

AN ABSTRACT OF THE DISSERTATION OF

Kimberly L. Ogren for the degree of Doctor of Philosophy in Geography presented on July 17, 2015.

Title: Water Governance Process Assessment: Evaluating the Link between Decision Making Processes and Outcomes in the Columbia River Basin

Abstract approved: _____

Aaron T. Wolf

Academics and practitioners agree that in water governance, the quality of a decision making process should influence the quality of the outcome and the degree to which it is accepted by interested parties. However, finding a feasible way to evaluate and then improve the quality of a decision making process has proven elusive. Systematically collecting evidence of a link between process and outcome is also challenging. In my dissertation, I developed a synthesis framework for evaluating and improving water governance decision making to address these two challenges. The synthesis framework, which I call the Water Governance Process Assessment (Water GPA), draws upon 22 existing frameworks rooted in resilience, adaptive governance, and good governance. From these frameworks, I identified and provided a way to evaluate four characteristics critical to good water governance decision making processes: 1) accountability, 2) inclusivity, and 3) information, and 4) context.

I applied the Water GPA framework to the recent reviews of the Columbia River Treaty by the United States and Canada. I collected data for the case studies through semi-structured interviews and surveys of process participants from the federal agencies,

Tribal and First Nations, state/provincial governments, local governments, stakeholder interests, and citizens. I coded and analyzed the interviews using the qualitative analysis software QSR NVivo and the characteristics identified in the Water GPA framework.

I used the two case study applications to demonstrate how to use the framework. I identified what aspects of the four process categories served as barriers and building blocks for good water governance in each water governance process. I also gleaned lessons learned and recommendations including some for determining process leadership, ensuring meaningful engagement and inclusivity, addressing sovereignty issues, setting decision criteria, sharing decision authority, allocating resources in future processes in the US and BC portions of the Columbia River Basin and similar basins.

In my case studies, I also investigated which characteristics of the water governance decision making process influenced the direct outcomes of those processes (the decisions) as well as other non-target outcomes (such as trust, co-produced science, new coalitions, etc.). All four characteristics outlined in the Water Governance Process Assessment (Water GPA), played some role in the development of the content and/or support of the two case study decision documents (US Regional Recommendation and BC Provincial Decision). Generally, when the characteristic of the process was done well, it improved the legitimacy and acceptance of the decision. At the same time performing poorly in one area did not necessarily torpedo the process or decision. In both case studies, it appears that the interplay between the process characteristics (that is where two or more characteristics converge) had a greater influence over the decision. Further work is needed to clearly identify what characteristics of a process are most influential in different situations. The Water GPA is one useful tool for this effort.

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Water Governance Process Assessment: Evaluating the Link between Decision Making
Processes and Outcomes in the Columbia River Basin

by
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I understand that my dissertation will become part of the permanent collection of Oregon State University libraries. My signature below authorizes release of my dissertation to any reader upon request.

Kimberly L. Ogren, Author

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1 Introduction

1.1 Improving Water Governance

Goal seven of the United Nations (UN) Millennium Development Goals seeks to ensure environmental sustainability. Target 7.C specifically seeks to “halve, by 2015, the proportion of the population without sustainable access to safe drinking water and basic sanitation” (UN World Water Assessment Programme, 2003, p. 110). While this goal was reached in 2010, 768 million people still lack access to an improved source of drinking water and due to concerns about the safety of some improved drinking water sources the number of people without access to safe drinking water may be twice that figure (World Health Organization & UNICEF, 2013). It is estimated that 2.5 billion people lack access to basic sanitation (World Health Organization & UNICEF, 2013). At the heart of these problems is not an insufficient supply of water or lack of technical solutions, but an issue, or crisis, of governance (Norman, Cohen, & Bakker, 2013; Stålgren, 2006). The UN World Water Assessment Programme (2006, p. 7) found that “the capacity of countries to provide water supply and sanitation for all...depends to a large extent on their ability to establish sound and effective governance systems.” Therefore, water governance is one way by which countries are attempting to address the global problem of lack of access to safe drinking water and basic sanitation (Mwanza, 2005; Uhlen Dahl, Salian, Casarotto, & Doetsch, 2011). Water governance is also a potential way to address environmental degradation (UN World Water Assessment Programme, 2006).

