinces have responsibility for water resources, and the federal government is responsible for fisheries, navigation, international waters, and international trade. The resulting 'turf war' between federal and provincial politicians over water resources has, in some instances, created a policy vacuum. In the case of the debate over bulk water exports in the late 1990s, for example, David Anderson (the former Federal Environment Minister), argued that it was outside of the federal government's "jurisdiction to make decisions about provincial resources" (Boyd, 2003: 58). This is one example of the "competing claims for authority at multiple scales" that characterizes resource management in Canada (Parson 2000, 132). This jurisdictional fragmentation has, according to many commentators, weakened Canada's water governance capacity and its ability to respond to new challenges in transboundary water governance.

Jurisdictional fragmentation and relatively decentralized political systems in Canada mean that the majority of water management activities occur at a local (here defined as 'sub-provincial' or 'sub-state') scale. Yet relatively little attention has been paid in the academic or policy literature to practices of local management of transboundary waters. Rather, emphasis has been placed on bi-national legal agreements, and on a few relatively large-scale, highly visible bodies of water (such as the Great Lakes and the Columbia River). This has posed particular problems in some instances: transboundary water issues often arise locally, yet because resolution mechanisms usually operate at the national level, local and national mechanisms and actors are not always well linked. As documented in this report, recent trends in water governance may exacerbate this 'scale mismatch', which may in turn make cooperation on transboundary waters more difficult. Yet cooperation is paramount to sustainable management of shared waters.

Scope of this report

Little research exists on local practices of transboundary water governance between Canada and the US. This report provides:

- (1) An overview of water governance trends in Canada and the U.S.;
- (2) Documentation of the roles and importance of local actors (both formal and informal) in transboundary water governance, through case studies of two regions: the Western Pacific (relatively water abundant) and the Western Montane (relatively water scarce);
- (3) An analysis of the drivers and barriers of cooperation on transboundary waters; and
- (4) Documentation, via a detailed database of transboundary water governance instruments, agreements, and mechanisms between

Canada and the U.S. at multiple scales: local (sub-provincial/sub-state), provincial/state, national and international. To our knowledge, no such database exists in a publicly available format⁵.

Methodology

The products of this research are part of an ongoing project initiated in the fall of 2004 by the authors, and the case studies are based on a series of interviews that the authors conducted between May and August (2005) in the Western Pacific (BC-Washington) and Western Montane (Alberta-Montana) border regions⁶. Twenty-three interviews were conducted with water management professionals from both the United States and Canada during the period May to August 2005. A questionnaire which used both closed and open-ended questions was administered in interviews lasting approximately 1.5 hours (Appendix A), as part of an ongoing research project (Appendix B). Interviewee identity cannot be disclosed because of confidentiality requirements; however, a list of participating organizations is included in Appendix C. In addition, extensive bibliographic research was conducted, and approximately 30 transboundary water governance professionals were contacted by letter and email. These professionals provided the data used to compile the tabulated list of transboundary water governance cooperation mechanisms provided in Appendix D.

Structure of the Report

Section 2 of this report provides an overview of governance trends within and between Canada and the United States, drawing on the interviews and on secondary literature. The results of the interviews were used to compile the analysis of 'drivers' and 'barriers' to cooperation in transboundary water governance, presented in **Section 3** of the report. The interview results, together with additional background research, were also used to produce the case studies included in **Section 4** of the report, which serve to illustrate how drivers and barriers to cooperation on transboundary water governance work in practice. The report concludes in **Section 5** with suggestions for future research.

⁵ Key stakeholders were consulted (including the CEC, DFAIT, EPA, IJC, and State Department); none reported having such a database. Partial databases exist, but none are accessible to the public (or even widely available internally).

⁶ These terms were chosen following Environment Canada's biogeographical designations for different regions in Canada.

2. TRANSBOUNDARY WATER GOVERNANCE AND DOMESTIC WATER REGULATION: AN OVERVIEW

This section provides an overview of changes in the past three decades in domestic approaches to water governance in Canada and the U.S., and of recent changes (focusing on the past decade) in approaches to transboundary water governance in Canada. Section 2.1 examines recent developments in the Canadian approach to transboundary water governance. Section 2.2 summarizes an important recent trend of rescaling of environmental governance in both Canada and the U.S., and explores the implications of the increased importance of local actors in water governance. Section 2.3 discusses some of the implications for transboundary water governance, drawing on research results from the interviews conducted in the Western Montane and Western Pacific regions.

2.1 Transboundary water governance: Recent developments in Canada

Several important changes have occurred in Canada's approach to transboundary water governance over the past decade. First, the North American Free Trade (NAFTA) agreement has, according to some legal commentators, weakened Canadian ability to control domestic water policy and to pass legislation controlling or prohibiting water exports (Boyd 2003). The question of how to deal with Canadian water ignited fierce controversy during the NAFTA negotiations in the 1980s. The federal government maintained that Canadian water, with the exception of bottled water, was exempt from NAFTA. Opposition leaders and critics called for a clause which would specifically exclude water from NAFTA. Instead of adding such a clause, the Canadian, Mexican and American governments issued a joint statement in 1993 to the effect that water was excluded from NAFTA (DFAIT 1999). Moreover, Canada's NAFTA Implementation Act explicitly states that nothing in NAFTA applies to water in its natural state⁷. Nonetheless, legal experts continue to debate whether NAFTA applies to water in its natural state, and thus to bulk water exports. For the moment, the political implications of NAFTA have been more important for water governance than the actual implications of NAFTA itself, although rulings regarding specific water export cases (such as that of Sun Belt) may soon change this.

Second, new legislation has been passed by federal and provincial governments banning bulk water exports. This was done in response to lingering domestic concerns over NAFTA and to public opposition to three controversial water export proposals. In 1998, an Ontario-based company (Nova Corp) applied for a permit to take water from the Great Lakes and export it to Asia. In the same year, a Newfoundland-based company (McCurdy Group) applied for a permit to export bulk water from Newfoundland's Gisborne Lake. A year later, a British-Columbia based company (Snow Cap) was granted a license to provide water for export to a California-based company (Sun Belt); the license was subsequently revoked. Sun Belt has threatened to launch a suit against the Canadian government seeking damages under NAFTA, although to date

⁷ North American Free Trade Implementation Act, S.C. 1993, c 44, s.7. The relevant clause states that nothing in the Act (except Article 302) applies to water, where water is defined as means natural surface and ground water in liquid, gaseous or solid state, but does not include water packaged as a beverage or in tanks. Article 302 refers to the progressive elimination of tariffs (customs duties) between NAFTA signatories.

no valid claim has been submitted (DFAIT 2005). None of these proposals went ahead, and no arbitration has proceeded, but these cases have raised intense public debate.

This public debate, in combination with an IJC study calling for a moratorium on bulk water exports (International Joint Commission, 2000)⁸, prompted the federal government to amend the Boundary Waters Treaty Act⁹, and encourage Canadian provinces to introduce legislation to ban or limit the export of bulk water. All Canadian provinces, with the exception of New Brunswick, have since passed legislation pertaining to water exports and/or water diversions. However, much of this legislation does not explicitly prohibit water exports; rather, it bans out-of-basin water diversions on environmental grounds. In creating this legislation, Canadian legislators relied on the fact that many of our major watersheds fall completely within Canadian territory; banning trans-basin diversions thus implicitly prohibits water exports. However, the protection that this legislation accords to water exports is incomplete, most importantly because it does not address trans-boundary watersheds (including the Great Lakes). In these instances, either the Boundary Waters Treaty or other international agreements come into play. However, the roles which these treaties accord to national and sub-national actors (such as state or provincial governments) are not always clear¹⁰.

2.2 Rescaling of water governance: The increased importance of local actors

2.2.1 Canada

As outlined above, jurisdictional fragmentation in Canada has led to confusion over appropriate roles and appropriate scales of responsibility. Information from interviewees in the cases studies in this report (see Appendix A for questionnaire) indicated that this jurisdictional fragmentation was being exacerbated by a process of rescaling of environmental governance in which “environmental authority is being ceded at once downward to the provinces and upward to international institutions” (Parsons 2000, 131) (see also Paehlke 2001). Given multiple and sometimes competing claims for authority by provincial, federal, and First Nations governments, and the increasing preoccupation of federal environmental policy with international issues, coordination activities and harmonization attempts at the federal level have declined over the past two decades. A specific example of this was the attempt by the federal government in the late 1980s and early 1990s to “harmonize all aspects of environmental protection across jurisdictions, an attempt that overreached and

⁸ The IJC report stated that Canada and the U.S. “should not permit any new proposal for removal of water from the Great Lakes Basin to proceed unless the proponent can demonstrate that the removal not endanger the integrity of the ecosystem.”

⁹ An Act to Amend the International Boundary Treaty Act, S.C. 2001, 40.

¹⁰ One example of uncertainty about roles of different scales of government is the confusion over the remit of various scales of government concerning recent proposals to amend the Great Lakes Water Charter by the Council of Great Lakes Governors (CGLG 2001). In this case, provinces and states have attempted to address jurisdictional fragmentation and have developed an institutional architecture to facilitate cooperation. See, for example, the Great Lakes Regional Collaboration (<http://www.gllrc.us/background.html>) and the legal structure of the CGLG (<http://www.cglg.org/projects/water/legal.asp>).

failed" (Parsons 2000, 133). This was one factor in the decline in intensity of national-level dialogue on environmental issues¹¹ (Parson 2000, 2001).

In Canada, greater provincial responsibility has not, however, meant increased local surveillance and involvement in environmental issues in all cases. In some cases, significant cutbacks have occurred in provincial environmental programmes in monitoring and regulation; for example, in Ontario, provincial Ministry of Environment budgets were significantly reduced in the early 1990s (Krajnc 2000). This has occurred alongside the intentional devolution by governments of some authority to non-state actors (Harrison 2001).

In particular, the private sector and local governments have experienced an increase in power and responsibilities as a result of this devolution. Volunteer organizations and Canadian NGOs, on the other hand, whose increased *participation* in environmental governance is well documented (Gibson 1999, Harrison 2001, Dorcey and McDaniels 2001; Howlett 2001; Savan, Gore and Morgan 2004), and increased influence in environmental policy-making and monitoring is recognized (Savan, Morgan and Gore 2003), remain without significant governing authority. Several provincial employees concurred that "more and more people are becoming involved in water governance issues" and that "there has been an increase in cooperation at the local neighbor - neighbor level." However, this participation has its limits; as reflected one interviewee "Canada has a strong government-to-government mentality, which provides a barrier for citizen participation in transborder issues." Thus, although NGOs are more present, and have increasingly more influence, the devolution of power has not yet translated to direct governing authority for non-governmental actors.

Several of the interviewees described how this devolution of provincial authority has led to greater local participation in water governance as well as greater federal responsibilities. One environmental non-governmental organization (ENGO) interviewee from BC noted, "Canada is becoming more centrist - where more and more decisions need to be made in Ottawa". An Environment Canada employee referred to this as "an upward shift in decision making from provincial to national." A provincial employee further reported a shift down to the municipalities - "the local is becoming more responsible for water governance issues as a flow-over from provincial downsizing."

This devolution of provincial responsibilities is counter to previous provincial - federal relations. As one Environment Canada employee noted, "Historically, Canadian national policy has been driven by regional issues - we work on the ground and are very applied. Our research deals with the needs of this area, consulted by headquarters." They continued, "However, within the last year, reorganization has occurred within Environment Canada that *might* change that. Although the impacts of the new plan, as outlined by the Minister's speech on September 10, 2004 (Dion, 2004), have not been felt yet, many regionally based Environment Canada employees expressed concern for the possible movement towards centralization. Although the regionally-based employees were quick to point out that there is a lot of *cooperation*

¹¹ Other factors include the decrease in importance of environmental issues amongst the Canadian public in opinion polls, and the prominence of other pressing domestic political concerns such as the 1995 Quebec referendum.

between Ottawa and regional outposts such as Vancouver, they were less definitive in terms of the impacts of the perceived re-centralization efforts: "The jury is still out in terms of the new focus" noted one career Environment Canada employee. It was clear, however, that the new emphasis has a more economic edge -with "competitiveness and environmental sustainability" being a defining emphasis.

2.2.2 The United States

The United States, like Canada, has experienced a rescaling of environmental governance. This shift has impacted sub-national and supra-national scales of governance (Alper 1997). Over the past several decades, three main periods in environmental governance are observable: 1) centralization in the 1970s with a shift from state to federal authority; 2) devolution of federal authority in the mid-80s with an increased state managing authority; and 3) an increase in local and non-governmental governance in the mid-90s. Although federal governments still maintain legal authority over water quality standards, state, and more recently, local actors have become increasingly involved in the water governance mechanisms. These trends can be linked to rescaling processes such as the increased presence of ENGOs (at local and international levels), increased role of individual states implementing federal environmental laws, and an increased prioritization of international issues at a federal level (Kraft 2004; Mazur 1999).

The changing face of environmental policy in the United States is historically grounded in, and continues to be linked to, public interest (Guber 2003). The growing concern for declining water and air quality throughout the late 60s precipitated the shift from state to federal governance, and this concern became firmly entrenched in the political agenda during the 1970s.¹² This increase in public awareness culminated in the Earth Day celebration on April 22, 1970, which launched what is often referred to as the environmental decade (Kraft 2004). The Earth Day event was widely celebrated throughout the United States and set off a ripple of heightened environmental awareness throughout North America and beyond. This event "signaled the arrival of a mass political movement dedicated to ending environmental degradation" (Nelson 2002). At that time, politicians eagerly signed on to the environmental cause, as it posed few "political risks and many electoral dividends" (Kraft 2003: 94).

The environmental decade represented a rare time in American history when, as Kraft (2004) notes, "the problem, policy and politics streams converged" (99). During this environmental decade, a legacy of major environmental protection statutes rose to the forefront of the American federal governmental agenda. In particular, the 1972 Water Pollution Control Act and the 1974 Safe Drinking Water Act became landmark tools that gave the American federal government greater control over water resources by setting national water quality goals and establishing a pollution discharge permit system.¹³ Downs (1972) calls this the "the issue-attention cycle" - where public

¹² Environmental concerns and the protection of natural resources arose early in the history of the United States government. Periodically, these concerns helped initiate the adoption of conservation, preservation, and health policies that still influence environmental policy today. Most of these policies coincide with three periods of progressive government: The Progressive Era (1890-1915); the New Deal (1930s), and the area of social regulation (1960s and 1970s) (Kraft 2004).

¹³ This shift towards a centralized control over water was not well received by all states. Oregon was used as an example by one EPA water official as a state that resented this shift. S/he noted that because Oregon "successfully cleaned up their Willamette River, they felt that they deserved the right to manage

concern rises to a point to demand action. This was at its height in the 1960s and 1970s.

However, since the centralization of the 70s, the American federal government has experienced a slow devolution or weakening of authority. This is clearly marked by the 1987 passage of the Clean Water Act Amendments where states once again gained more control over water governance. The 1987 amendments encourage states to take a more active role in their water management by designing their own management plans for non-point source pollution and by providing revolving loans for states to build wastewater treatment plants through the Clean Water State Revolving Funds (CWSRF) program. Although the federal government still maintains a strong legal control over water quality standards, states were again given more responsibility for the daily management and enforcement of water standards with the passage of the Clean Water Act (U.S. EPA 2003, 2005). This program precipitated, as one EPA interviewee noted, a shift over the past decade "from a program-by-program, source-by-source, and pollutant-by-pollutant approach to more holistic watershed-based strategies."

Similarly, the 1996 Amendment to the Safe Drinking Water Act (which sets public drinking water standards and regulates state programs for protecting groundwater) shifts accountability to local actors by requiring local water authorities to distribute annual reports on drinking water safety (Kraft 2004: 123). These trends show continuity in the lessening of the federal role in daily water governance, and the strengthening of state and local for daily operations. (Although it is important to reiterate that the federal government maintains federal legal control.)

The devolution from federal to state led to an increase in local participation in water management. The greater flexibility of programming through state funding has, in recent years, led to more involvement at the local level through watershed councils. As a result, local actors are increasingly involved in water management and decision-making. As one DOE official noted in our interviews, "watershed units are a way to bridge *government* with *governance* at a local level." In Montana, watershed councils have support and representation from both federal and state governments as well as from local citizen groups. One Montana water manager noted, "These councils are the way we are heading." The manager continued, "The councils are particularly adept at working on more localized issues such as total water quality targets, mitigating drought, and weed control." In Washington State the watershed councils are less established. After only five years, the state managers remain optimistic about the potential success, despite the often painstakingly slow process of getting the councils established. Although in many cases it is too early to report on the success of the watershed councils, it seems that this approach is part of a larger trend for more consensus-based management of water.

However, the watershed councils/units have been criticized for lack of regularity, authority, and for slow implementation. State and federal control - through daily operations and legislative mandates, have left many questioning the role of watershed

their own waters. Some states have picked up the challenge and set standards higher than the federal level. The official noted that the federal program has been very successful. The official continued, however, "Most states like the federal backing - it is like a "gorilla in the closet" - sometimes the states quietly ask us (the Feds) to intervene. In fact, S/he noted, "most state-federal partnerships are very advanced."

councils. The federal and states' continued control through daily management and the federal through legislative power, has, according to some, left the councils without any governing power. This has some water managers at the local level criticizing the lack of political "teeth" of the councils - noting that the local communities are still bound by laws and regulations that they have no control over. According to one supporter of the councils, their strength lies in the mitigation of problems, rather than in the legal aspects of water regulation.