Scholars define governance as how actors choose goals and the means by which they pursue those goals (Huitema et al., 2009). It incorporates both formal and informal institutions, and therefore includes the structure, organization, laws, and regulations of a

government and the various relationships, norms, and rules present in a society (Cosens, Gunderson, & Chaffin, 2014; Huitema et al., 2009). Water governance can be defined as the “manner in which authority is acquired and exercised on behalf of the public in developing, utilizing, and protecting a nation’s water resources”(US Agency for International Development, 2009, p. 3). Water governance can be described in terms of structure (i.e., policies, laws, and organizations), functions (e.g., medium to long term planning, allocating and distributing water, monitoring and enforcing water quality, protecting ecology, and constructing/ maintaining facilities), and processes (i.e., how decisions are made) (US Agency for International Development, 2009).

In order to improve water governance, researchers have made significant efforts to identify principles of good water governance and incorporate them into water governance at the local, regional, national, and global scale (Bakker, 2002; Esty, 2006; Hearn, Paisley, & Henshaw, 2008; Lockwood, 2010; Mwanza, 2005; Rogers & Hall, 2003; Schulz, 2007). Suhardiman and Giordano (2012) suggest that moving forward researchers should consider process-focused analysis, as opposed to state-centered analysis. Process-focused analysis is simply analyzing how decisions are made and play out in implementation of the decision (Suhardiman & Giordano, 2012). This analysis may include examining how different actors and their access to resources influence the process (Suhardiman & Giordano, 2012), the scalar disconnect in transboundary water governance (Suhardiman, Giordano, & Molle, 2012), and the implications of a decision (Molle, Wester, & Hirsch, 2010). Suhardiman and Giordano (2012) reason that by analyzing water governance processes one might better understand how actors form networks and influence decisions and how certain actions result in different outcomes.

In my work, I take up Suhardiman and Giordano's (2012) recommendation that future research concentrate on process-focused analysis. In the next section of my introduction, I highlight the challenges of process-focused analysis and explore why academics and practitioners have shied away from evaluation of decision processes.

1.2 Problem Statement

If we accept that the water challenges we face today are a crisis of governance, then it makes sense to evaluate water governance in order to identify what we need to improve. A number of frameworks for evaluating water governance exist, but evaluation using these frameworks rarely occurs (Bellamy, Walker, McDonald, & Syme, 2001; Chess, 2000; Frame, Gunton, & Day, 2004). I reviewed the existing literature on water governance decision making processes and found that process-focused analysis or evaluation faces two primary challenges: 1) the need for an operationalized framework for feasible evaluation of water governance processes and 2) an understanding of what, if anything, about a decision making process contributes to a desirable outcome (i.e., does how we make decisions in water governance lead to better decisions).

In regards to the first challenge, existing frameworks are often not comprehensive, systematic, and/or fully operationalized. Based on my review of the literature, I found that for feasible and useful application by water managers, an evaluation framework must be meaningful (characteristics evaluated should have implications for the outcomes of the process), comprehensive (cover the full scope of good governance characteristics), streamlined (contained within one framework) and operationalized (explicit on what and how to measure metric(s) for each characteristic). Such a framework does not currently exist. Bellamy et al. (2001, p. 2) note that:

No clear evaluative frameworks have emerged to guide continuous program development in the way natural resource management initiatives contribute to on-going improvements in resource use sustainability and social well-being of the communities concerned.

The current evaluation and assessment frameworks tend to be either too broad and generalized or too narrow and specific. For example, some frameworks say that water governance processes should include transparency, accountability, and participation, but do not explain how to measure success in those areas (Table 1). They use vague definitions to describe desired characteristics or components of the process. While this may be part of an effort to allow organizations to tailor their process to the specific circumstances of the basin, the lack of guidance makes it difficult to determine how to evaluate a process as well as pursue a consistent approach with different evaluators. Other frameworks focus on one process characteristic (e.g., participation) and often list more specific indicators to evaluate (Table 2). However, in most cases, it is simply impractical to apply multiple different frameworks to evaluate a process.