This situation remains unacceptable to some local water managers. One interviewee from Washington State noted that despite efforts to include the local water management groups in water governance activities through state programs, water governance has decidedly *not* shifted to local communities. In fact, one city employee stated that, "there was actually *less* power for the local communities today than there was fifteen years ago." The employee felt that the local community had their hands tied by the 1987 amendments - and that the idea that local communities had more power was illusionary. In fact, s/he noted that the weakest entity is the smallest unit: the individual and the local. S/he noted that this was problematic as the local level was indeed the most appropriate place to manage and protect water and that more local control led to more efficient the water management. S/he attributed the local efficiency to two main factors: 1) greater ownership of the area and 2) larger body of knowledge.

However, these relationships are not stagnant. Following the major 1970s shift towards federalization, small shifts between state and federal governance of water resources have occurred. As one senior EPA official noted, "The winds have shifted back and forth between scales of governance." S/he used the example of the recent trend of giving states more control over water governance through flexibility in grant spending. The Clinton administration, for example, gave the states the ability to move around grant monies without federal authorization, thereby minimizing micromanagement. Despite this small change, the EPA official contended that s/he did not foresee a sweeping shift back to state power.

2.3 Implications for transboundary water governance

An important implication of the growing importance of local actors and the related reluctance of U.S. and Canadian federal government to intervene at the state/provincial level on water issues may be an increased unilateralism with respect to transboundary waters. For the past century, transboundary water governance for shared waters has been formalized through the Boundary Waters Treaty (1909), as well as through the activities of the International Joint Commission (the bi-national panel that oversees the Boundary Waters Treaty). The Boundary Waters Treaty is regarded internationally as a model of bilateral cooperation over shared water resources, although its adequacy, the relevance of the IJC, and the commitment of both nations to the Treaty is under question as a result of cases such as Devils Lake. The export of polluted waters by the state of North Dakota from Devils Lake into Manitoba's Red River system, via a pipeline constructed in the summer of 2005, clearly violates Article IV of the Boundary Waters Treaty, which states that "waters flowing across the boundary shall not be polluted on either side to the injury of health or property on the other side." After pressure from Manitoba, the Canadian government asked Washington D.C. to join it in referring the Devils Lake case to the IJC; however, no IJC

reference appears likely in this case now that an informal settlement has been reached.

As a case will not be investigated by the IJC unless both parties agree to refer the case to the Commission, the Devils Lake situation currently remains outside the jurisdiction of the IJC. This sets a precedent for unilateral action on transboundary waters on the part of states and provinces which may have negative ecological and political consequences on both sides of the border. Allowing the state of North Dakota to violate the Boundary Waters Treaty without consequence demonstrates the lack of commitment of Washington to this legal regime. This lack of commitment is, of course, not solely due to differences over Devils Lake; other aspects of the Canada-US relationship (such as the ongoing dispute over softwood lumber), and the commitment of the current White House administration to 'states' rights' are also important factors.

Devils Lake thus sets an important, and from the Canadian perspective, negative precedent. Nonetheless, it is important not to overlook the sustained history of cooperation (as well as conflict) at a local level between Canada and the United States on questions of transboundary waters. The mechanisms and actors involved in cooperation have been relatively neglected, in part because of emphasis on the Boundary Waters Treaty and the IJC. This report, in contrast, presents a study of local-level transboundary water governance, and explores drivers and barriers to cooperation in six case studies, as explored in detail in Section 4. Prior to that, the report summarizes the findings of the research through an analysis of the key drivers and barriers to cooperation on transboundary water governance, in Section 3.

3. Transboundary Water Governance: Cooperation Mechanisms, Drivers and Barriers

This section analyzes information gathered from interviews with 23 interviewees active in water governance in Canada and the U.S. in two regions (Western Pacific and Western Montane) during the period May to August 2005¹⁴. Section 3.1 provides a summary of current cooperation mechanisms at national, provincial/state, and local (sub-provincial or sub-state) scales. Section 3.2 analyzes the strengths and weaknesses of these cooperation mechanisms, according to interviewee responses. Section 3.3 summarizes the drivers and barriers of cooperation, as identified by interviewees. This analysis is contextualized in Section 3.4, where detailed information is provided on six case studies in the two study regions.

3.1 Cooperation Mechanisms

Table 1: Cooperation Mechanisms for Transboundary Water Governance

Governing Mechanism	Scale	Function
International Joint Commission	Bi-national Federal U.S. - Canada	- Advisory role, non-binding - "Prevent and resolve transboundary environmental and water-resource disputes ... through processes that seek the common interest of both countries" (IJC 2005).
Environmental Cooperation Councils	Bi-national State - Provincial	- Advisory role, non-binding - "Help mitigate and address environmental issues of mutual concern" (ECC 2005).
ENGO / Citizen Groups	Bi-national and domestic Local Watershed	- Participatory - Action - orientated - Non-binding, non-regulatory - "Consensus based negotiations, and implementation of policies through local voluntary efforts" (Fife 1998)

3.1.1. Federal: The International Joint Commission (IJC)

The International Joint Commission was created in 1909 as part of the International Boundary Waters Treaty to review applications for transboundary water use, to investigate water pollution issues involving Canada and the United States, and to deflect and mitigate potential transboundary water conflicts (Norman and Bakker 2005). The Commission's fundamental role has been to "prevent and resolve transboundary environmental and water-resource disputes between the U.S. and Canada through processes that seek the common interest of both countries" (IJC 2005). The IJC is comprised of a six-member advisory board with equal Canadian and U.S. representation that reports to, and advises, the federal governments on issues of transboundary concern at the request of the parties involved. Although the IJC was created specifically for the Great Lakes region, and has historically focused on surface water systems (rivers and lakes), the IJC has become involved in other transboundary

¹⁴ See Appendix A for the questionnaire, Appendix B for information about the research project, and Appendix C for a list of organizations interviewed.

cases across the entire Canada-U.S. border. For example, the IJC established the International Air Quality Advisory Board in 1966 to monitor and provide advice on air pollution problems along the Canada-U.S. borderland. The IJC was given jurisdiction over other sources of transboundary pollution when the 1978 Great Lakes Water Quality Agreement was amended in 1987 (Norman and Bakker 2005).

More recently, the IJC has broadened the interpretation of its governance mechanisms through the proposed creation of international watershed boards. In the report *The IJC in the 21st century*, the commission suggests that the boards would “provide a much improved mechanism for avoiding and resolving transboundary disputes by building a capacity at the watershed level to anticipate and respond to the range of water-related and other environmental challenges that can be foreseen for the 21st century.” The boards are designed to allow for ongoing regional solutions to international issues without substantially affecting existing institutions (IJC 2005).

3.1.2 State / Provincial: Environmental Cooperation Councils/ Agreements

States and provinces across Canada and the U.S. have become increasingly involved in binational environmental cooperation. British Columbia and Washington embarked on a commitment towards regional transboundary environmental cooperation when in 1992 the governor of Washington and the premiere of British Columbia signed the Environmental Cooperation Agreement (ECA). As a result of the BC/WA ECA, the BC/Washington Environmental Cooperation Council (ECC) was developed. The ECC was developed to ‘help mitigate and address environmental issues of mutual concern’ (ECC 2005); its current mandate is to ensure coordinated action and information sharing on environmental matters of mutual concern and interest for provinces and states. Most importantly, the ECC provides a forum where officials can bring initiatives forward, as well as provides a process for establishing task forces, work groups, and committees. Through the ECC, five cross-border issues were identified and corresponding international task forces were developed. These issues include: Georgia Basin / Puget Sound water quality, Columbia River/ Lake Roosevelt water quality, flooding of the Nooksack River in Northwestern Washington, regional air quality, and groundwater management in the area of Abbotsford, B.C. and Sumas, WA. (Norman and Bakker 2005). The ECC is the most well-developed state/provincial environmental cooperation mechanism which exists in the study area.

Nearly a decade after the BC/WA ECC emerged, the state-provincial cooperation was extended to B.C./Montana and B.C./Idaho, when the province of British Columbia signed Environmental Cooperation Agreements with Idaho and Montana. This was solidified when Premier Gordon Campbell signed environmental cooperation ‘arrangements’ with the respective Governor’s of Idaho (Kempthorne) and Montana (Martz). At this time, Alberta and Montana do not have formal binational environmental cooperation agreements. However, the two governments belong to several transborder institutions with more economic / political foci such as: The Montana -Alberta Bilateral Advisory Council (MABAC), the Pacific Northwest Economic Region(PNWER), and the Western Governor’s Association (Alberta International and Intergovernmental Relations 2003).

3.1.3 Local: Transboundary Governance and Watershed Councils

Local actors have become increasingly present in both domestic and transnational environmental governance. Local stakeholders are seen as well positioned to solve local environmental and health problems, participate in consensus-based negotiations, and implement policies through local voluntary efforts (Fife 1998). Environmental governance at a local level is present in provincial and state-controlled watershed boards, environmental and citizens groups, and in regional binational boards (as discussed in the IJC section above). The IJC watershed boards, however, have not yet been established in the Western Pacific and Western Montane study area.

3.2 Cooperation Mechanisms along the Border in the Study Region

3.2.1. Federal: The International Joint Commission (IJC)

The International Joint Commission (IJC) has been the primary organization for transboundary management of water in Canada and the United States since its inception in 1909 with the Boundary Waters Treaty. The IJC's ability to remain actively involved in transboundary disputes for almost one hundred years can be seen as a testament to its sound structure and strong leadership. Some managers go as far as saying that the IJC is "the *only* process out there" for transboundary cooperation in Canada and the United States. However, the relative strength of the IJC is questionable. While one manager considers the IJC "the hammer that drives cooperation", many more consider the non-binding structure part of the problem of non-compliance. As one manager notes, "The mechanisms are only as good as the participants."

The IJC's success is largely dependent on the collaboration and leadership of the members of the Commission as well as the governments' willingness to participate. A large part of the success of the IJC, notes one state employee, is that "the leaders within the IJC are so politically savvy and competent." Other traits of the IJC that were noted by interviewees and that have likely contributed to its longevity and sound track record include "its consensus-based model, its ability to change its governing style when needed and its equitable representation." One of the greatest strengths of the IJC is its role as an equalizer between countries. The respondents repeatedly pointed to mismatched governance structures between countries as a barrier to cooperation, and identified the IJC as an institution uniquely positioned to provide balanced representation. As one manager notes, "it provides an even playing field for governments to reach consensus. For weaker or less politically and economically powerful governments, it is very important to have a balanced representation."

A further strength of the IJC is its flexibility and ability to change governing styles. Many of the respondents reported that the newly proposed binational watershed boards is a sign of the IJC's continued ability to adapt and create new measures that fit contemporary problems while maintaining the integrity of the original treaty responsibilities. The recommendations for a transboundary watershed council do not alter the original intent of the Treaty, rather, they widen the interpretation to include a regional framework for binational problems. This change was described by one member of the IJC as "an indication of the IJC's ability and willingness to service populations as best they can." However, as indicted by the Flathead Basin

controversy, IJC decisions remain non-binding and are only as strong as the governments' participation.

3.2.2 State / Provincial: Environmental Cooperation Agreements

The establishment of Environmental Cooperation Agreements between Provinces and States has increased the institutional capacity for transboundary environmental cooperation at a regional scale. However, the success of these agreements is mixed, and varies from issue and region.

Despite the bi-national agreements, the involvement of state and provincial employees in transboundary water issues varies from region to region. In Washington State, employees tend to have little involvement in the transboundary process at either the local or federal level. The state employees felt that their hands were tied in terms of involvement in transboundary water issues: "They [the feds] limit our opportunity - we *could* get involved, but then they [the feds] could just take over." In Montana, however, the state has taken a much more active role in transboundary management. Montana state employees, for example, took the lead in instigating an IJC investigation of the water allocation in the St. Mary and Milk Rivers. Despite the state's lead in the issue, it was still noted that they "have no authority" and "can not supersede the federal government."

However, with the recent groundswell of concern around the Flathead Basin, several water managers in Montana question B.C.'s commitment to the agreement. As one Montana state employee noted, "we took the words literally - to conserve, protect, and enhance environment for future generations - we're not sure that B.C. did. So, we sent back the agreement to B.C., so they can work out differences."

3.2.3 Local: Transboundary Governance and Watershed Councils

Local participation in water governance is on the rise. Throughout the interviews, the respondents from federal, provincial and state governments' consistently reported an increasing trend toward local participation in water governance. In particular, more regional approaches with higher levels of local participation are found in state or provincially managed watershed councils, local citizen and ENGO groups, and binational watershed councils through the IJC.

Local participation, however, does not always translate into effective transboundary water governance. In Alberta, for example, provincial employees were quick to point out that their community efforts *stop* at their borders. Alberta's focus on citizen participation in watershed planning and management does not include cross-border management. "We have no jurisdiction over citizens in Saskatchewan, Montana, or B.C., our localized efforts are strictly within the borders of Alberta." And, as one Washington employee noted, "how can we manage internationally, when we can't even manage between states."

Some local citizen groups have been more successful at transnational approaches than state or provincially run watershed groups. For example, in B.C. and Washington, citizen groups are actively involved in issues surrounding Abbotsford-Sumas Aquifer and the Shellfish pollution in Boundary Bay. However, in Alberta and Montana,

citizens groups are not actively involved in the St. Mary and Milk discussions. Montana managers noted that this is partly because many of the citizen groups and ENGOs are distanced from the issue. As one state employee noted, "it is physically and mentally out of their view."

International watershed boards provide an opportunity for a more regional approach to transnational environmental cooperation. Since the IJC recommended a transboundary watershed approach in 1997, a number of transboundary councils have been formed across the Canada-US border (e.g. Maine - New Brunswick). However, despite the increased capacity of binational watershed boards, the Western Montane and Western Pacific regions have yet to participate at the more local level. The creation and success of the councils is regionally dependent, as it requires the buy-in from governments on both sides of the border. For example, Montana requested the establishment of a watershed board in the Flathead Basin, but the request was refused because B.C. did not accept the invitation (see discussion of the Flathead Basin (section 4.6) for more information).

Furthermore, many of the respondents noted that the success of the binational transboundary watershed councils would likely be in the small refinements, rather than in relation to the major issues. As one of the state managers noted, when an issue becomes elevated, it really needs to be handled within an established bi-national structure. S/he further noted, however, that he, personally, "would like to see the governing mechanism to be more progressive." Rather than having a solely issue-driven process, s/he would like to see more sustained conversations that focus on preventative, preemptive measures. This, s/he noted, "would be a good role for the transboundary watershed councils."

3.3 DRIVERS AND BARRIERS OF COOPERATION

*“The mechanisms are only as good as the participants.”
(Canadian provincial employee)*

“The drivers of and barriers to transboundary cooperation are the same - economics and environmental protection” (U.S. state employee).

This section and the next section (3.4) draw on responses from water managers and specialists from the Pacific and Western Montane. Although the interview questionnaire focused on many themes (see Appendix A), drivers and barriers emerged as an important area of focus. Recognizing the drivers of and barriers to cooperation is fundamental in understanding the state of transboundary cooperation of water.

Table 2: Drivers and Barriers of Cooperation

DRIVERS of Cooperation*	BARRIERS to Cooperation*
Specific Issues	Mismatched governance structures
Leadership	Different governance cultures and mandates
Informal Contacts	Lack of Institutional Capacity
Established Networks	Lack of financial resources
Crisis	Asymmetrical Participation
Personal relationships	Data, lack of / difficulty accessing
Public Availability of Data	Lack of intra jurisdictionally integration
Proximity	Gaps in knowledge of the ‘other’ country
Legal Obligations	Spatial Distance
Opportunity - driven	Federal jurisdiction tempers regional action
Transparency	Mistrust
Practicality	Lack of leadership
Respect / Fairness	

* Listed in order of frequency reported

3.3.1 DRIVERS of Cooperation

Several drivers of cooperation were identified. The most frequently identified drivers included: issues, leadership, personal relationships, established networks, and crisis. Other drivers included: spatial proximity, legal obligations, economics, availability of data, and respect / fairness. The drivers are listed in order of frequency reported.

1. Issue - driven

*“It is all issue driven. Non-issues don’t attract attention”
- BC provincial employee*

In general, it was largely reported that issues drive cross-border cooperation. These issues arise from a variety of different circumstances, including proximity of water to population source, amount of available data, and risks to human health. Specific issues such as endangered species (i.e. salmon protection), and disaster mitigation (i.e. flooding) were identified as general motivators. It was consistently noted that cooperative mechanisms - regardless of origin - were largely put in place as a

consequence of issues. "Issues are everything - we wouldn't be around the table if it wasn't an issue" noted one state-level employee. "We don't involve ourselves in water that does not have issues" noted one IJC field representative. S/he continued, however, that "we are open to be more pro-active." A Canadian senior official echoed these respondents: "it is *all* issue driven. Non-issues don't attract attention." The attention level, s/he further notes, "is quite appropriate to the intensity of the issue." The importance of issues also translates to transparency. One regional B.C. employee reflected, "Higher profile watersheds and larger bodies of water tend to be the focus of transboundary committees."

Furthermore, the level of participation largely depends on whether or not the issue is *active*. In the Western Montane, for example, where St. Mary and Milk River is a very timely issue, there is more equal and consistent participation. The "heating-up" of an issue commands the full attention of the actors and thus precipitates symmetry of attendance. However, when the issue is more "maintenance", asymmetry is more prevalent, with the parties least affected more likely to invest less time in cooperation processes. This is the case in the Georgia Basin - Puget Sound International Task Force, whose participants reported a significant decline in participation since the initial flurry of activities.

Some water managers stated their preference for moving away from issue-driven cooperation. "I would like to us to be more pro-active" one senior manager noted. It was generally conceived that a long-term goal is to have mechanisms in place to work cooperatively and equally all the time. That is dependent, however, on the availability of resources. "We work away at long term solutions, in the mean time, we respond to issues as they emerge."

2. Leadership

"99% of cooperation is because of key leaders"
- Montana state employee

Throughout the interviews, strong leadership was consistently seen as a key component to building and maintaining cross-border relationships. The positive relationship of leaders - on either side of the border - was considered instrumental for successful negotiation of and follow-through on transboundary projects. The scale of governance was not as important as the visibility and fortitude of the leadership, as strong leadership emerged from various jurisdictional scopes - primarily state/provincial, regional or local.

One interviewee summarizes the importance of leadership in driving cooperation in saying that, "99% of cooperation is because of key leaders." Using the St. Mary and Milk River as an example, one interviewee noted, "Really dynamic leadership on the state's (Montana) part is responsible for making the St. Mary and Milk River a priority." The interviewee noted that, "in essence, three people, who were competent, clear, and had strong leadership skills, drove the decision for Montana to take a leading role in the issue." Furthermore, one senior WA Department of Ecology employee noted that "individuals who cross over [the border] are often the best way to bridge governance." "When you bring individuals together to work with each other", s/he continued, "there is no substitute for that." *Committed individuals* were also consistently named as key components to cross-border cooperation. Billy Frank Jr. - a

member of the Washington Nisqually tribe and advocate for native fishing rights - was identified as an example of how self-selected, motivated individuals are able to have huge impacts.

The establishment of the Environmental Cooperation Council in British Columbia and Washington was an important contributor to the strong relationship between the premier and governor. The personal friendship of then-governor Gardner and then-premier Harcourt, coupled with their commitment to environmental issues and their strong leadership skills, drove the establishment of the Environmental Cooperation Agreement in 1992. Thus, their personal leadership, as well as their personal relationships, helped drive the institutional framework for transboundary cooperation at a regional scale.

3. Informal contacts / Personal relationships

"I was able to connect with people that I would not otherwise be able to"
- Ministry official commenting on the importance of transboundary conferences

Informal contacts and personal relationships were identified as instrumental in building relationships and positively contributing to cross-border governance. Informal contacts and personal relationships were largely built through conferences and committee work. Although the contacts were largely described as intermittent and opportunity driven, the established relationships- despite their (in)frequency - proved to be instrumental in times of *crisis*. This was particularly evident in the St. Mary and Milk River example.

Conference participation was often seen as an important way to meet counterparts from the *other* side of the border, as well as a way to sustain already established relationships. For example, the Georgia Basin - Puget Sound biannual research conference in British Columbia and Washington was identified by many of the respondents as a positive contribution to transboundary cooperation. The conference, co-hosted by Environment Canada and Washington Department of Ecology, was lauded a success primarily because of its ability to bring people together to exchange information (both formally and informally), to share research projects, and to network. One provincial water specialist specifically identified the Georgia Basin - Puget Sound conference as an important way to maintain informal contacts with counterparts in Washington State. S/he noted that although transboundary cooperation was *not* a priority for the Ministry of Water, the conference allowed her to informally connect with people on the other side of the border that s/he would not be able to connect with otherwise.¹⁵ Another conference attendee from a federal government said that the conference was valuable for him, not for the academic exchange, but for rather the personal connections. S/he admitted that at the last Seattle-based conference, s/he hardly made it to any of the sessions - for him/her, "all of the important things happened in the hallway."

¹⁵ However, I found it interesting that most of the research projects - despite the transboundary theme of the conference - rarely were transboundary in focus. If they were comparative or multi-jurisdictional it was bound within the nation-state framework - mostly at a state or provincial level. One striking example is a project on air pollution which focused on Washington, Oregon, Idaho, Montana, and Alaska - blatantly skipping over British Columbia and Alberta. Even the map had the Canadian provinces blank - whereas the U.S. states colored and detailed.

Informal contacts and personal relationships were also valued in Montana and Alberta. The water managers involved in the St. Mary and Milk River Task Force stressed the importance of good working relationships in times of crises. Even though the St. Mary and Milk River case was deemed by some of the Task Force participants as the most “contentious and difficult negotiations they have been party to”, the fact that the Montana and Alberta players respected their counterparts proved to be instrumental in facilitating successful discussions. Interviewees from Montana and Alberta consistently emphasized the good working relationship between their counterparts. Even if they were frustrated by the issues at hand, the debate did not become personalized. This good working relationship is partly attributed to the fact the Montana and Alberta have a sustained working relationship where water managers have been cooperating for almost a century, dating back to the 1909 Boundary Waters Treaty. Despite the longevity of the institutionalized cooperation, the managers noted the importance of *maintaining* the working relationships. One Montana Water Manger is taking this task seriously, and is planning a staff retreat with counterparts from Alberta to better equip their staff for long term collaboration and cooperation - “providing the opportunity to build relationships at a staff level will undoubtedly help maintain good relationships at a state and provincial level.”

4. Established Networks

Established governance mechanisms were also reported as a main driver for transboundary cooperation. Established networks such as the International Joint Commission and the Environmental Cooperation Council help provide infrastructure for working within divergent political structures at a federal and provincial / state level. Ideally, these bi-national networks establish neutral governance structures that help mitigate the impacts of disparate policies and laws. At a local level, however, the networks are much more informal and driven by individual leaders.

These established mechanisms were identified as particularly useful for *balancing* the playing field between governments: “When one government is more powerful than its neighbor, these established networks help provide a fair structure where decisions can be made equitably” noted one Water Manger from British Columbia. The need for this “equalizing” structure is regionally and economically dependent. For example, Alberta’s strong economy provides a more equitable match to its U.S. counterpart - more so than British Columbia, where the government has been weakened by governmental cutbacks and debt.

The presence of the networks, however, is only one component. The presence of governance structure only works if the members fully participate. As one interviewee stated, “The system is only as good as its participants.” In Montana and Alberta, the IJC system is working for the St. Mary and Milk River negotiations because “people have good faith and trust the system.” However, in the cases with lack of commitment from all parties, the governance structures have limited potential. This is exemplified with the failed creation of the transboundary watershed council in the Flathead Basin. The IJC refused to establish the council, despite Montana’s request, because British Columbia was not a willing participant. “We have always wanted a transboundary watershed council, but the IJC said no because BC did not agree to participate” noted one Montana Water Manger.

5. Crisis is a motivator for cooperation

Several respondents noted that the increased attention to transboundary water issues is directly linked to crisis. In particular, there is a direct correlation between people's awareness of, interest in, and concern for water as populations experience increased water shortages. One Montana water manager reflected, "It is not surprising that more people are involved in water issues. As population increases and place pressure on shrinking water sources, it will continue to raise public awareness." Or as another interviewee simply noted, "more people and more pressures on fixed water sources will continue to drive participation in water management."

6. Access to Data

The public availability of data, particularly in the U.S., has contributed to an increased participation of local players in water governance. The United States Geological Survey now has the capability of sharing real-time water data with the public. "This increased availability has greatly fostered local level of participation of water management." Local citizens' groups and watershed associations are able to accurately monitor their regions use (and availability of) water. This has revolutionized 'the local' - noted one federal water manager. This information availability has great potential for more empowerment at a local level - however, the data is not as accessible on the Canadian side. Thus, it is difficult for localized efforts - which require precise measurements of water - to cross international boundaries. This asymmetry is partly attributed to the fact that the U.S. Freedom of Information Act (FOI) is much stronger in the U.S. than in Canada. The fact that the U.S. has more financial and institutional resources to put towards data collection also exacerbates the gap in data availability.

7. Proximity to the water source / issue

Proximity of a population-base to the water was also seen as a driver for cooperation. For example, the proximity of water managers and policy makers to the water source tends to increase the visibility of the issues, which ultimately drives cooperation. Furthermore, the proximity of local community members - who are impacted by and impact - the water source was also found to greatly contribute to the participation of local actors in cooperation efforts. For example, in the Abbotsford - Sumas Aquifer, where the local residents were both the polluters and the 'victims' of the polluted water source, there was a greater level of local participation. However, in the St. Mary and Milk example, where the issue physically removed from many of the water users - the involvement was largely at a government level and local citizens' groups were far less prevalent.

8. Legal Obligations

Legal obligations were mentioned by a few interviewees as a driver for cooperation. One senior Environment Canada interviewee stated, "CEPA [the Canadian Environmental Protection Act] is a driver for cooperation as it prohibits us to ship pollution to another country." There are other legal precedents of relevance that were mentioned by interviewees. For example, the Trail Smelter Arbitration declared

that each nation is obliged to use its own property in such a manner as not to injure that of another (The Trail Smelter Arbitration 1907). However, most interviewees noted that the obvious impossibility of extra-territorial application of laws (as distinct from bi-national treaties) was a constraining factor. Some emphasized that, like the IJC, these legal mechanisms are only as strong as the parties' commitment to them.

9. Opportunity - driven

Surprisingly, few people identified funding opportunities as a driver for cooperation. In fact, many more interviewees suggested that the *lack* of financial resources available for cross-border projects limited cooperation. However, those that did mention funding opportunities as a driver to cooperation specified that funding drove specific projects rather than more general cooperation. Project-specific funding is particularly prevalent in the Georgia Basin - Puget Sound marine waters, where a multitude of non-governmental and governmental actors are present in the region.

10. Practicality

Practicality was listed as a driver of cooperation that circumvented different governance structures or cultures. As one Canadian federal employee noted, "Simply, nothing would get done if people didn't cooperate."

11. Respect and Fairness

Lastly, but certainly not least important, respect and fairness were listed as a driver for cooperation. One Federal U.S. employee stated, "I respect the Canadians and they us. Our cooperation reflects that."

3.3.2 BARRIERS to cooperation

The interviewees identified several barriers to cooperation. Each reported barrier is listed below in order of frequency. Different governance structures topped the list as the most frequently reported barrier to cooperation. Similarly, different governance culture and mandates were also reported with high frequency. Asymmetrical levels of participation, lack of institutional capacity to cooperate, lack of financial resources, lack of data, and asymmetrical participation were all reported with medium frequency. Lastly, spatial distance, federal jurisdiction, lack of inter/ intra jurisdictionally integration, and mistrust were listed as barriers but at a smaller frequency.

1. Mismatched governance

Mismatched political structures and governance mechanisms in Canada and the U.S. were repeatedly identified as the main barrier to cooperation. One respondent lamented, "There is no symmetry to how decisions are made across the border. The fact that the United States and Canadian governments have inverse state-federal power distributions significantly impacts how decisions are made." Because Canada has a strong provincial system and a weak federal system, and because the U.S. has a strong federal system and a weak, relative to provinces, state system, negotiations

between counterparts are often tenuous. Many of the respondents noted that the IJC serves as counterbalance to this mismatched governance - creating 'an even playing field' for bi-national cooperation.

The interviewees identified these disparate governance structures as barriers to transboundary water governance, specifically at a regional level. The failed negotiations at Flathead Basin in British Columbia and Montana exemplify how asymmetrical governmental structures can complicate cross-border cooperation. In this case, British Columbia is interested in working to resolve conflicts with Montana over mining issues only at a provincial / state level. However, this proves difficult because 90% of the land at Montana's border is under federal jurisdiction (National Park or Reserve) and the state is not able to supersede federal authority. Negotiations have been slowed by the different governance structures, and by the fact that BC clearly wants to work at a provincial level without the involvement of the IJC and federal government.

2. Different environmental governance cultures / mandates

Similar to different environmental structures, different governance cultures were also listed as a main barrier to cooperation. Disparate cultures within organizations - which seemingly have the same objectives - can inhibit cooperation. As one EC employee notes, "Environment Canada and the [American] Environmental Protection Agency are not similar organizations. The EPA, in some respects, has a very narrow perspective - working from a *regulatory* starting point. Environment Canada does not have a regulatory framework - its mandate is to protect the environment *writ large* to ensure a healthy ecosystem. In some ways we [Environment Canada] have more opportunities than EPA does for innovation and collaborative projects." These different mandates and governance structures were reported by several interviewees to constrain cooperation efforts.

Different government mandates /cultures also affect the type and scale of participation. For example, as one interviewee noted, "Canada has a strong government-to-government mentality, which provides a barrier for citizen participation in transborder issues. . . .The U.S. is much more willing to incorporate citizen participation." This willingness to incorporate citizen participation is based on legal obligations that the U.S. has to incorporate citizen participation - something that its Canadian counterparts do not have. Therefore, the fact that U.S. is more legally obligated than its Canadian counterparts to include non-governmental participation further contributes to asymmetrical governance patterns.

3. Lack of institutional capacity

Lack of institutional capacity to cooperate at a transnational level was repeatedly reported by the respondents as a barrier to cooperation, particularly at the state level. One state employee noted that despite working on an international river basin and being actively involved in the IJC, s/he, until very recently, was not able to call out of the country. S/he was able to receive calls, but not make calls to Canada. It took her/him one year to just get the government to agree to allow him to call internationally - even though s/he had been working on transboundary issues for many years.

Where there is infrastructure for environmental cooperation, such as the BC/ WA ECC, there is often lack of institutional capacity and financial support to give it teeth. For example, when the Abbotsford-Sumas Aquifer International Task Force asked the ECC for funds to help support their transboundary efforts, the ECC turned them away, stating that they were not responsible for financial support - that they were merely a governance body to oversee cooperative projects.

Furthermore, as one career Environment Canada official noted, "there is a lot more capacity in the United States. Even from the data perspective, they (the U.S.) have more data to work with." Many of the interviewees noted that the U.S. is able to be more active in cross-border management due to greater financial resources. In some instances, policy shifts have constrained the ability of Canadian governments to get involved. For example, both British Columbia and Alberta respondents noted that a widespread shift in focus within government departments to economic development (sometimes as part of a broader emphasis on 'sustainable development' rather than 'environmental protection') has detracted from environmental protection activities.

This lack of institutional capacity has led to frustration from some members of bi-national task forces. The committee member noted that on the surface it looks like the committee is taking on some issues, but the withdrawal of players and funding on the B.C. side is immobilizing the process. In fact, her/his frustration with the process has reached a point where s/he is seriously considering dropping out of the council, noting that, "it is just not worth my time anymore." The meetings, s/he reports, "comprise of people talking *at* each other and not connecting on issues of mutual concern." Furthermore, it was noted that, "there is a real lack of understanding.....even exchanging data and information is difficult."

4. Lack of financial resources

Limited financial resources, specifically, funds for travel and purchasing necessary data were also listed as a main barrier. In Montana, one interviewee noted the frustration in getting departmental funds to purchase data from Canada that was necessary for his work on a transboundary river basin. S/he noted frustration that "the data was not public domain", and that his department "was not quick to spend the money." In the end, s/he purchased the data using his/her own personal funds.

In British Columbia, limited funds due to provincial budget cuts were listed as a barrier to cooperation. One task force member noted that in this process, "all the people that were sharp and progressive were reassigned to other duties. As new peoples names were put forward, new people with little expertise, little time, and little interest were put in place." Not only did the budget cuts affect the expertise, according to one US member of the task force, but it also affected the ability to travel: "the meetings are supposed to alternate between United States and Canada, but when the meetings are in Washington, the B.C. members can't come. They say that their budget won't allow for travel."

These budget cuts cause an asymmetry of participation. As one provincial employee notes, "U.S. members are better resourced and therefore better able to participate and/or achieve results from recommended/required action." Even on the Washington

side, however, it was noted that it is very difficult to get funding for projects *across* the border. Simply put, governmental officials are hesitant to allocate money for projects outside of the country - even if it is connected or part of a connected region.

5. Levels of Participation (symmetry)

An asymmetrical level of participation in cross-border management was listed as a barrier to cooperation. In B.C./ WA many people reported that participation in cross-border water management is generally asymmetrical - with more participation by partners in the United States. This was largely explained by financial restraints of Canadian agencies. However, in Alberta and Montana, the participation was reported to be much more equal. This can partly be explained by the fact that the province of Alberta is much wealthier (reporting a 4 billion dollar surplus in 2005) than B.C. (who in order to counter a large budget deficit in 2002/2003 significantly downsized its public sector). Alberta's financial strength affords them a much more equal playing field to their U.S. counterpart, as they are able to maintain technical expertise and employees to work on cross-border issues.

The IJC was designed to temper this governmental asymmetry. As one provincial employee / IJC task force member noted, "the IJC is designed to provide a more even playing field. When the players are merely at a state/ provincial level, Canadian participants are at a disadvantage because they have less financial and technical support from their government. When the IJC is called in, its aim is to provide a more balanced representation - an equal playing field." Given the role of the IJC as a balancer of power, most respondents reported that the IJC has fairly equal levels of participation. However, one interviewee, who noted that the U.S. tends to be more active than their Canadian counterparts even in the IJC, countered this statement.

The levels of participation also varied depending on whether the issue was "active" or not. That is, when there is an issue that requires a lot of attention. For example, in the St. Mary and Milk River, the levels of participation are more balanced. However, in 'down times', when the meetings are more maintenance-oriented, the U.S. counterparts were reported to be more present - this was truer in the Western Pacific Region than in the Western Montane.

Asymmetrical participation was also noted in First Nations Communities. Almost all of the interviewees in the Pacific noted that there is insufficient representation of First Nations and Native American communities at the table. They would like to see more active participation and representation of First Peoples at the cross-border meetings. In the Western Montane, representatives of the Blackfoot and Blood communities are more often at the table than First Nations groups elsewhere in the study area, largely because the St. Mary and Milk Rivers run through their territory and they are directly impacted by the decisions. In U.S., the tribes have official representation on the task force. In Canada, however, they do not have official representation even though they are invited to attend the meetings and provide input in an 'unofficial capacity'. This is a big point of contention in Alberta, where the Blood (under the Blackfoot Confederacy) are seeking to have nation-to-nation representation and don't feel they are being consulted.