Table 1. Broad frameworks for natural resource and water governance

Framework	Process Characteristics	
MENA Regional Water Governance Benchmarking Project (ReWaB) Concept and Approach Framework (ReWaB, 2009)	<ul style="list-style-type: none"> • Participation • Transparency • Equity 	<ul style="list-style-type: none"> • Accountability • Responsiveness • Integrative
Unifying Negotiations Framework (Daniels et al., 2012)	<ul style="list-style-type: none"> • Culture • Institutions • Agency 	<ul style="list-style-type: none"> • Actor Orientation • Incentives • Cognition
Braving the Currents Framework (d'Estree and Colby, 2004)	<ul style="list-style-type: none"> • Outcome Reached • Process Quality • Outcome Quality • Social Capital 	<ul style="list-style-type: none"> • Relationship of Parties to Outcome • Relationship Between Parties
Three Pillars and One Beam for Evaluation of River Basin Governance (Pereira and Quintana, 2009)	<ul style="list-style-type: none"> • Inclusive governance • Transparent assessment 	<ul style="list-style-type: none"> • Socially robust knowledge • Extended peer review
Co-operative Natural Resource Management Assessment Framework (Plummer and Armitage, 2007)	<ul style="list-style-type: none"> • Context • Conditions • Representation 	<ul style="list-style-type: none"> • Power • Process

Table 1 includes examples of broad frameworks for 'good' water governance that only define desired characteristics in general terms which makes application challenging.

Table 2. Examples of detailed indicators for evaluating public participation

Framework	Indicators/Metrics	
Meaningful Participation in Environmental Assessment (Stewart and Sinclair, 2007)	<ul style="list-style-type: none"> • Integrity and accountability • Influence • Fair notice and time • Inclusiveness and adequate representation • Fair and open dialogue • Multiple and appropriate methods • Adequate and accessible information • Informed participation 	
Public Participation in Scientific Research: a Framework for Deliberate Design (Shirk et al., 2012)	<ul style="list-style-type: none"> • Degree <ul style="list-style-type: none"> ○ Duration of involvement ○ Research effort ○ Numbers/diversity of participants ○ Depth/intensity of involvement ○ Power (though that's complicated) • Quality (extent to which a project's goals and activities align with, respond to, and are relevant to needs and interests of public participants) <ul style="list-style-type: none"> ○ Credibility and trust ○ Fairness ○ Responsiveness ○ Relevance • Agency 	
Public Participation Spectrum (International Association of Public Participation, 2000)	<ul style="list-style-type: none"> • Empower • Collaborate • Involve 	<ul style="list-style-type: none"> • Consult • Inform
Ladder of Citizen Participation (Arnstein, 1969)	<ul style="list-style-type: none"> • Citizen control • Delegated power • Partnership • Placation 	<ul style="list-style-type: none"> • Consultation • Informing • Therapy • Manipulation
A New Ladder of Citizen Participation (Connor, 1988)	<ul style="list-style-type: none"> • Resolution/Prevention • Litigation • Mediation • Joint Planning 	<ul style="list-style-type: none"> • Consultation • Information-Feedback • Education
Levels of Co-management (Berkes, 1994)	<ul style="list-style-type: none"> • Partnership/Community Control • Management Boards • Advisory Committees 	<ul style="list-style-type: none"> • Communication • Co-operation • Consultation • Informing

Table 2 provides a list of example frameworks for developing or evaluating participation in a water governance process. These frameworks often offer metrics for the components of participation but do not cover issues outside of participation and may be too detailed to use in conjunction with other frameworks.