6. Lack of data

Lack of data or availability of data (especially in Canada) was repeatedly listed as a barrier to transboundary cooperation. For example, one state employee in Montana noted the frustration in the lack of capacity / willingness of Canadian government officials to share data. "When I ask if I can get data, they [the Canadians] say 'you can buy it or we don't have it.' Then, I find out later, that they really *do* have it, but just didn't share it or didn't know that it existed. It is frustrating. In Alberta, they have great websites, very flashy and looks nice, but the raw data is not there - it doesn't seem to be easily available." S/he further noted, "We do things differently on our side. We have more public information - USGS has a public website where you can get any information - it is free public information for anyone at anytime to access." Although the respondent noted that after 9/11 some of the sites are not public domain anymore - particularly information regarding reservoirs - even s/he as a state employee has had difficulty accessing the sites because they are maintained at a federal level.

Similar issues with data were reported in the Pacific. As one career Environment Canada official noted, "There is a lot more capacity in the United States [for water governance]. Even from the data perspective, they [the U.S.] have more data to work with." Many of the interviews noted that the U.S. is able to be more active in cross-border management due to greater financial and data resources. However, as one EC official reflects, "It seems that Canada *should* be more pro-active with resource allocation because such a large portion of our population lives on the border."

7. Lack of intra-jurisdictional integration

Lack of intra-jurisdictional integration between water managers and governmental departments was also noted as a barrier to cooperation. For example, one Environment Canada respondent identified the need for "more crossover between Health Canada and Environment Canada." They further identified a need for "on the ground integration of local needs - not *co-management*, rather, *intra-management*." This sentiment was also felt in Washington State. As one Washington career Department of Ecology employee reflected, "It would be nice to have *ongoing* [transboundary] institutional cooperation - it has always been episodic. But, we don't even have good interstate agencies - how are we supposed to have good *international* agencies if we can't even coordinate between *states*."

This lack of intra jurisdictional integration was also reported within the IJC, where it was noted that the task forces and technical committees did not always have good communication. As one respondent reflected, "there was a lot of disconnect / lack of communication between these two groups. Even though they were studying the exact same things, the institutional mechanisms did not encourage information exchange."

8. Gaps in knowledge of the 'other' country

Several of the water managers interviewed were largely unfamiliar with the other country's political structure, key environmental legislation, and did not know who their counterparts were - although they were interested in knowing this information. This gap of knowledge, however, was mostly limited to those that are not currently

and actively involved in trans-border committees. Those that were directly involved were familiar with their counterpart, although the relationships seemed to be intermittent and issue-based rather than sustained.

9. Spatial Distance

Spatial distance was also reported as a factor affecting transboundary cooperation. Distance impacts both meeting participation and levels of citizen participation. For example, the straightforward statement “you get more participation from those that are close by” was true for both citizen groups and official committee members. This ‘distance decay’ was reported as a factor in the St. Mary / Milk issue, where there is limited citizen involvement. Agency officials noted that in Montana, “citizen and NGOs have not taken up this issue partly because it is ‘way up there’ and most people even don’t know it’s an issue.” This distance decay impacts the level of attention the issue receives as well as the level and type of participation.

10. Federal jurisdiction inhibits action

Lack of leadership and guidance by high-level officials and politicians was also reported as a barrier to cooperation. Although regional transboundary cooperation was reported as more prevalent than in the past, federal players still maintain authority over international waters. Federal authority in and of itself was not the issue. Rather, the federal tendency for *inaction* was listed as a barrier. For example, one respondent described: “At a recent IJC task force meeting, the sessions were broken into two components - the provincial / state and the feds. During the provincial / state meetings, there was a lot of idea generation about ways to mitigate problems. When these ideas were brought to the federal bureaucrats, the ideas were received coolly - noting that it was only their job to report options to DC/ Ottawa - not to choose outcomes. The ideas generated the prior day were tempered with inconclusiveness.” This ‘coolness’ was seen as a barrier to cooperation, as regional actors (in particular state/provincial) are ready to act but federal bureaucracy often tempers their momentum.

11. Mistrust

Mistrust was reported as a barrier to cooperation, particularly between Montana-Alberta and Montana - British Columbia. One Montana employee noted that there is a history of mistrust surrounding the St. Mary / Milk River. This mistrust was said to be rooted in misunderstandings. One Montanan spoke of this mistrust: “In Alberta, they think that we are misusing our water and have poor infrastructure, however, we say, you can’t be indignant because you have been stealing our water for the last twenty years.”¹⁶

Mistrust has also tempered relations between British Columbia and Montana. The Cabin Creek Case in Flathead Basin is an excellent example of the consequence of not fully resolving governance issues the first time around. In this case, BC was interested in mining Cabin Creek, which would impact the downstream waters in Montana along

¹⁶ See http://www.ijc.org/rel/boards/smmr/public_consult-e.htm and report #88 for Alberta comments on this issue.

the Flathead Basin. Now, 18 years after an IJC report unanimously recommended the prohibition of mining in Cabin Creek, the mining issue has resurfaced and relations are heating up again. Reportedly, the tensions surrounding this issue have impacted the successful creation of binational watershed councils and task forces between Montana and BC.

4. CASE STUDIES OF TRANSBOUNDARY WATER GOVERNANCE

4.1. The Abbotsford - Sumas Aquifer

The Abbotsford-Sumas Aquifer spans the Canada - U.S. border in western British Columbia and Washington State and provides drinking water for approximately 60,000 people (Washington D.O.E 2005). Intense agricultural practices above the aquifer have led to elevated nitrate concentrations, thus causing a human health risk for the rural dwellers reliant on the water as a primary drinking source. In particular, the leaching of manure from dairy farms in the U.S., poultry farms in Canada, and fertilizer for raspberry farms (on both sides) have caused the nitrate levels in the aquifer to rise beyond acceptable drinking water standards (Almarasi 2003; U.S.G.S. 1999; Zebarth et al 1998). The aquifer requires transboundary attention because both Canadians and Americans contribute to, and are impacted by, the pollution inputs.

In order to reduce the pollution inputs in the aquifer and mitigate health risks for its water users, several governance mechanisms, both domestic and transnational, have emerged. Domestically, the Abbotsford -Sumas Aquifer Stakeholders Group and Industry Stewardship Groups (ISGs) in B.C. and ReSources for our Future in Washington are involved in activities to help reduce nitrate leaching into the aquifer. Internationally, the Abbotsford-Sumas Aquifer International Task Force, one of five international task forces under the B.C. - WA Environmental Cooperation Council, helps manage the transboundary aquifer.

Abbotsford - Sumas Aquifer International Task Force

The Abbotsford - Sumas Aquifer International Task Force was developed as a subcommittee of the Environmental Cooperation Council in 1992. The Task Force is charged with monitoring the aquifer and developing recommendations for shared management and pollution reduction. Meeting approximately twice a year, the task force addresses technical, scientific, and political issues related to the transborder aquifer, as well as coordinates local conferences and scientific exchange. Governmental representatives from the national, state, provincial, and local (county/district and city) levels comprise the task force.¹⁷ The task force reports its findings bi-annually during the regularly scheduled ECC meetings. (Norman and Melious 2004)

The Abbotsford - Sumas Aquifer Stakeholders Group

A more local approach emerged in 1997 with the creation of the Abbotsford - Sumas Aquifer Stakeholders Group (Stakeholders Group). The Stakeholders Group was formed under a mandate from the City of Abbotsford and meets monthly to discuss its goal of "develop[ing] practical and reasonable solutions" that "lie with the voluntary actions of the stakeholders, not with the establishment of new laws and regulations and more bureaucracy" (Andzans 1998: 1). Based in the city of Abbotsford, the group is composed of local community members representing agriculture (primarily raspberry farmers and the poultry industry), small business owners, urban and rural dwellers,

¹⁷ The Task Force includes representatives from the United States Geologic Service, Environmental Protection Agency, Environment Canada, Washington Department of Ecology, British Columbia Ministry of Agriculture and Forestry, Whatcom County Health Department, and City of Abbotsford.

and representatives of the city of Abbotsford, the B.C. Ministries of Environment and Agriculture, and Agriculture Canada. Agency representation is aimed at coordinating information exchange, rather than implementing regulatory approaches. (Norman and Melious 2004)

Industry Stewardship Group

Another regionally-based group whose primary goal is to help reduce pollution inputs in the aquifer is the Industry Stewardship Group (ISG). The ISG is an umbrella organization for industrialists and agriculturalists in the Abbotsford District of British Columbia that come together to discuss methods and options of reducing pollution inputs into the aquifer. The ISG representatives liaise between the city-based Stakeholders Group and their particular groups' representatives. The representatives relay information back to their members and explain their industries' objectives to the Stakeholders Group (Andzans 2000). The goal of the ISG is to design solutions that reduce pollution inputs while still maintaining their respective business objectives. The most active Industry Stewardship Groups include the B.C. Raspberry Growers' Association, B.C. Auto Recyclers' Association, and the Sustainable Poultry Farming Group. (Norman and Melious 2004)

ReSources for our Future - Local ENGO

ReSources for our Future is a local non-profit environmental organization in Bellingham, Washington. As part of its wider goal of improving environmental stewardship in Western Washington, this group helped provide environmental education to people affected by - and affecting - the Abbotsford-Sumas Aquifer. In conjunction with the state Department of Ecology field office, ReSources designed an education program for businesses and communities around the Abbotsford-Sumas Aquifer. The educational materials, however, were only distributed to members in Washington State and only contained information relevant to the U.S. populations. Because of contacts made through the transboundary meetings and the networks established during those meetings, it was relatively easy for B.C. to adapt the educational material to the B.C. side of the aquifer. Within a year, the Abbotsford, B.C. community had their own version of the education material.

Drivers of cooperation

The Abbotsford-Sumas Aquifer has received significant attention from many scales of governance, from local to supranational. The drivers for this interest are multi-faceted and include: 1) proximity - the aquifer is close to the population that uses / pollutes it; 2) transparency - education efforts make the issue known to the wider public; 3) data - federal studies by U.S.G.S. and Environmental Canada provide authoritative data that validates the presence, causes, and risks of pollution; 4) health risk - the consumption of water from the aquifer causes a health risk, particularly for infants; and 5) issue-driven - through education efforts, data availability, potential health risks, and proximity of population, the aquifer is deemed an issue 'worthy' of attention.

The overarching driver of cross-border cooperation is the fact that the aquifer rose to issue-status. This status was reached through several mechanisms and players - both

governmental and nongovernmental. Federal investment in research led to scientific evidence that the aquifer was polluted. Provincial and state agencies recognized the need for pollution reduction and placed the aquifer within an established bi-national framework (Environmental Cooperation Council). In turn, local actors used the federal data and established bi-national frameworks to inform its citizens of the risk and causes of groundwater pollution.

At the local level, organizations such as the Stakeholders Group have been successful at encouraging behavior-altering techniques. One state employee pointed to proximity and relevancy as the drivers for this behaviour, stating that, "Unlike most groups dealing with international environmental problems, the Stakeholders Group is comprised primarily of local citizenry who both use and pollute the aquifer." The transparency might also be attributed to the aquifer's geographic positioning - the fact that it is bi-national elevated its profile and thus encouraged action. However, despite the transnational framework, most of the actual *actions* to reduce the pollution were done domestically rather than internationally.

Barriers to Cooperation

Three main barriers to cooperation were identified in the aquifer's case: lack of funding for cooperative projects, different governance structures/ cultures, and divergent constituencies. Agencies at all levels of governance have difficulty getting funding for cross-border projects. Allocating funds beyond one's jurisdiction is a difficult political task. An example of this is the environmental education books, which discuss ways to mitigate pollution on the aquifer. These educational books were produced through different governmental efforts; despite the shared waters, each country has their own version of the education guide. Different governance cultures and mandates have also impacted cooperation. Divergent laws and policies impact the standards for water quality, as well as enforcement infrastructure. Lastly, divergent constituents impacted local behaviour and funding. ENGOs had a difficult time getting constituency support for projects outside of their designated jurisdiction. Thus, the on-the-ground projects rarely involved cross-border players. The collaboration and information exchange happened during transboundary meetings. However, the *action* occurred not in the bi-national level, rather from local (domestic) groups.

4.2. Georgia Basin - Puget Sound

The Georgia Basin - Puget Sound is a shared marine bioregion ranging in geographic scope from Seattle, WA to Vancouver, B.C. The inland marine waters of Puget Sound and the straits of Georgia and Juan de Fuca comprise this marine region, which is jurisdictionally separated by the international boundary between Washington and British Columbia. Due to the stresses of increased population and increased pollution sources along the coastal areas, there are several issues of shared concern. In particular, marine managers and governmental officials in both Canada and the U.S. are focusing on issues such as increased marine pollution from tanker and cruise ships, habitat loss due to increased population growth along the coastline, increasingly threatened marine life, and an increase in exotic marine species.

In response to the growing environmental issues within Georgia Basin - Puget Sound, several organizations with various scopes and jurisdictions have emerged. Similar to the Abbotsford-Sumas Aquifer, the only organization that addresses the issues specifically at a binational level is the B.C. - WA Environmental Cooperation Council. Although several organizations focus on the shared marine waters, such as the Georgia Strait Alliance, Northwest Straits, People for Puget Sound, and Puget Sound Action Team, the organizations largely focus on their respective sides of the border.

Georgia Basin - Puget Sound International Task

In order to help coordinate these shared issues, the Georgia Basin - Puget Sound International Task Force was formed as a subcommittee in 1992 under the B.C. - Washington Environmental Cooperation Council. The Task Force's main goal is "to promote and coordinate mutual efforts to ensure that protection, preservation and enhancement of this shared environment for the benefit of current and future generations" (B.C. 2004). The Georgia Basin - Puget Sound International Task Force has largely focused its efforts on implementing recommendations that the Marine Science Panel presented to the ECC in August 1994. Under the directive of the ECC, The Task Force prioritized the recommendations of the Marine Science Panel. In the first five years of their efforts, they have focused on addressing four key areas: habitat loss, marine protected areas, protecting marine life and minimizing exotic marine species introductions. More recently, the Task Force has begun to address the issue of toxic discharges (B.C. 2004).

Georgia Strait Alliance

The Georgia Strait Alliance is an ENGO located in Vancouver, British Columbia, whose main emphasis is "to protect and restore the marine environment and promote the sustainability of Georgia Strait, its adjoining waters and communities." The alliance has three main goals: 1) to protect biodiversity and wildlife habitat; 2) to restore the region's water and air quality; and 3) to promote the social, cultural, economic and environmental sustainability of the region's communities (GSA 2005). This organization's central focus is on B.C. waters, although it does participate in cooperative measures such as information exchange through transboundary conferences such as the recent Georgia Basin - Puget Sound Conference held in Seattle, WA.

People for Puget Sound

People For Puget Sound is a non-profit citizens' group based in Seattle, WA whose primary goal is to "protect and restore the health of Puget Sound and the Northwest Straits through education and action" (PPS 2005). Their work includes habitat restoration projects, environmental education, and environmental advocacy. In particular, the organization focuses on shoreline protection, marine habitat restoration, and advocacy for oil-spill prevention. They work collaboratively by partnering with other non-profit and governmental agencies.

Northwest Straits Commission

The Northwest Straits Commission is a non-profit group that serves as a board of directors to the Northwest Straits Marine Conservation Initiative, which was authorized by U.S. Congress in 1998 to "restore and protect marine resources in the Northwest Straits." The Commission provides technical and financial support to county-based marine resources committees (MRCs), "with the goal of mobilizing science to focus on key priorities and coordinating regional priorities for the ecosystem" (NSC 2005). The Commission's principal work is to: "provide focus on the overall health of the Northwest Straits marine ecosystem; develop and propose scientifically sound recommendations to existing governmental authorities; and direct and coordinate scientific, technical and financial support to the marine resources committees." Members of the commission represent county, state, and tribal jurisdictions and are financially supported by state and federal programs. This group operates primarily at a domestic level, but coordinates with Georgia Basin Initiatives through representation on the B.C. - WA Environmental Cooperation Council and through participation in the bi-annual Georgia Basin - Puget Sound Conference.

Drivers of Cooperation

Several factors drive the cooperation between actors in Georgia Basin - Puget Sound, including visibility, availability of data, economic integration, diversity of issues, and crisis. The high visibility of the shared waters, due to dense population along the coast, and the geographic positioning of the state and provincial capitals has undoubtedly aided in fund-raising activities of citizen groups, and both governmental and non-governmental actors. As both the state and provincial capitals are geographically positioned in the shared waters, it is not surprising that support of bi-national cooperation has emerged from the governor and premier's office. Furthermore, economic integration between B.C. and Washington waterways has paved the way for environmental cooperation, as the state and province coordinate trade activities through their respective port authorities. A second driver for cooperation is the diverse range of issues - from the threat of extinction of Orca whales to water quality issues as a result of tanker traffic or disposal of sewage wastes. Lastly, crisis has also driven cooperation of these shared waters. The Oil Spill Task Force emerged in 1988 after a Washington State oil spill in Gray Harbor became an issue of international concern because of the impact on B.C. Furthermore, leadership of the crisis played an important part in establishing lasting bi-national cooperation mechanisms. The person in charge of coordinating the emergency response to the Gray's harbor spill was Christine Gregoire, the former head of the Department of Ecology who is now the Washington State Governor. The effects of this

spill are seen today, institutionally, as the event that precipitated the creation of the Oil Spill Task Force, and, a few years later, the Environmental Cooperation Council.

Barriers to Cooperation

The interviews revealed that despite the impressive organizational structure of the ECC, cross-border management of water, specifically marine water, is not managed effectively. According to one member of the Georgia Basin - Puget Sound International Task Force, the task force "meets somewhat irregularly", and - in his/her opinion - "is not very successful." As mentioned earlier in the report, the committee member noted that on the surface it looks like the committee is taking on some issues, but the withdrawal of players and funding on the B.C. side is immobilizing the process. The fact that people "talk *at* each other and are not connecting on issues of mutual concern" have really impacted the efforts for cooperation. One respondent noted: "There is a real lack of understanding.....even exchanging data and information is difficult." Furthermore, the domestic focus of most ENGOs in this region is indicative of the difficulty for raising funds and gaining constituent support for *international* projects (Norman and Melious 2004: 115).

4.3. The Flooding of the Nooksack River

The Nooksack River in northwestern Washington flows east from the Cascade Mountains into the waters of Bellingham Bay. Although the river itself lies solely in Washington State, the floodplain crosses over into southern British Columbia. Over the past 65 years there have been 15 overflows, most recently in November of 1990. The 1990 flood was quite extensive, costing the B.C. government several millions of dollars in damage. However, the damages could have been worse. As one Ministry of the Environment official noted, "the 1990 flood about broke the dike of an old lake and almost flooded the trans-Canada highway....there was tremendous potential for damage."

Nooksack River International Task Force (ECC)

To better coordinate the discussions of the impacts of the flooding, the Nooksack River International Task Force was established in 1992 under the B.C. Washington Environmental Cooperation Council. This task force, like the Abbotsford-Sumas Aquifer Task Force, meets twice a year to coordinate initiatives and exchange data. Specifically, the Task Force was established to address concerns about flood damage in both B.C. and Washington and to recommend actions to reduce flood damage and improve preparedness (ECC 2005). For the past decade, the committee has largely focused on modeling. After the modeling is complete, the group will focus on policy recommendations. However, as one task force member noted, the committee can only make suggestions; it is the responsibility of respective governments to make decisions and actions.

Drivers of Cooperation

Crisis, financial risk, and human safety have all served as drivers for cooperation in the Nooksack River case. When the Environmental Cooperation Agreement was signed in 1992, the Nooksack Flood was undoubtedly fresh in peoples' minds. Considering the

province spent millions of dollars in the aftermath of the flood, it is not surprising that the Environmental Cooperation Council chose the Nooksack River as one of five environmental priorities across the B.C. - WA border. The mitigation of financial risks associated with flood damage has continued to drive cooperation between the province and the state. Because the river is known to flood, the hope is to be better prepared for the next flooding event before it reaches a crisis stage. Furthermore, the potential risk for human safety has also driven cooperation as a human element consistently helps raise the profile of environmental issues.

Barriers of Cooperation

Several barriers to bi-national cooperation are present in this case. For example, divergent government structures, securing funding for flood control, and the slow process of data exchange and creating models were all listed as obstacles to cooperation. Asymmetrical governance structures, participation by governments, and funding mechanisms make planning for flood control even more difficult. For example, on the U.S. side, the main source for funding for flood control is the flood control assistance program, which was funded 75% by state and 25% by county. Recently, the state reconfigured the allocation of funds so that the county and state each pay 50%. This move caused economic hardship for the cash-strapped county. In Canada, "we struggle to get financial assistance" for flood control noted one Ministry of Environment employee. Currently, the cost-sharing breakdown is 75% provincial, and 25% is paid by the city of Abbotsford. With the allocation of funds, the committee has been able to do modeling. However, as one task force member noted, "we have spent a lot of resources on getting to where we are today and haven't had a lot of results yet." Modeling of flood patterns takes a long time within a single jurisdiction, and when there are different governments and different sources and types of data, this compounds the issue. Furthermore, after the data is exchanged, and the models are made, it is the elected officials, not the scientists, who make the decisions. One member of the task force noted with concern that after a decade of research and modeling, the governments might choose the non-action option. After all, this is the least expensive option - at least in the short term.

4.4. Boundary Bay Shellfish

The shared coastal waters of British Columbia and Washington have long yielded an abundance of shellfish including oysters, mussels, scallops and clams. These shellfish have been, and remain, integral to Northwestern traditional and local economies. However, increased sewage contamination and dangerous toxins and pathogens have compromised many shellfish beds, making the shellfish unsafe for human consumption. The risks to human health have forced the shellfish beds, such as those found in Boundary Bay, to periodically close to direct harvesting. (Environment Canada 2005)

Boundary Bay is located in the southwestern corner of British Columbia and northwestern coast of Washington. The waters that flow into Boundary Bay are contaminated by run-off from the fast-growing urban population both in B.C. and WA as well from agricultural practices upstream. Boundary Bay has two smaller bays within its basin - Semiahmoo and Drayton Harbour - both of these are subject to contamination. In particular, *Fecal coliform* bacteria pose a threat to human health and lead to the closure of harvesting of shellfish when the count exceeds acceptable

limits (14 FC/100 mL and/or more than 10% of the samples exceed 43 FC/100 mL in B.C.). (Environment Canada 2005)

To help reduce the pollution inputs into the bay, one local bi-national committee - the Shared Waters Roundtable - as well as several local ENGOs including Friends of Boundary Bay, Friends of Semiahmoo Bay, and Fraser for Life - have contributed to local education and clean-up efforts.

Shared Waters Roundtable

The Shared Waters Roundtable is transboundary organization of Canadian and United States citizens and agencies that meet bi-monthly to discuss options for reducing shellfish contamination in Boundary Bay Basin. Their stated goal is to “promote environmentally sustainable land use practices, encourage environmental stewardship and work towards improving overall water quality within the shared waters area” (Payette 2005). By using shellfish as an environmental health indicator, they work to both protect water quality where shellfish are safe for human consumption and improve water quality where it is not.

Throughout the interviews this *Roundtable* was often seen as a positive example of cross-border cooperation at a local scale. It was also seen as a successful example of inter-jurisdictional collaboration across political and jurisdictional borders where state/provincial, county/district, government and nongovernmental partners work on pointed issues.

Friends of Boundary Bay (FOBB) / B.C. Wetland Society

The Friends of Boundary Bay is a B.C.-based local organization that works to promote environmental education in and around the Boundary Bay Basin. They have produced, in conjunction with the B.C. wetland society, a natural history / environmental education guide to the Bay. This guide is aimed for educators interested in using Boundary Bay for environmental education activities. FOBB also partners with B.C. based - Fraser for Life environmental centre, and to a limited degree with Washington - based local organisations.

Friends of Semiahmoo Bay Society

The Friends of Semiahmoo Bay Society is citizen stewardship group that focuses on marine-estuarine issues. This group has both a transboundary focus and membership-base. In general, they are project-based - working in the Boundary Bay Area ecosystem and within the greater context of both the Fraser River Estuary and the Georgia Strait-Puget Sound. Although they are transboundary in scope, most of their activities, membership, and participants are from British Columbia rather than from Washington. Their activities include: Community and habitat mapping; educational programs, activities and displays; Water quality sampling and data collection; Invasive species removal; and Native planting and marine, estuary and terrestrial enhancement. (FSBS 2005)

Drivers of Cooperation

Cooperation for intra-jurisdictional cooperation in Boundary Bay is driven by several factors, including: crisis, risk to human health, and proximity of issue to population base. The contamination of the shellfish in Boundary Bay poses cultural and economic crises to local communities dependent on the harvesting. The elevated *fecal coliform* levels contribute to the crisis by posing a serious health threat to consumers. Furthermore, the proximity of the issue to the Stakeholders contributes to its positive collaboration. As one city employee noted, the success of this group is largely due to its local nature – “it is a local problem with local solutions.” The city employee also suggested that the people at the table are able to make decisions because the area is under local jurisdiction. That is, city and county officials, on both sides of the border are able to manage the upland activities that are contributing to the shellfish contamination. This inner-jurisdictional functionality seems to be key for cross-border cooperation at a local scale.

Barriers of Cooperation

Despite the positive collaboration between countries at a local scale as seen in the Roundtable, asymmetrical government structure, difficulty fund-raising across borders and policy discrepancies still hinder cooperation. For example, one interviewee noted the difficulties in shared management when the shellfish season remains open in the U.S. in Boundary Bay, while it is closed in British Columbia. This lack of symmetry is indicative of the difficulties inherent in the coordination of policies on the ground when the parties involved have different political structures and laws. In the case of the ENGOs, it is difficult to maintain membership and fundraise across borders; this problem is exemplified in the Abbotsford-Sumas Aquifer case.

4.5. The St. Mary - Milk River

The St. Mary and Milk River have long been a source of cooperation and conflict between Alberta, Canada and Montana, U.S. The relationship dates back to the 1909 Boundary Waters Treaty, article VI, which deals specifically with the allocation of waters in the St. Mary and Milk. However, the language in the Boundary Waters Treaty proved to be insufficient for determining exact allocation amounts. Thus, the International Joint Commission was asked to review the language and, in 1921, published an Order which treats the rivers as a single entity for allocation purposes, and provides specific apportionment measures for Montana and Alberta. However, increased water shortages and perceived inequitable allocation recently led the Governor of Montana to request that the IJC review the 1921 order. In response to the Governor's request, the IJC issued a directive of inquiry in November 2004 and formed a Task Force in January 2005 to determine if “existing administrative procedures can be improved to ensure more beneficial use and optimal receipt by each country of its apportioned waters within the terms of the 1921 Order” (IJC 2005). Since the directive was issued, the Task Force has been meeting regularly with the aim of finding an equitable solution agreeable to all parties.¹⁸

¹⁸Shifting Scales of governance - In Montana, the St. Mary's and Milk River had clearly been under the federal jurisdiction of the USGS and Bureau of Reclamation. However, one state employee noted that in the 1970s, the Bureau lost interest in maintaining control over this river basin. When Montana realized that it was not getting its proper allotment - the state, not the feds, initiated action. They decided they

International Joint Commission - St. Mary and Milk Task Force

The St. Mary and Milk Administrative Task Force was formed under the directive of the IJC in 2004. The St. Mary and Milk Task Force is made up of two co-chairs, one from Canada and one from the United States, and 6 expert members with equal representation from Canada and the United States. The task force members are asked to act in their professional and personal capacity rather than representatives of their specific country, organization, or agency (IJC 2004). As of August 2005, the group was considering a potentially amicable agreement. The Task Force members will prepare a draft to the IJC in 2005.

Crown of the Continent Manager's Partnership (CMP)

The Crown of the Continent Manager's Partnership (CMP) is an interagency group formed in 2001 that includes representation from Alberta, British Columbia and Montana. The group was formed to encourage information-sharing and cooperation among natural resource agencies, both inter and intra jurisdictionally. The CMP has three main goals: 1) to *build awareness* of common interests and issues in the Crown of the Continent Ecosystem; 2) to *improve relationships* and opportunities for collaboration across mandates and borders; and 3) to *identify collaborative work* already underway and opportunities for further cooperation. In an excerpt from their concept paper, they describe their relationship as follows: "Given the history of human settlement, the value of ecosystem management amongst land and resource managers in the Crown of the Continent Ecosystem is self-evident and has occurred periodically between different agencies and jurisdictions. However, there has never been an attempt to bring all of the primary jurisdictions together to discuss common interests and issues" (CMP 2005).

This group is supported through the Mikasas Institute, which is based at the University of Calgary, as well as by the University of Montana. As a member of the Steering Committee and the Secretariat, the Mikasaks institute helps facilitating conference calls and meetings, organize annual forum, construct and maintain CMP webpage, generate additional CMP funds, and generate educational/outreach materials (CMP 2005). Water managers in both countries saw this support as instrumental to its success.

would be proactive - and that the feds would not necessarily pick this up if they didn't. So, it was the state that wrote a letter of intent to the IJC to initiate a review.

Milk River International Alliance

A grassroots group formed the Milk River International Alliance in 1999. The U.S. federal and Montana state agencies supported the alliance to help develop a framework for improving water management in the basin. The alliance is open to any interested party and guided by a four-member citizens' advisory council. However, the participation has tended to be asymmetrical, with more representation from Montana than from Alberta. According to several water managers, the group seemed to lose its momentum after a few years and is now "largely defunct."

St. Mary's Rehabilitation Working Group

The St. Mary's Rehabilitation Working Group is a primarily domestic (Montana) 15-member committee that was formed November 2004 to fund repairs on the 85-year-old system of siphons that brings water from the St. Mary River to the Milk River.

Drivers of cooperation

In the St. Mary and Milk River situation, several factors contribute to cooperation: established networks, the relative importance of the issue, personal relationships, leadership, economics, and respect and fairness.

Although the negotiations between Montana and Alberta were identified as "contentious and difficult", successful negotiations have emerged from good relationships and commitment to problem solving. In fact, one member of the IJC board noted that the negotiations were the most contentious and difficult negotiations that s/he has ever been a part of, however, s/he and his/her counterparts were completely committed to coming up with a solution that works for both parties. Respect and fairness played a crucial role in driving these successful negotiations.

Personal relationships also drove the positive cooperation. As mentioned in section 3.3.1.4, one Montana water manager was so encouraged by the amicable and fair discussions that they were planning a retreat with their Alberta counterparts and their staff to ensure greater long-term cooperation. The established networks were formed by ongoing committee work with the IJC and interagency collaboration. Fair and respectful negotiations were established through his ongoing committee. Thus, continual face-to-face discussion laid the groundwork for a respectful platform when issues arose and become heated. As one Montana employee noted - "we like the Albertans, we like how they work - they are fair and straightforward." Following that, good leadership also contributed to positive negotiations. The Montana employee continued: "99% of cooperation is because of key leaders. Really dynamic leadership on the state's (Montana) part is responsible for making the St. Mary and the Milk River a priority."

Economics also contributed to positive collaboration, as Alberta's government has the resources to be present at each meeting and to provide the technical expertise when needed. The provincial economic strength provides a participatory symmetry that is not present in other regions along the Canada-U.S. border, particularly in the case of B.C. - WA.

Barriers to cooperation

The primary barriers to cooperation in the St. Mary and Milk case include: lack of data (from Canada), a history of mistrust, spatial distance, economics, and different governance structures.

As noted in the previous sections, lack of public access to Canadian data has proven unfavorable to transborder cooperation. Effective data exchange is needed for more efficient cross-border collaboration. This problem is perpetuated by differing government structures, where government agencies hold different capacities and different levels of authority over the production and generation of data.

Another barrier to local-level cooperation is spatial distance - large population bases are far removed from the St. Mary and Milk water diversions issue. In particular, geography has limited civic and ENGO engagement in this issue in Montana. Furthermore, the perception that water allocation is a *technical* issue rather than a *social* issue has further limited the involvement of community groups.

At the root of this issue are economics and divergent governance structures. Alberta has invested far more money in infrastructure than Montana. This disproportional allocation has to do with the access to funds for infrastructure. Alberta's fiscally strong provincial government and its provincial jurisdiction over water resources has allowed for a lot of investment in infrastructure. Montana has much less investment due to governance structures that create a weakened centralized interest in water infrastructure by the Bureau of Reclamation.

Furthermore, history of mistrust over water allocations tempers cooperation. Although respect is an underlying aspect of the cross-border discussions between Montana and Alberta, a long history of skepticism over equitable water distribution hinders cooperation. This mistrust dates back prior to the 1909 Boundary Waters Treaty. Because the need for water is so dire on both sides of the border, equality, both perceived and real, is essential to the maintenance of good relations.

Different government structures

In Montana and Alberta the difference in governance structure is very apparent in the context of the recent issues of St. Mary and Milk water allocation. For example, Alberta's water structure is based on irrigation districts, which serve a small community of farmers and people living within the boundaries of the district. In contrast, in Montana, the water is managed at the state level and has a much more unified approach. According to one Environment Canada official in Alberta, much of the problem rests in the fact that Montana's irrigation districts have not maintained their infrastructure and the approach to water diversion and usage is very fragmented. Because of the lack of maintenance of ditches and pipes, there is a lot of waste - this is apparent by the number of weeds that you see along the ditch. In Alberta, the official contends, "We have spent a lot more money on maintaining our infrastructure and do not have the same level of waste as Montana." The fact that the political infrastructure is so different from one area to the next contributes significantly to the differing levels of waste. An aerial photo of the Alberta / Montana borderland clearly

shows how the different organizational structure manifests in different landscape patterns (See Knight 1991).

4.6. Flathead Basin

The Flathead River flows southeast from B.C. into the northwest sections of Montana. Mineral deposits along the Flathead River in B.C. have captured the provinces interest for possible mining. Montana, however, is concerned about downstream pollution and has vehemently opposed this project. In response to Montana's concern, the IJC created a Task Force to review the possibilities and implications of mining in Cabin Creek.

In 1988, the 6-panel board unanimously recommended that the Cabin Creek development be barred from proceeding. Although the Canadian government heeded the IJC decision and did not move forward with the project, B.C met the decision with resistance. The lack of reverence for this decision is indicated by the recent provincial decision to reopen the case. Eighteen years later, this issue is resurfacing; B.C. is once again exploring the idea of mining Cabin Creek. This has naturally captured the attention of the state of Montana, whose Flathead River would be affected by the downstream pollutants.

Flathead Basin Commission

The Flathead Basin Commission (FBC) is a non-regulatory commission established in 1983 to "Identify the basin's water quality problems and work collectively to implement the most effective solutions" (FBC 2005). Furthermore, the Commission aims to "Encourage responsible economic development in the basin without compromising either the present high quality of the basin's waters or international cooperation and coordination between Montana and British Columbia concerning resource development activities in the North Fork of the Flathead River" (IJC 1998). Although the Basin's jurisdiction is bi-national, the commission is largely governed through the state of Montana. Of the 22 members of the FBC, 21 members are from Montana; the one member from British Columbia acts as a liaison. The Commission's jurisdiction is limited to the citizens of Flathead Basin in the state of Montana, with little interaction with B.C. residents.

Flathead River International Study Board

The Flathead River International Study Board was established in 1985 under the IJC to examine and report to the commission: a) the present state of water quality and quantity of the Flathead River at the border; b) current water uses in the River basin together with their effects on present water quality and quantity; c) the nature, location and significance of fisheries currently dependent of the waters and its tributaries; d) effects on the present state of water quality and quantity which would result from the construction, operation and post-mine reclamation of the proposed Cabin Creek Coal mine; e) effects on current water uses (including water dependent uses such as recreation; and f) effects which the construction and post-mine relocation of the proposed Cabin Creek Coal Mine would have on the habitat. After the board unanimously decided against the mining proposal, the Board was decommissioned.