The second challenge of process evaluation centers on whether or not the structure and content of a water governance decision making process are linked to particular desired outcomes. Some evidence exists supporting the idea that “good” governance processes result in “good” outcomes (Shirk et al., 2012). Other studies found

that traditionally accepted practices of good governance may not meet the intended goals of those practices or the link is unclear. Norman and Bakker (2009) and Brown (2013) both found that increased participation did not lead to greater empowerment of local actors or more equitable distribution of water. For adaptive co-management processes, Plummer and FitzGibbon (2004) note that empirical evidence pertaining to the outcomes of co-management is limited. Simply put, it is not clear which aspects of a governance process are universally required or most critical for achieving goals or water management objectives.

1.3 Research Questions and Objectives

If we see decision making processes in water governance as a potential solution to the water challenges around the world and hope to evaluate and improve those processes we need to address the two challenges I identified above. Namely, we should find a feasible way to evaluate decision making processes and work to better understand what aspects of water governance processes are most important to achieving water governance outcomes. To address those two challenges facing process-focused analysis of water governance I seek to answer four questions. My first research question is:

**What are characteristics of a “good” water governance process?
(Research Question 1)**

I address this question in **Chapter 2**, where I *developed an operationalized framework for evaluating water governance processes based on existing frameworks for water governance, public participation, and conflict management (Objective 1)*. To develop the framework I followed a multi-step approach (Figure 1). I reviewed the scholarly and grey literature in the areas of water governance, natural resource management, and

collaborative processes to identify commonly agreed upon characteristics for effective, or good, water governance processes. After identifying the most critical aspects of a good water governance decision making process, I operationalized the new synthesis framework by utilizing the same literature to determine what to consider as an indicator for each characteristic and how best to assess it. I present A more detailed explanation of the literature review approach and resulting synthesis framework, the Water Governance Process Assessment (Water-GPA) in Chapter 2.

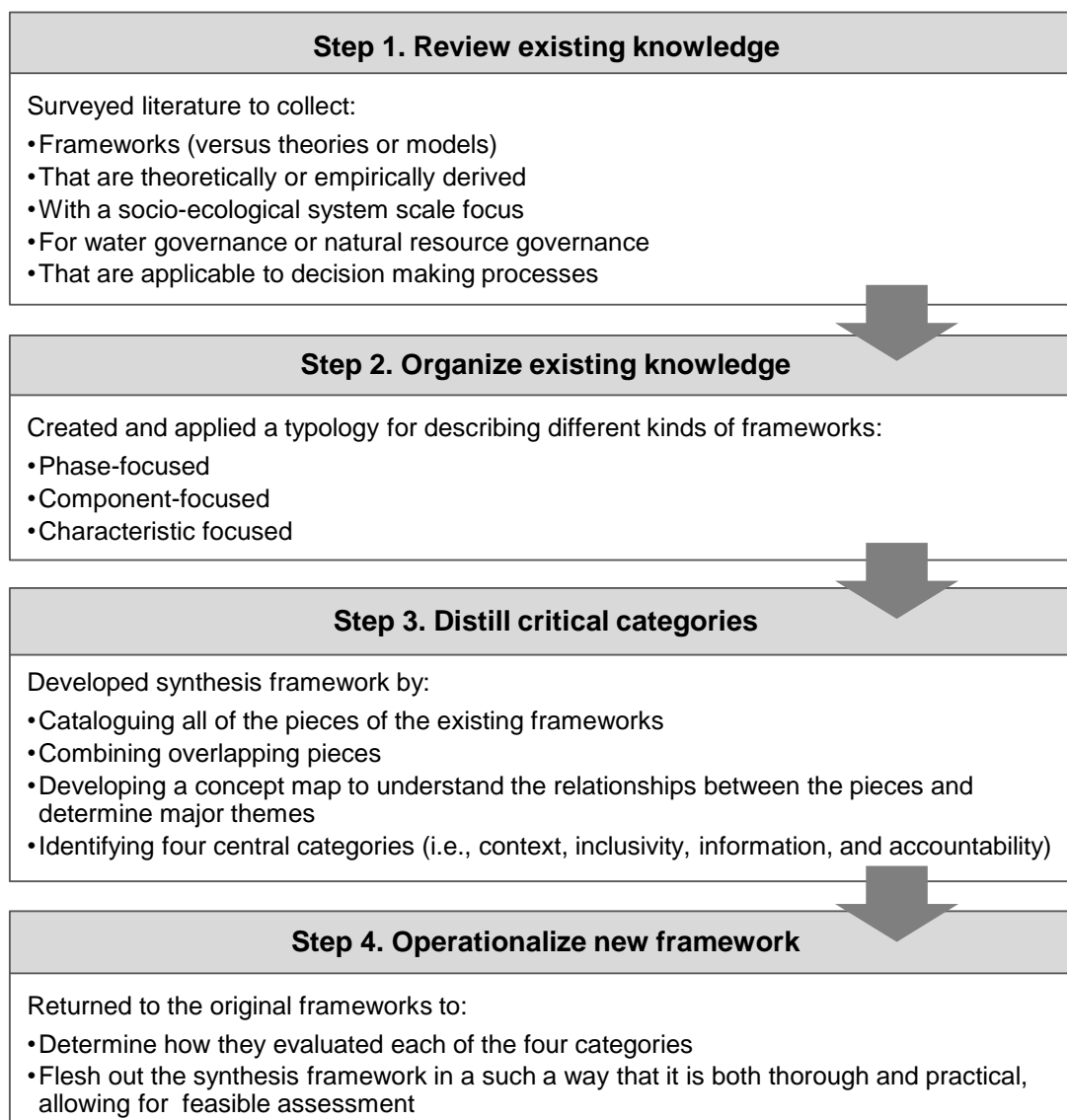


Figure 1. Overview of approach for accomplishing Objective 1

Chapters 3 through 6 address my second research question:

How can those characteristics be used to evaluate water governance processes? (Research Question 2)

To answer this question, I adopted the objective to *evaluate both the Canadian and American reviews of the CRT, using the framework developed (the Water Governance Process Assessment or Water GPA) (Objective 2)*. To gather the data needed to evaluate the US CRT 2014/2024 Review and BC CRT Review I conducted 38 semi-structured interviews with individuals who participated in the two reviews. I interviewed a cross-section of review participants from a variety of different backgrounds and types of involvement in the reviews using a stratified-quota sampling approach. Interviews ranged from twenty minutes to two hours. I transcribed, coded, and analyzed the interviews with the qualitative analysis software QSR NVivo. In addition to participating in a semi-structured interview, 34 interviewees and 12 additional review participants filled out a survey to assist in collecting the information needed for application of the framework. I transcribed the surveys and analyzed them using basic statistics. I used the Water GPA as a framework for my analysis. Greater detail about the methods used for both my qualitative and quantitative data collection and analysis are included in Chapter 3. I present the results as two case study applications of the framework in Chapters 5 (BC CRT Review) and 6 (US CRT 2014/2024 Review).¹

Third, I seek to answer the question:

What are lessons learned for good water governance from the Canadian and American reviews of the CRT? (Research Question 3)

¹ As some may only read the case study chapters of my dissertation, I include a summary of the methods in those chapters so they can function as stand-alone documents.

In **Chapters 5 and 6**, I worked to *identify barriers to and building blocks for good water governance from the two programs for future CRT-related efforts and transboundary water governance processes in general (Objective 3)*. Using the results from the same semi-structured interviews described above for Research Question 2, I gleaned lessons learned from the two reviews for future application in the Columbia River Basin and other water governance processes in similar basins. I include the results for each review in their respective case study chapters. I address broader lessons in Chapter 8 (Conclusions).

Finally, my fourth research question is:

What characteristics of a water governance process contribute to water governance outcomes? (Research Question 4)

In **Chapter 7**, I use *the Water GPA and CRT case studies to examine what characteristics of those processes contributed to their respective process outcomes (Objective 4)*. My hypothesis is that the four categories of the Water GPA (accountability, information, inclusivity, and context) influenced both the decisions and the byproducts of the US CRT 2014/2024 Review and the BC CRT Review. To test this hypothesis, I asked participants if the accountability, information, inclusivity, context, and other aspects part of and outside of the US CRT 2014/2024 Review and the BC CRT Review processes shaped or influenced the decision (in my case studies that would be either the US Regional Recommendation or BC Provincial Decision). I also asked the review participants to identify the three byproducts from the process that were most important to them and then up to three byproducts they wished had resulted from the process (or wished increased more than they did). I then asked them to explain what

about the process contributed to, worked against, or would have helped promote positive changes in the byproducts.