Drivers of Cooperation

In the Flathead Basin, issues and established binational networks are the primary drivers of cooperation. The IJC created the International Study Board in response to a request from Montana, who was concerned about the impacts of upstream mining. This request was a way to avoid a potential crisis situation and was largely driven by a specific issue. After the board made their decision against the mining proposal, little bi-national cooperation existed between B.C. and Montana regarding the Flathead Basin. The one board responded to a specific task, and after the decision was finalized, binational cooperation did not ensue.

The Flathead Basin Commission has the organizational potential for binational cooperation, but currently focuses on Montana. The issue - status of the Flathead Basin - however, drives at least one B.C. member to attend the meetings as liaison.

Barriers to Cooperation

The Flathead Basin suffers from a history of mistrust between Montana and B.C.. Montana's concern for potential downstream impacts of mining and B.C.'s frustration with the IJC's decision has led to less than cooperative relations between the provincial/state governments. The fact that the Cabin Creek issue is resurfacing after nearly two decades - and after a firm IJC decision - shows that bi-national cooperation works only to the level of government participation.

Furthermore, the asymmetry of governments has proven to be a barrier for cooperation in the Flathead Basin. British Columbia is interested in participating in negotiations at a state-provincial level. However, mismatched government structures restrict this level of cooperation. In an attempt to provide an equal playing ground, Montana requested to have a Watershed Board at the Flathead Basin. However, B.C. was not interested in working through the IJC - rather, they wanted to keep it "at the lowest level of governmental discussions possible" noted one Montana interviewee. This lack of symmetry in governmental structures has limited the cooperation between the B.C. and Montana.

5. Conclusions and Future Research Directions

As the case studies in Section 4 illustrate, the relative importance of drivers and barriers identified in Section 3 varies significantly between different transboundary waters. Some generalizations can, however, be made. First, the levels of participation between countries seem more balanced in the Alberta - Montana example, than in the British Columbia - Washington example. This is partly explained by the greater financial capacities in Alberta than in B.C.. These greater financial resources allow them to have a more equal relationship their U.S. counterparts. Second, the issues in the Western Montane are more straightforward than the issues in the Western Pacific region. For example, as one provincial employee noted, "it is a difference between water *quality* and water *quantity*. In Alberta - Montana there is really only *one* issue - the St. Mary and the Milk. This issue centers on *water quantity*, rather than *quality*." The discussions around quantity are more technical and relegated to government officials. In the Western Pacific region, on the other hand, many of the water issues revolve around water quality, which is a lot more messy and emotive. Third, the demographic distribution of water users was highly relevant to the importance and political leverage of transboundary water governance issues. For example, spatial proximity was a barrier to cooperation in Montana, but a driver of cooperation in Washington.

Another generalization can be made about the barriers identified by the interviewees: most of these barriers were attributable to the formal structures of environmental governance that have evolved within and between Canada and the U.S.. These differing governance structures led to issues such as: integration between Canada and the U.S. and intra-jurisdictional integration within countries (with issues being handled at a national level in the US, but at a provincial level in Canada, or vice versa); distinct and sometimes incompatible governance cultures and mandates; and shortcomings in institutional capacity, financial resources, participation capacity, and data availability. In other words, *our systems for governing domestic and shared waters were perceived to inhibit effective transboundary water governance*.

In contrast, drivers for cooperation were largely informal: leadership, contacts, personal relationships, and networks all facilitated cooperation on specific issues perceived to be priorities for cooperation. These were often driven by a crisis mentality, but they were also opportunity-driven in response to funding availability and political priorities. Cooperation was facilitated by proximity, legal obligations, and bureaucratic transparency, and by psychosocial factors such as practicality and a sense of mutual respect and fairness. Although these were not the most important drivers of cooperation, they were central to successful cooperation initiatives. Where lacking, as in the Flathead Basin case study, cooperation failed and conflict resulted. In other words, *informal governance mechanisms, such as networks, contacts, and personal relationships were the key determinants of successful cooperation on transboundary water governance*.

These preliminary findings suggest a fruitful avenue for future research and policy development. We hypothesize that many transboundary water governance issues are most effective if they are addressed and resolved locally, due to the presence of 'cooperation drivers' identified in the case studies. Where significant barriers to cooperation exist, and where drivers are lacking, conflict on transboundary water

governance issues may emerge, and better-known and more high-profile conflict resolution mechanisms (such as the International Joint Commission), may come into play. Fostering successful transboundary water governance requires better cooperation; more research is required on drivers and barriers to cooperation in order to develop recommendations which would improve the Canadian ability to achieve desired goals in transboundary water governance.

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Appendix A: Research Questionnaire

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RESEARCH QUESTIONNAIRE: TRANSBOUNDARY WATER GOVERNANCE ALONG THE CANADA-U.S. BORDERLAND

Name of Interviewee _____

Position/Title _____

Date/Time _____ Location _____

Description of Job Responsibilities / Role in Transboundary Governance of Water

Interview Questions:

1. How long and in what capacity have you been involved in water governance in the Canada-U.S. borderland?
2. In your years of experience, have you observed a *shift* in governance mechanisms for the management of water? For example, local levels of government or international bodies (IJC, NAFTA CEC) more or less important? If so, how and in what capacity?
3. Have you observed an increase in transboundary cooperation on water governance? If so, how - and when - has that materialized? If you could, please provide a detailed example or examples.
4. What is the nature of this transboundary cooperation?
 - o Intermittent or regular? If the latter, how regular?

- *Informal or formal?*
 - *Issue driven? What issues have been important over the past XX years?*
 - *Is transboundary cooperation indeed 'deep rather than broad'?*
5. *How important are informal contacts (conversations, conference organizing, information exchange, shared education programmes) in your work? Have you noticed an increase / decrease of informal contacts over time?*
 6. *What sorts of experts are involved in transboundary cooperation? How has their role changed over time? Their expertise? Their numbers, funding, and institutional support? In short, how have levels of professionalism changed over time?*
 7. *What do you think the most important drivers and barriers are of transboundary cooperation? If you've seen change over time, why? If not, why not?*
 8. *A subset of actors appears to be involved in environmental governance in the borderland on each side of the border. Over time, how has the cooperation between these groups evolved? If they've remained largely unconnected, why?*
 9. *I have a list of transboundary water governance mechanisms that we've identified as being relevant to your region. Could you take a minute to look at them and discuss the ones that you are familiar with, and, if possible, list them in order of relevance to your work?*
 10. *Could you speak to the role and distribution of decision-making authority between feds and provinces/states --- between Ottawa/ D.C.-based federal departments or regional outposts of federal departments (e.g. EPA Region 10 and Environment Canada Vancouver office)*
 11. *In your experience, have you noticed a difference in attention - or priority - given to different types of transboundary water - surface, ground, marine?*
 12. *Do you have anything else you would like to add?*

Appendix B: Ongoing Research and Methodology

Ongoing Research

This report contributes to previous and ongoing research on Canada-U.S. water governance.

This research project is a continuation of a transboundary project initiated in the fall of 2004 by the authors, which explores recent changes in water governance along and across the Canada-U.S. border. Through archival research and interviews with water managers, the authors explored shifting scales of water governance. Initial results were presented at the Congress of the Humanities and Social Sciences conference (London ON) in June 2005.

As part of this project, the authors also produced an annotated bibliography on transboundary groundwater governance between Canada and the US, which explains the key stakeholders and provides brief summaries of key references. This report is available electronically through: <http://www.geog.ubc.ca/~bakker/transbiblio.pdf>

Oregon State University has also contributed significantly to the body of work on transboundary water governance through a general database called the "Transboundary Freshwater Dispute Database." The database is designed to aid in the assessment of the process of water conflict prevention and resolution.

This database is available electronically through: www.transboundarywaters.orst.edu

Methodology

The interviews targeted water managers and specialists on both sides of the Canada-U.S. border. The interviewees represented various levels of government and nongovernmental affiliation including local, state / provincial, federal and tribal, as well as citizen and non-profit groups. The interviews focused on people either directly or indirectly involved in transboundary water management. The indirect involvement constituted water managers involved in water sources that crossed a border, but the manager's jurisdiction did not necessarily involve cross-border management. The interviews were conducted either by phone or in-person. In total, 22 interviews were conducted.

Each interviewee received a letter explaining the project and a consent form, which was signed prior to the interview. The project went through a rigorous ethics review process, which was approved by the University of British Columbia's Behavioural Research Ethics Board on April 18, 2005.

The tables were created through an extensive review of transboundary treaties, and informal and formal agreements. The information was collected by reviewing agency materials, public domain documents and through interviews. As far as we know, there no other comprehensive tables exist that focus on water governance between Canada and the U.S. The tables underwent peer review from actors involved in transboundary water governance. The current tables reflect their comments and suggestions.

Appendix C: Interview List
 23 Interviews total
 From British Columbia, Washington, Alberta, and Montana
 Conducted May-August 2005

<u>Federal</u>	<u>State/ Provincial</u>	<u>Local</u>	<u>Tribal</u>	<u>ENGO</u>
Environmental Protection Agency - Seattle	Washington Department of Ecology (2)	City Water Manager - WA	Tribal Water Manager (2)	Marine Focused ENGO -WA
Environment Canada- Vancouver (3)	Ministry of Environment (3)	Greater Vancouver Regional District		Marine Focused ENGO - BC (2)
Environment Canada - Calgary (2)	Alberta Environment (2)			
U.S. Geological Survey	Montana Natural Resources and Conservation (2)			

IJC (3)*

*IJC members were also members of various government agencies. So, they were not included in count so not to double-report.

APPENDIX D: CANADA-US TRANSBOUNDARY WATER GOVERNANCE COOPERATION MECHANISMS

Table 1: General

These tables represent the range of Canada-United States transboundary governance mechanisms that span the entire (majority of) the border at federal, state-provincial and local levels. Mechanism type has been categorised according to treaty, memoranda of understanding (MOU), agreement (MOA) or cooperation (MOC), exchange of notes or other directives. Stakeholders refer to the organisation represented by members of the board, signatories or those otherwise mentioned within the text of the agreement or mandate.

TITLE	MECHANISM TYPE	DATE	CURRENTLY ACTIVE?	GEOGRAPHIC SCOPE	MANAGING AUTHORITY	STAKEHOLDERS	PURPOSE	SOURCE
Boundary Waters Treaty Treaty Between the United States and Great Britain relating to Boundary Waters and Questions Arising Between the United States and Canada	treaty	1909	yes Note: some articles amended. E.g. Paragraph 3-5 of Article V, under the Niagara R. Treaty (Bruce et al, 2003)	Applies to all transboundary water issues between [UK on behalf of] Canada and the United States with particular focus on water flows/river basins: - Niagara Falls, - Lake Erie, -St Mary-Milk River and relevant catchment areas of - Montana, - Alberta, - Saskatchewan. Note: does NOT include tributaries (hence not explicitly including the Columbia River Basin (Banks, 1996)	Federal governments of Canada and United States	Departments involved: Canada Department of Foreign Affairs & International Trade, Environment Canada, Health Canada, Industry Canada, Fisheries and Oceans, Canada Indian and Northern Affairs (DFAIT, 2002) USA relies upon 5 to 6 federal agencies, particularly the U.S. Army Corps of Engineers (Institute of the Environment (2002)	- Recognise the mutual and conflicting interests with regard to water sources crossing the United-States Canadian border - Provide a long term and strategic (as opposed to ad-hoc) framework for managing water issues along the 8 800 kilometres of US-Canadian border, through the establishment of the International Joint Commission. - 'prevent uses, obstructions or diversions that materially affect the level or flow of boundary waters [including pollution] between the United States and Canada, unless permitted by special agreement or approved by the International Joint Commission' (DFAIT, 2002) - Quantifies distribution rights of water across the boundary, especially with respect to Niagara, St Mary and Milk Rivers (NACSE, 2004) - Implemented through Canada's <i>Boundary Waters Treaty Act</i> .	Banks (1996) Bruce et al (2003) Department of Foreign Affairs and International Trade (2002) Institute of the Environment (2002) NACSE - Northwest Alliance For Computational Science And Engineering (2004)
International Joint Commission (hereafter, IJC)	management body	1912	yes	Applies to all transboundary water issues	3 members appointed by government	Those affected by any transboundary waters between	- Pursues objectives outlined in the Boundary Waters Treaty 1909 (International Joint Commission, 2004)	Allee, D. J. (1993)

				<p>between Canada and the United States</p> <p>Tends to focus on the Great Lakes Region</p>	<p>of Canada; 3 members appointed by government of the United States</p> <p>'work in partnership with provincial, state, First Nations, tribes and municipal governments'</p>	<p>Canada and the United States.</p>	<ul style="list-style-type: none"> - leader and mediator in issues raised regarding the shared waters of Canada and the United States - establishes supervisory and research boards, directs task forces, mediates and assists in negotiations regarding shared waters (International Joint Commission, 2004) (Morse, 1972) - 'quasi-judicial' role (Dworsky et al., 1974) - a place for federal governments to turn after a conflict has been reduced to a technical issue' (Allee, 1993) - focus on the Great Lakes and more recently the Columbia River Basin; managing concerns over water quantity distribution, hydroelectric power and water pollution/quality. (International Joint Commission, 2004) - limited means of adjudicating breaches of agreement, 'to adjudicate claims brought by one party based upon alleged injury by the other party' (Morse, 1972) 	<p>Dworsky, I. B., Francis, G. R. & Swezey, C. F. (1974)</p> <p>International Joint Commission (2004)</p> <p>Morse, A. (1972)</p> <p>See also International Joint Commission, <http://www.ijc.org/php/publications/html/21ste.htm></p>
<p>Exchange of notes concerning the Establishment of a Joint Marine Pollution Contingency plan for spills of oil and other noxious substances</p>	<p>Exchange of notes</p> <p>MOU (1985)</p>	<p>1974, amended 1977, 1982, 1986</p>	<p>yes</p>		<p>Federal governments of Canada and the United States</p>	<p>Canada Fisheries and Oceans Canada Ministry of Transport Canadian Coast Guard, Maritimes Region</p> <p>USA US Coast Guard, First District</p>	<ul style="list-style-type: none"> - 'to coordinate international response to discharges of pollutants in the contiguous waters of Canada and the United States' (Reid, 2002) - 'for spills of oil and other noxious substances' (DFAIT, 2002) -for emergency preparedness and response to hazardous material accidents and emergencies along the inland boundary (Christich, 1997) <p>derived from Article 10 of the International Convention for Oil Pollution Prevention, Response and Cooperation, 1990, the Agreement</p>	<p>Banks (1996)</p> <p>Christich, P. (1997)</p> <p>Department of Foreign Affairs and International Trade (2002, 2004)</p> <p>Pederson, J. & Vanderzwaag, D. (1997)</p>

							<p>between the Government of Canada and the Government of the United States of America on Cooperation in Marine Pollution Preparedness and Response, and Annex 9 of the Great Lakes Water Quality Agreement (Reid, 2002)</p> <p>'established working arrangements, referred to as CANUSLANT, for responding jointly to pollution incidents in the Gulf of Maine region.' (Pederson& VanderZwaag, 1997)</p> <p>Annex (1977) includes the Arctic Circle waters (Beaufort Sea)</p>	Reid, S. (2002)
Joint Inland Pollution Contingency Plan plus 5 regional annexes	management plan	1994	yes	<p>Canada Annex I: Yukon, BC Annex II: Alberta, Saskatchewan, Manitoba Annex III: Ontario Annex IV: Quebec Annex V: New Brunswick</p> <p>USA Annex I: Washington, Idaho, Montana, and Alaska Annex II: Minnesota, Montana, North Dakota Annex III: NY, Minnesota Annex IV: New Hampshire, Vermont, Maine, and New York Annex V: Maine</p> <p>Excludes coastal transboundary waters (as covered by the Marine Contingency Plan)</p>	Federal governments of Canada and the United States	<p>Canada Environment Canada USA US-Environmental Protection Authority</p> <p>Provisions for tribes/first nations</p>	<p>- 'Cooperative mechanism for preparedness for and response to accidental and unauthorized spills and releases of pollutants that cause or may cause damage to the environment along the shared inland boundaries' (Environment Canada and US Environmental Protection Agency, 1994)</p> <p>- requirements for federal, state/provincial, local and non-govt cooperation</p> <p>- complements joint marine pollution plan (Environment Canada and US Environmental Protection Agency, 1994, Christich, 1997)</p> <p>- 'provides for an <i>International Joint Advisory Team (IJAT)</i> and [5] <i>Regional Joint Response Teams (RJRTs)</i> '</p>	<p>Christich, P. (1997)</p> <p>Environment Canada & US Environmental Protection Agency (1994)</p>
North American	Multilateral	1994	yes	'shared ecosystems'	North	Canada	- 'to protect, conserve, and improve the	Commission for

<p>Agreement on Environmental Cooperation</p>	<p>treaty</p>			<p>between Canada, United States and Mexico</p>	<p>American Commission for Environmental Cooperation: represented by Environment Ministers of signatory countries (Government of Canada, 2002)</p>	<p>Environment Canada Agriculture and Agri-Food Canada, Health Canada, Indian Affairs and Northern Development, Industry Canada, Natural Resources Canada, Transport Canada (DFAIT, 2002)</p> <p>USA US Environmental Protection Authority - International Affairs Office</p>	<p>environment through increased cooperation among the three signatories (the U.S., Mexico and Canada), and through increased public participation. The three Parties each contribute U.S. \$3 million per year to the CEC' (US Environmental Protection Agency, 2004)</p> <p>- Established the <i>North American Commission for Environmental Cooperation</i> 'forum of cooperation... quasi-judicial role' (Government of Canada, 2002)</p> <p>- <i>Joint Advisory Committee</i> represented by 5 citizens from each country (Government of Canada, 2002)</p> <p>- Supported by <i>Canadian Intergovernmental Agreement regarding NAAEC</i></p> <p>- Expanding a <i>Draft North American Transboundary Agreement on Environmental Impact Assessment; Memorandum of understanding</i> between CEC and departments of business/industry</p> <p>For text, see http://cec.org/infobases/law/ For review, see <http://www.cec.org/pubs_info_resources/law_treat_agree/cfp3.cfm?varlan=english></p>	<p>Environmental Cooperation (2001)</p> <p>Department of Foreign Affairs and International Trade(DFAIT 2002)</p> <p>Koenig(2004)</p> <p>Hamilton(1997)</p> <p>Government of Canada (2004)</p> <p>North American Agreement On Environmental Cooperation Canadian Office (NAAEC 2002)</p> <p>Sice Foreign Trade Information System (2004)</p> <p>US Environmental Protection Agency (2004)</p>
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Table 2: Pacific Region: British Columbia, Yukon, Washington, Alaska

These tables represent the range of Canada-United States transboundary governance mechanisms across North America’s west coast (Washington, Alaska, British Columbia and the Yukon) at federal, state-provincial and local levels. It is sub-categorised according to major watersheds (general BC-Washington, Georgia Strait-Puget Sound, Skagit-Flathead Rivers, Yukon River) and is ordered by date of conception. It contains information on the form and objectives of the agreement, scope of enforcement and management, and relevant stakeholders. The mechanism type is categorised according to treaty, memoranda of understanding (MOU), agreement (MOA) or cooperation (MOC), exchange of notes or other directives. Stakeholders refer to the organisation represented by members of the board, signatories or those otherwise mentioned within the text of the agreement or mandate.