Using QSR NVivo software I manually coded the interview transcripts deductively using the Water GPA; that is I identified all statements where a participant talks about some aspect of the process influencing or not influencing the decision or byproducts. I coded these statements for which aspect of the process the participant was referring to (i.e., accountability, inclusivity, context, and information as well as their secondary codes). Statements that did not fit under any of these four primary codes were coded as “Other” which I inductively coded to identifying subthemes that may explain what influenced the two review decisions and their byproducts. I then went through all those coded statements a second time to identify the kind of influence or lack of influence the participant discussed.

In **Chapter 8**, I tie things together summarizing my findings, reviewing caveats and limitations of my work, and outlining a path for future research.

1.4 Theoretical Underpinnings

As stated above, to develop a framework for evaluating “good” water governance processes one must first define what “good” means. Likewise, there is no consensus on principles of good water governance. Therefore, I use resilience theory and adaptive governance (AG) to identify the underlying goal of water governance processes and serve as the foundation for the synthesis framework. That is, good water governance processes are assumed to adopt a socio-ecological systems approach and promote resilience of the socio-ecological system via adaptive governance.

1.4.1 Resilience of Social-Ecological Systems

In their book, *Linking Social and Ecological Systems: Management Practices and Social Mechanisms for Building Resilience*, Berkes and Folke (1998) present “social-ecological systems” (SES) as a conceptual way to perceive relationship and dynamics between human systems and the natural environment. They argue that managing the system requires emphasis on both the social institutions of the social system and natural processes of the ecological system (Berkes & Folke, 1998). Like many before me, I view river basins as SESs and therefore when I talk about water governance I am referring to governance of the SES (Cosens et al., 2014; Gosnell & Kelly, 2010; Huitema et al., 2009; Olsson et al., 2006; Ostrom, 2009; Pahl-Wostl, Holtz, Kastens, & Knieper, 2010).

If we view a river basin as a SES, that system has different characteristics, structures and behaviors (Meadows, 2008). One attribute of the system, resilience, can be defined as “a measure of the amount of perturbation a social-ecological system can withstand while maintaining its structure and functions; it describes the ability of a complex system to continue to provide the full range of ecosystem services to in the face of change” (Cosens et al., 2014, p. 7; Walker & Salt, 2006, p. 1). Originally presented by C.S. Holling (1973) as an attribute of ecological systems, scholars also see the concept as applicable to the social components of a SES (Adger, 2000; C. S. Holling, 2001; Lebel, Anderies, Campbell, & Folke, 2006; Nkhata, Breen, & Freimund, 2008; Walker, Holling, Carpenter, & Kinzig, 2004; Walker & Salt, 2006).

1.4.2 Adaptive Management and Adaptive Governance

Adaptive management (AM) and governance have been identified as ways to promote resilience of a social-ecological system due to their ability to deal with

uncertainty, change, and complexity (Folke et al., 2010; Folke, Hahn, Olsson, & Norberg, 2005; Huitema et al., 2009; Lebel et al., 2006; Olsson et al., 2006; Pahl-Wostl, 2007; Walker et al., 2004). Therefore, I use resilience theory as it is applied through adaptive governance to direct the formation of the water governance decision process evaluation framework. In the following paragraphs, I describe both adaptive management and adaptive governance as well as explain how they relate to resilience.