General: British Columbia - Washington

TITLE	MECHANISM TYPE	DATE	CURRENTLY ACTIVE?	GEOGRAPHIC SCOPE	MANAGING AUTHORITY	STAKEHOLDERS	PURPOSE	SOURCE
<p>Environmental Cooperation Agreement between the Province of British Columbia and the State of Washington</p> <p>Environmental Cooperation Council</p>	State-provincial agreement, Non-binding	1992, 1996	yes	<p>Georgia-Strait/Puget Sound and Puget Sound Basin and Fraser Basin</p> <p>Taskforces focus on:</p> <ul style="list-style-type: none"> • Abbotsford-Sumas Aquifer • Flooding of the Nooksack River • Air Quality in the Lower Fraser Valley/Pacific Northwest Airshed • Shared Waters of the Georgia Strait and Puget Sound • Air and Water Quality Issues in the Columbia River Basin 	Governments of the Province of British Columbia and Washington State	<p>Members represent:</p> <p>Canada Ministry of Environment, Lands and Parks - especially the Kootenay Region Environment Canada (observer) Fisheries and Oceans Canada USA Washington State Department of Ecology. U.S. Environmental Protection Agency (observer)</p>	<p>- “mandated coordinated action and information sharing between the State of Washington and the Province of British Columbia” (ECA 1992) dispute resolution mechanisms separate from the IJC</p> <p>- ‘action and information sharing’ ‘it can establish subcommittees to deal with specific matters or, by formal agreement, establish international task forces to address issues of special or major significance’ (Day et al., 1997)</p> <p>- covers previous MOU regarding air and water quality</p> <p>- established <i>Economic Cooperation Council</i> established <i>BC/WA Environmental Initiative</i>, with associated taskforces</p>	<p>Day, J. C., Boudrea, K. M. & Hackett N. C. (1997)</p> <p>BC Ministry of Environment and WA Department of Ecology (1996)</p> <p>Puget Sound Action Team (2000)</p> <p>Environmental Cooperation Council (ECC) (2001)</p>
Memorandum of Understanding of	State-provincial Non	2001, 2003	yes	Within 100 km of the BC - WA border	Canada Province of	Ministry of Environment,	<p>- Facilitate information sharing</p> <p>- And notification and information</p>	BC Environmental

Environmental Assessment between Washington Department of Ecology and British Columbia Environmental Assessment Office	binding MOU (extension of 1992 ECA)			between the two jurisdictions (BC) or within the following Washington counties: Clallam, Jefferson, San Juan, Island, Whatcom, Skagit, Chelan, Okanogan, Ferry, Stevens, Pend Orielle	British Columbia USA Washington State	Environmental Assessment office, and WA Department of Ecology	exchange on major projects within jurisdiction	Assessment Office (2004)
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Columbia River Watershed: Including The Columbia, Kootenay/ Kootenai, Okanagan Rivers, and Pend d'Oreille

TITLE	MECHANISM TYPE	DATE	CURRENTLY ACTIVE?	GEOGRAPHIC SCOPE	MANAGING AUTHORITY	STAKEHOLDERS	PURPOSE	SOURCE
Boundary Waters Treaty	See General section							
Kootenay Lake Order	IJC Order	1938	yes	Corra Linn Dam (Granite, BC) Grohman Narrows	IJC (via International Kootenay Lake Board of Control)	West Kootenay Power and Light Company (now Fortis BC) and BC Hydro State of Idaho	- Established <i>International Kootenay Lake Board of Control</i> -Set guidelines of operation	International Joint Commission (IJC 1938, 2003)
International Columbia River Board of Control (Board)	IJC Order	1941	yes	Columbia River Basin*	- Federal governments of Canada United States	Environment Canada and the U.S. Geological Survey	- "Established by Order of the IJC to ensure the implementation of the provisions of that Order—which granted approval for the United States to construct and operate the Grand Coulee dam and reservoir (Frankin D. Roosevelt Lake)—and to continue to study the effect of the operation of the Grand Coulee dam and reservoir upon water levels at and above the international boundary." - "The Board keeps the Commission apprised of stream flow and water-level data on both sides of the international boundary and reports to the Commission each April."	International Joint Commission (IJC 2003)
Exchange of Notes constituting an agreement regarding a study	Federal exchange of Notes	1944	yes	Upper Columbia River Basin	Federal governments of Canada United States		- water quantity concern - establishes IJC study group concerned with a variety of water issues in the	Northwest alliance for computational science and

to be made by the International Joint Commission with respect to the Upper Columbia River Basin.							Columbia river system: 'supply, navigation, hydropower, flood control, irrigation, wetlands reclamation, and general fish and wildlife conservation.' (NACSE, 2004) - undertaken by the International Columbia River Permanent Engineering Board as created by the IJC(Columbia Basin Trust, 2005)	engineering (NACSE 2004) Department of Foreign Affairs and International Trade (DFAIT 2004) Columbia Basin Trust (2005).
Osoyoos Lake Order of Approval	IJC Order	1946 1982, 1985	yes	Osoyoos Lake Includes Okanagan and Similkameen Rivers, Zosel Dam Straddles BC/ WA border between Osoyoos, BC and Oroville, WA	IJC via International Osoyoos Lake Board of Control	Actual operation of the dam is conducted by the Oroville and Tonasket Irrigation District under contract to the project owner, the State of Washington Department of Ecology (WDOE)	- Water quantity regulations - issue (and remove) drought declarations to allow Washington to raise the Lake level above that for Non-drought conditions (IJC 2005)	Bruce et al (2003) International Joint Commission (IJC 2004)
Waneta Dam on the Pend d'Oreille Order of Approval	IJC Order	1952	yes	Pend d'Oreille Basin In southern British Columbia and eastern Washington			- construction and operation of the Waneta Dam and Reservoir on the Pend d'Oreille River in British Columbia by Cominco Ltd. - The Pend d'Oreille is not included in the Columbia River Treaty, but rather has its own order	International Joint Commission (IJC 2005) Muckleston, K (2005)
Duck Lake Order of Approval	IJC Order	1950, 1956, 1970	no (2003) Order was terminated since, with the operation of Libby Dam, there was no likelihood that the dykes surrounding Duck Lake	Duck Lake (Kootenay River)	IJC (via Kootenay Lake Board of Control)	Creston Valley Reclamation Company Limited Duck Lake Dyking District Creston Valley Wildlife Management Authority	- regarding dyke management, reclamation of region around Duck Lake, and the management of water levels within Duck Lake	International Joint Commission (IJC 2003)

			would ever raise water levels upstream in Idaho					
<p>Columbia River Treaty The Treaty between Canada and the United States of America Relating to Cooperative Development of the Water Resources of the Columbia River Basin</p>	<p>Bilateral treaty at Federal level</p>	<p>1961, ratified 1964</p>	<p>yes (may not be terminated before Sept 2024) (Bruce et al, 2003)</p>	<p>Affects the region of the Columbia River Basin and Kootenay/Kootenai basins</p>	<p>Federal governments of Canada United States</p>	<p>Canada BC Hydro Columbia River Inter-Tribal Fisheries Commission are affected, working towards being given participation DFAIT Includes Mica, Keenleyside and Duncan dams USA Bonneville Power Administration U.S. Army Corps of Engineers (Pacific Northwest Division) Department of State Covering 24 dams (NACSE, 2004, Columbia Basin Trust, 2005, Goldschmid, 2004)</p> <p>Note: The Treaty does Not deal with the tributaries of the Columbia River Basin. This shortcoming has been corrected to some extent by more recent instruments... The Treaty does Not mention the Okanagan River. (Bruce et al, 2003)</p>	<ul style="list-style-type: none"> - "Allows for the construction of three storage dams in the Canadian portion of the Columbia River Basin (Duncan, Mica and Hugh Keenleyside) and permitted the United States to construct Libby Dam" (NACEC 2005) - allotted 'equal share of benefits from power generation' (NACSE, 2004) - addresses flooding problems and power shortages following WWII(Columbia Basin Trust, Accessed 2005) - 'Canadian Entitlement of Downstream Benefits' - 'defines Canada's entitlements and obligations in terms of flood control and power' (Bankes, 1996)- used in construction of dam- sold to US utilities - returns for BC - 'cost-benefit sharing' (Bruce et al, 2003) - diversions permitted conditionally on maintaining specified minimum flow - dam construction provisions stream flow provisions - flood management - established <i>Permanent Engineering Board</i> responsible for dispute resolution - 'the CRT does Not require Canada to operate Treaty facilities to maximize or enhance fish values' (Bankes, 1996) re-evaluates article II of Boundary Waters Treaty - supplemented by US Pacific Northwest 	<p>Department of Foreign Affairs and International Trade (DFAIT 2002, 2004)</p> <p>Northwest alliance for computational science and engineering (NACSE 2004)</p> <p>Bankes, N. (1996)</p> <p>Bruce, et al (2003)</p> <p>Columbia Rivers Trust (2004)</p> <p>Goldschmidt, R. (2001)</p> <p>Muckleston, K. (2005)</p> <p>Northwest alliance for computational science and engineering (NACSE 2004)</p>

							Coordination Agreement; Canadian Entitlement Allocation Agreements	
Exchange of Notes regarding sale of /authorising purchase of Canada's entitlement to downstream benefits under the treaty relating to co-operative development of the water resources of the Columbia River Basin	Bilateral Exchange of Notes	1964	yes	Columbia River Basin	Federal governments of Canada United States	Canada BC Hydro and Power Authority USA Bonneville Power Administration, Department of the Interior Division Engineer, North Pacific Division, Corps of Engineers, Department of the Army	- allots water flow and respective 'lost downstream power' between Canada and the USA (NACSE, 2004)	Northwest alliance for computational science and engineering (NACSE 2004) Department of Foreign Affairs and International Trade - Treaty Section (DFAIT 2004)
Exchange of Notes ... relating to the establishment of directions to be followed by the permanent engineering board established under article XV of the Columbia River Treaty in relation to its administration and procedures	Joint mgmt Bilateral Exchange of Notes	1965		All regions within the Columbia River Treaty	Federal governments of Canada United States		- establishes Columbia River Treaty Permanent Engineering Board - Monitoring role with respect to the <i>Columbia River Treaty</i> (NACSE, 2004)	Northwest alliance for computational science and engineering (NACSE 2004) Department of Foreign Affairs and International Trade - Treaty Section (DFAIT 2004)
Exchange of Notes concerning a Special operating programme for the Duncan and Arrow storages on the Columbia River System	Bilateral Exchange of Notes	1967, 1968	no	Arrow Lakes, Duncan Lake (Columbia River Basin)	Federal governments of Canada United States	Canada BC Hydro and Power Authority USA Bonneville Power Administration	- Modifies Columbia River Treaty Article 2 - With regard to flood control and water levels	Northwest alliance for computational science and engineering (NACSE 2004) Department of Foreign Affairs and International Trade - Treaty Section (DFAIT

								2004)
Non-Treaty Storage Agreements (NTSA)	MOA	1984, 1990, 1995	yes	Columbia River Basin	Federal and Provincial - U.S Federal government through the Bonneville Power Administration and Provincial through BC Hydro	Canada BC Hydro and Power Authority USA Bonneville Power Administration	- "Relating to: Use of Columbia River Non-Treaty Storage; Mica and Arrow Reservoir Refill Enhancement; Initial Filling of Non-Treaty Reservoirs" (Bankes, 1996: 73) -Allocated active storage volumes for the Mica Dam (Bankes, 1996) -Storage for hydroelectric purposes for releases of water for fish and power (as required by Endangered Species Act) (BPA 1996: 5)	Bankes, n. (1996) Bonneville power association. (aug ust 1996)
British Columbia and Washington Osoyoos Lake Memorandum of Understanding	State-provincial MOU	1987	no (actual MOU has expired but operations continue)	Osoyoos Lake - on the border between BC and WA, near Oroville, WA and Osoyoos, BC	Provincial - State	Province of BC and State of Washington	- Maintain Water Quality standard and to operate Osoyoos Lake to the mutual benefit of the entities.	Northwest alliance for computational science and engineering (NACSE 2005) International Joint Commission (2004)
Lake Roosevelt Water Quality Council	state/province MOU	1990, 1997	yes: As of (February 1997) it is under the umbrella of the Lake Roosevelt Forum	Lake Roosevelt	British Columbia; Washington	Canadian Feds; U.S. EPA; Citizens for Clear Columbia (NGO)	- "To allow multistakeholder involvement and communication regarding water quality of Lake Roosevelt. Air quality issues are also discussed"	Northwest alliance for computational science and engineering (NACSE 2005)
Columbia River Basin International Task Force	State-provincial agreement, Non-binding (Under ECC)	1996	yes	Columbia River Basin	Governments of the Province of British Columbia and Washington State		"The Columbia River Basin has been the site of industrial and hydroelectric activity for over 100 years. The Task Force's role has been to integrate monitoring activities between jurisdictions and to facilitate communication about air and water quality issues impacting the basin."	BC WA Environmental Cooperation Council (2005)
Lake Roosevelt-Columbia River and Tributary	Interagency MOU	1996	yes	Columbia River and Tributary Systems to the Columbia that	Provincial/State WA	Canada BC Ministry of Environment, Lands	- 'delineates cooperation and coordination on water quality discharges and large consumptive use withdrawals above 10	Washington state Department of

Systems Agreement				affect both BC and WA	Department of Ecology and BC Ministry of Environment, Lands and Parks	and Parks, Kootenay region USA Washington Department of Ecology: Kootenai Region of the Ministry of Lands and Parks	cubic feet per second... that affect both Washington and Canada.” - (Washington State Department of Ecology, 2002) Cascade Power Project Columbia R/Lake Roosevelt Water Quality Council	Ecology (2002) Washington State Department of Ecology and British Columbia Ministry of Environment (2005)
The Columbia River Transboundary Gas Group	Interagency, Informal Information Sharing	1998	yes	Upper Columbia River Basin	Federal, British Columbia, and Washington State governments through the Environmental Cooperation Council	US EPA, Environment Canada, BC Ministry of Environment, BC Hydro, Columbia Power Corp., Cominco Ltd. Fortis BCs, AVISTA, Idaho and Oregon Dept. of Environmental Quality, Washington Department of Ecology, US Bureau of Reclamation, US Army Corps of Engineers, Bonneville Power Admin., Bonneville Power Admin., US National Marine Fisheries, Chelan and Grant County PUD, Seattle City Light, NW Power & Conservation Council, Battelle Pacific Northwest Division, Colville Confederated Tribes, Spokane Tribe of Indians;	- ‘to facilitate the co-operative efforts of the United States and Canada to reduce the amount of dissolved gas in the Basin.’ - Organized topical groups to address gas problems in the transboundary Basin. - Found that the only Treaty that has significant impact of the implementation of gas abatement is the Columbia River Treaty	Goldschmid, R. (2001) US Department of Interior Bureau of Reclamation (2000)

* The Columbia River rises in British Columbia on the western slope of the Rocky Mountains, and after flowing approximately 459 miles through British Columbia crosses the international boundary into the State of Washington, and after a further course of approximately 740 miles discharges into the Pacific Ocean near Astoria, Oregon (IJC 2003c)

Georgia Strait - Puget Sound and Surrounding Basins

TITLE	MECHANISM TYPE	DATE	CURRENTLY ACTIVE?	GEOGRAPHIC SCOPE	MANAGING AUTHORITY	STAKEHOLDERS	PURPOSE	SOURCE
Oil Spill Memorandum of Cooperation	State/provincial MOC	1989, 2001	yes	Marine waters of the Pacific coast	Canada British Columbia USA Alaska, Washington, Oregon, and California Hawaii	'The members of the Pacific States/British Columbia Oil Spill Task Force will be the British Columbia Deputy Minister for Water, Land, and Air Protection, the Commissioner of the Alaska Department of Environmental Conservation, the Administrator of the California Office of Spill Prevention and Response, the Hawaii Deputy Director for Environmental Health, the Director of the Oregon Department of Environmental Quality, and the Director of the Washington Department of Ecology' (Pacific States-BC Oil Spill Task Force, 2003)	<ul style="list-style-type: none"> - establishes <i>Pacific States - British Columbia Oil Spill Task Force</i> - 'coordinating a joint response to a marine oil spill on the Pacific coast' (Pacific States-BC Oil Spill Task Force, 2003)-to reduce the potential for major oil spills through development of a joint emergency response plan, technology sharing, joint - exercises and training, and committee reviews of prevention and response procedures' 	<p>Pacific States British Columbia Oil Spill Task Force (2003).</p> <p>Oil Memorandum of Cooperation (1989)</p>
Marine Spill Prevention Cooperative Agreement	State/provincial agreement	1995	yes	Marine waters of the Pacific coast	Province of British Columbia Washington State	Canada Ministry of Environment, Land and Parks USA Office of Marine Safety	- 'the parties agree to cooperate in establishing the best achievable protection measures to reduce the risk of spills, and agree on the necessity for tank vessel spill prevention plans and to share information about these plans. The parties also agree to foster consistent initiatives and messages when working with the public, the marine industry, and federal agencies that may also have a vested interest in marine oil spill prevention.'	BC Ministry of Environment (1995)

Abbotsford-Sumas Aquifer International Task Force	State-provincial agreement, Non-binding (Under ECC)	1996	yes	Groundwater spanning BC - WA border in Abbotsford, Sumas, and Lynden areas	Governments of the Province of British Columbia and Washington State	<p>Canada Agriculture and Agri-Food Canada; Environment Canada; Health Canada; Ministry of Agriculture, Fisheries, & Food; BC Environment; Ministry of Health Sto:Lo Nation City of Abbotsford; Central Fraser Valley Regional District Project Enviro-Health USA U.S. Environmental Protection Agency; U.S. Natural Resources Conservation Service; U.S. Geological Survey; WA Department of Agriculture; WA Department of Ecology; WA Department of Health; WSU Cooperative Extension Nooksack Indian Nation; Lummi Indian Nation City of Sumas; Whatcom County</p>	<ul style="list-style-type: none"> - coordinate efforts directed towards protecting the aquifer across the common border between Canada and the United States - establish managerial approaches, develop aquifer management strategies, and facilitate coordinated mechanisms to educate and involve the public in protecting the Aquifer's water quality and water resource value (ASAITF 2005) 	Abbotsford-Sumas Aquifer International Task Force (ASAITF 2005)
Flooding of Nooksack River International Task Force	State-provincial agreement, Non-binding (Under ECC)	1996	yes	Nooksack River Floodwaters and surrounding floodwaters (near Abbotsford, BC and Everson, WA)	BC and Washington governments via Environmental Cooperation Council	<p>Canada Ministry of Water, Land and Air Protection Environment Canada City of Abbotsford Sto:Lo Nation USA Whatcom County Washington</p>	<ul style="list-style-type: none"> - established to address concerns about flood damage in both BC and Washington from the Nooksack River in Northern Washington. - recommends actions to reduce flood damage and improve preparedness. 	BC WA Environmental Cooperation Council (2005)

						Department of Ecology, USGS Nooksack Indian Nation; Lummi Indian Nation		
Puget Sound/Georgia Basin International Task Force	State-provincial agreement, Non-binding (Under ECC)	1996	yes	Georgia Strait-Puget Sound	BC and Washington governments via Environmental Cooperation Council	Canada Fisheries and Oceans Canada, Environment Canada, BC Ministry of Water, Land and Air Protection Northwest Straits Commission, Coast Salish Sea Council USA US Environmental Protection Agency, US Fish and Wildlife Service, Northwest Fisheries Science Center, Washington Department of Ecology, Washington Department of Natural Resources, Washington Department of Fish and Wildlife, Puget Sound Action Team Northwest Indian Fisheries Commission	<ul style="list-style-type: none"> - following <i>Environmental Cooperation Agreement</i> 1992 - <i>Puget Sound/Georgia Basin Research Conference</i> 2005 - ' High priority recommendations Protect Marine Life - Establish Marine Protected Areas - Prevent Nearshore Habitat Loss - Prevent Introduction of Non-indigenous Species - Medium priority recommendations Control Toxic Waste Discharges Coordinate Research & Monitoring Undertake Strategic Planning Prevent Large Oil Spills Prevent Major Freshwater Diversions - Low priority recommendations - Ensure the Freedom of Scientific Information Increase Communications Across Border Comprehensive Program Audit' 	<p>Puget Sound Action Team (2000)</p> <p>Puget Sound/ Georgia Strait International Task Force, (2000)</p>
Memorandum of Agreement Related to Referral of Water Rights	Non-binding state-provincial MOA (Appendix to 1996 BC-WA)	1996	yes (Needs Renewal Every Three Years)	Any transboundary issues that affect water 'on the other side of the border'	Governments of the Province of British Columbia and	Canada British Columbia Ministry of Environment, Land and Water	<ul style="list-style-type: none"> - Share information - Consultation on water distribution issues - Allocate roles and responsibilities 	British Columbia Department of Environment Land and Water & Washington

<p>Applications</p> <p><i>(Abbotsford-Sumas Aquifer Agreement)</i></p>	MOU)			Groundwater spanning BC - WA border in Abbotsford, Sumas, and Lynden areas	Washington State BC Ministry of Environment and WA Dept of Ecology through the Abbotsford-Sumas Aquifer International Task Force	USA Washington State Department of Ecology	<p>between state-provincial governments- Focus on Sumas-Abbotsford aquifer (British Columbia Department of Environment Land and Water and Washington State Department of Ecology, 1996)</p> <p>- Primary focus is water quality issues within aquifer - particularly reduction of nitrates (Washington State Department of Ecology , 2002)</p>	<p>State Department of Ecology (1996, 2004).</p> <p>Washington State Department of Ecology (2002).</p> <p>Northwest alliance for computational science and engineering (NACSE 2005)</p>
Mutual Aid Agreement	State/provincial	1996 (follows Mutual Aid Plan 1993)	yes	Marine waters of the Pacific coast	Pacific States/BC Oil Spill Task Force	Canada Province of British Columbia USA State of Washington State of Alaska State of California	- outlines procedure in the incidence of oil spills	Pacific States British Columbia Oil Spill Task Force (2003).
EC-EPA Joint Statement of Cooperation on the Georgia Basin and Puget Sound Ecosystem	Multi-level statement	2000	yes	Georgia Strait-Puget Sound	Environment Canada, US Environmental Protection Agency	<p>Canada</p> <ul style="list-style-type: none"> - Environment Canada (signatory) - British Columbia Ministry of Land Air and Water Protection, First Nations <p>USA</p> <ul style="list-style-type: none"> - US Environmental Protection Agency (signatory) - Washington State Department of Ecology - Local government, universities/colleges (Transboundary Georgia Basin-Puget Sound Environmental 	<p>- Agreement for cooperative efforts towards ecological sustainability, recognising the multiple uses and claims to the GBPS region, including those of Aboriginal peoples</p> <p>- Focus on work at 'community level', 'involve residents'</p> <p>- Integrating EC-EPA working group; annual action plans</p> <p>- <i>Future of the Basin Conference</i> for annual review (Minister for Environment Canada and Administrator for the US Environmental Protection Agency, 2000)</p>	<p>Transboundary Georgia Basin - Puget Sound Environmental Indicators Working Group (2002)</p> <p>Minster for Environment Canada & Administrator for the US Environmental Protection Agency (2000)</p>

						Indicators Working Group, 2002)	
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Skagit River, Flathead River

TITLE	MECHANISM TYPE	DATE	CURRENTLY ACTIVE?	GEOGRAPHIC SCOPE	MANAGING AUTHORITY	STAKEHOLDERS	PURPOSE	SOURCE
Canada-United States Skagit River Treaty Treaty between the United States of America and Canada relating to the Skagit River and Ross Lake, and the Seven Mile Reservoir on the Pend D'Oreille River	Bilateral treaty at a federal level	1984	yes	Affects the region of Skagit, Pend D'Oreille basin (NACSE, 2004) Note: Pend D'Oreille/Seven Mile is Not included within the Columbia River Treaty	Federal governments of Canada and United States	Signatories include: Canada: Province of British Columbia USA: City of Seattle	- Following concerns that raising water levels in the High Ross Dam to meet Seattle's increased power demand would flood valuable land areas in British Columbia, the IJC facilitated the negotiation of this treaty. - British Columbia will provide electrical power to Seattle equivalent to what they would have gained in constructing the dam. (LEXUM 1999) - 'If British Columbia discontinues the provision of electricity to Seattle, Seattle can then raise the water level behind Ross Dam to 1725 feet in compensation.' (NACSE 2004) - Treaty allows Canada (BC Hydro) to raise the water on the Pend d'Oreille behind Sevenmile Dam back to Boundary Dam such that the head on Boundary Dam is reduced	LEXUM (1999) NACSE (2004) Department of Foreign Affairs and International Trade - Treaty Section (DFAIT 2004)

Yukon River

TITLE	MECHANISM TYPE	DATE	CURRENTLY ACTIVE?	GEOGRAPHIC SCOPE	MANAGING AUTHORITY	STAKEHOLDERS	PURPOSE	SOURCE
Yukon Water Act	Unilateral act	1992	no (2002)		Federal government of Canada (Yukon Territory Water Board)		- water management	Bruce et al (2003)
US-Canada Pacific - Salmon Treaty (PST)	Bilateral treaty at a federal level	Re-placed 1985	yes	Includes Fraser River, Yukon River and other transboundary	Federal government of Canada		- recognises interconnection of Canadian and US sections of fishery areas and transboundary rivers (Internet Guide to	Bruce et al (2003)

Yukon River (Salmon) Treaty		treaty Up-dated 1999 (MOU) Annex 2001 (Agreement)		waters: Alsek, Stikine and Taku River systems	and USA		Fisheries Law 2005) - obligations and goals to protect migratory salmon and their habitats in, e.g., Alaska-British Columbia region. (Christich) - works towards habitat restoration - establishes bilateral <i>Yukon River Panel, Pacific Fisheries Commission</i>	Christich (1997) Internet Guide to Fisheries Law (2005)
Yukon River Inter-Tribal Watershed Accord	accord	2001	yes	Yukon River watershed		'indigenous grass roots organisation'; '40+ First Nations and Tribes' Canada First Nations communities from the Yukon territory USA US Tribes from Alaskan partnership with Environment Canada	- established <i>Yukon River Inter-tribal Watershed Council</i> ; bi-annual summits - concerned with 'toxic and solid wastes, chemicals, sewage and other forms of pollution'	Yukon River Inter-Tribal Watershed Council

Table 3: Western Montane Region: Montana, Idaho, Eastern Washington, Alberta, Saskatchewan

These tables represent the range of Canada-United States transboundary governance mechanisms across the region of Montana, Idaho, Saskatchewan and Alberta at federal, state-provincial and local levels. It is sub-categorised according to major watersheds (St. Mary, Milk, Flathead, and Other) and is ordered by date of conception. It contains information on the form and objectives of the agreement, scope of enforcement and management, and relevant stakeholders. Mechanism type is categorised according to treaty, memoranda of understanding (MOU), agreement (MOA) or cooperation (MOC), exchange of notes or other directives. Stakeholders refer to the organisation represented by members of the board, signatories or those otherwise mentioned within the text of the agreement or mandate.

St Mary, Milk Rivers

TITLE	MECHANISM TYPE	DATE	CURRENTLY ACTIVE?	GEOGRAPHIC SCOPE	MANAGING AUTHORITY	STAKEHOLDERS	PURPOSE	SOURCE
Boundary Waters Treaty Article VI	Federal treaty	1909	yes	'St. Mary and Milk Rivers and their tributaries (in the State of Montana and the Provinces of Alberta and Saskatchewan)' (IJC 2005)	IJC	Canada Alberta Saskatchewan USA State of Montana	- Diversion and reallocation of Milk and St Mary's rivers - 'the St. Mary and Milk Rivers and their tributaries... are to be treated as one stream for the purposes of irrigation and power, and the waters thereof shall be apportioned equally' (IJC 2005)	Brice et al (Eds.)(2003) International Joint Commission (2005)
IJC Order in the matter of measurement and apportionment of the waters of the St Mary and Milk Rivers and their Tributaries in Canada and the United States	IJC Order	1921	yes	St Mary River (Saskatchewan-Nelson basin) Milk River and eastern tributaries (Mississippi-Missouri basin - e.g. Frenchman River, Battle Creek and Lodge Creek) Excludes southern tributaries (Bruce et al, 2003)	IJC via Accredited Officers of St Mary - Milk Rivers (federal appointees)	Canada Alberta Saskatchewan Environment Canada USA States of Montana US Geological Survey	gives Canada prior appropriation from St Mary River - gives US prior appropriation ¹⁹ from Milk River - requires daily records of boundary flow; - established the <i>Accredited Officers of St Mary - Milk Rivers</i> to oversee the respective water apportionments (International Joint Commission, 2004; Bruce et al, 2003) - administrative procedures currently under review under the International St. Mary-Milk Rivers Administrative Measures Task Force (International Joint Commission, 2004)	Brice et al (Eds.)(2003) International Joint Commission (2004)

¹⁹ Prior appropriations are not shared equally; the water above and beyond the amount allocated by prior appropriation is shared equally.

The Milk River International Alliance	Citizen's group	1999	no			The alliance is open to anyone interested in joining, is guided by a four-member, citizens advisory council.	- Formed by a grassroots group of water users, with support from U.S. federal and Montana state agencies, to develop a framework for improving water management in the basin.	Alliance (2005)
St. Mary and Milk Administrative Task Force	IJC Task Force	2004	yes	St. Mary and Milk River in Montana and Alberta	IJC US and Canada Federal Government	Waters Users in Montana and Alberta	- Formed to review administrative procedures - "Formed to examine and report to the IJC on measures for improvements to existing administrative procedures of the St. Mary and Milk Rivers apportionment to ensure more beneficial use and optimal receipt by each country of its apportioned waters."	International Joint Commission (IJC (2005)

Flathead River

TITLE	MECHANISM TYPE	DATE	CURRENTLY ACTIVE?	GEOGRAPHIC SCOPE	MANAGING AUTHORITY	STAKEHOLDERS	PURPOSE	SOURCE
Flathead Basin Commission (FBC)*	non-regulatory commission	1983	yes	Flathead River Basin - primarily Montana-focused	State of Montana, 22 member - FBC (all members currently from Montana, except one BC government liaison)	Citizens of Flathead Basin, State of Montana	- "Seeks to encourage responsible economic development in the basin without compromising either the present high quality of the basin's waters or international cooperation and coordination between Montana and British Columbia concerning resource development activities in the North Fork of the Flathead River" (IJC 1998) - "Identifies the basin's water quality problems and work collectively to implement the most effective solutions." FBC 2005	International Joint Commission (IJC 1998) Flathead Basin Commission (2005)
Flathead River International Study Board	IJC Study Board	1985	no	Montana	IJC	Canada British Columbia USA Montana	To examine and report to the commission: a) the present state of water quality and quantity of the Flathead River at the border b) current water uses in the River basin together with their effects on present water quality and quantity c) the nature, location and significance of fisheries currently dependent of the waters and its tributaries d) effects on the present state of water	International Joint Commission (1987)

							<p>quality and quantity which would result from the construction, operation and post-mine reclamation of the proposed Cabin Creek Coal mine;</p> <p>e) effects on current water uses (including water dependent uses such as recreation</p> <p>f) effects which the construction and post-mine relocation of the proposed Cabin Creek Coal Mine would have on the habitat for fisheries in Canada in the waters of the Flathead River</p>	
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* "February 2000 - the Flathead Basin Commission invited the IJC to consider establishing an international watershed board in the Flathead basin, in part, because Flathead Basin Commission has not been able to establish an effective working relationship with the Province of British Columbia. The IJC has advised Flathead Basin Commission that the support of the British Columbia government is essential for an international watershed board."

Other, General

TITLE	MECHANISM TYPE	DATE	CURRENTLY ACTIVE?	GEOGRAPHIC SCOPE	MANAGING AUTHORITY	STAKEHOLDERS	PURPOSE	SOURCE
Crown of the Continent Manager's Partnership	Interagency Forum	2001	yes	Alberta, British Columbia and Montana	Provinces of Alberta, BC, and State of Montana	Canada Province of British Columbia USA State of Montana	<p>- "process that encourages a higher level of information sharing and cooperation among natural resource agencies"</p> <p>- "annual forum, regular committee work and a website are ways in which the CMP process is benefiting the FBC and other agencies."</p>	<p>Flathead Basin Commission (2005)</p> <p>Mistakis Institute for the Rockies (2005)</p>
Environmental Cooperation Arrangement between British Columbia and State of Montana	State-provincial agreement, non-binding	2003	yes	General statement regarding 'regional ecosystems seamless to a physical international boundary'	Canada Province of British Columbia USA State of Montana	Canada Province of British Columbia USA State of Montana	- 'undertaken to establish the British Columbia/Montana Environmental Cooperation Initiative to identify, coordinate and promote mutual efforts to ensure the protection, conservation and enhancement of our shared environment for the benefit of current and future generations.'	Province of British Columbia & State of Montana (2003)
Environmental Cooperation Arrangement between British Columbia and the State of Idaho	State-provincial agreement, non-binding	2003	yes	General statement regarding 'regional ecosystems seamless to a physical international boundary'	Canada Province of British Columbia USA State of Idaho	Canada Province of British Columbia USA State of Idaho	<p>- 'undertake to establish the British Columbia/Idaho Environmental Cooperation Initiative to identify, coordinate and promote mutual efforts to ensure the protection, conservation and enhancement of our shared environment for the benefit of current and future generations.'</p> <p>- Action plan in one year's time (Province of British Columbia and State of Idaho, 2003)</p>	Province of British Columbia & State of Idaho (2003)

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