Lee (1999) defines adaptive management as a methodological innovation in resource management by which policies are implemented as experiments in order to learn from and design better policies. It is based on the principles of the scientific method as a middle ground between trial-and-error and laboratory experimentation (Lee, 1999). Pahl-Wostl (2008) defines adaptive management as “a systematic process for improving management policies and practices by learning from the outcomes of implemented management strategies” (p. 1). Adaptive management is commonly described in terms of the adaptive management process where one: 1) assesses the situation, 2) designs the management/policy scheme, 3) implements the policy, 4) monitors the outcomes, 5) evaluates the management procedure, and 6) adjusts the policy and 7) starts the cycle all over (Olsson, Folke, & Berkes, 2004; Plummer, 2009; J. T. Scholz & Stiftel, 2005). It differs from traditional management in that failure is expected and that policies will be improved by learning from those failures (Lee, 1999). An early critique of adaptive management was that it needed to incorporate the social context in order to take on a social-ecological systems (SES) approach. Folke et al. (2005) point out that adaptive governance is concerned with legitimacy and accountability, which are not explicitly noted in adaptive management.

While there is no universal definition for adaptive governance (AG) some scholars define it as: 1) the integration of science, policy and decision making in systems that assume and manage for change as opposed to against it (Dietz, Ostrom, & Stern, 2003) and 2) “the evolution of new governance institutions capable of generating long-term, sustainable policy solutions to wicked problems through coordinated efforts involving previously independent systems of users, knowledge, authorities, and organized interests” (J. T. Scholz & Stiftel, 2005, p. 5). It is also viewed as a multi-level approach to governance advocating polycentrism and redundancy in management (Huiteima et al., 2009).

While different concepts, the two are linked. Adaptive governance is seen as both a foundation for and way of pursuing adaptive management. Cosens and Williams (2012) describe the relationship between the two concepts as AG is the governance regime needed to provide the opportunity to employ an adaptive management approach to resource (in this case river) management. Folke et al. (2005) argue that “adaptive governance is operationalized through adaptive co-management systems and that the roles of social capital, focusing on networks, leadership, and trust are emphasized in this context” (p. 444). Huiteima et al. (2009) identify four institutional prescriptions from adaptive management for adaptive water governance, polycentricity, public participation, experimentation, and application at a bioregional scale. Olsson et al. (2006) discuss how adaptive governance provides a forum for the AM.

In their review of the AG literature, Chaffin et al. (2014), simply define adaptive governance as governance that allows adaptive processes, such as adaptive management,

to emerge. The scholars involved in the National Socio-Environmental Synthesis Center Adaptive Water Governance Project (AWG Project) identify adaptive governance as:

...appropriate when the system is complex (e.g. lies within multiple jurisdictions), the system faces change with a degree of uncertainty (e.g. climate change) and the system is approaching a potential threshold or regime shift as evidenced by increasing conflict over resources (e.g. litigation), increasing scarcity, or actual identification of an approaching threshold by law or science (Cosens et al., 2014, p. 10).

As transboundary river basins cover nearly 50% of the earth's land surface (thus they reside in multiple jurisdictions) (Wolf, Yoffe, & Giordano, 2003) and the world's river basins face high uncertainty and potentially dramatic consequences of climate change (IPCC, 2014), it is hard to imagine a river basin that should not at least consider the potential usefulness of adaptive governance.

1.4.3 Adaptive Governance, Good Governance, and Process

I started my introduction talking about the importance of governance in addressing water resource problems. More specifically, the UN and others call for 'good governance.' Although there is not strong agreement on a definition of good governance it generally involves concepts such as transparency, accountability, inclusivity, legitimacy, and fairness (Lockwood, 2010; UN World Water Assessment Programme, 2003; US Agency for International Development, 2009). Suhardiman and Giordano (2012) recommend that future research in water governance, particularly transboundary water governance, center on process-focused analysis.

At the same time other researchers identified SES resilience via AM and AG as a way to deal with the complexity and uncertainty inherent to river systems. Bringing these two worlds together, Chaffin et al. (2014) suggest researchers investigate the relationship between adaptive governance and the principles of good governance. The AWG Project

examines what role law may play in either preparing a system for adaptive governance or facilitating the adaptive governance process (Cosens et al., 2014). More specifically researchers in that project are assessing the role of law and adaptive governance in governance structure, capacity, and process (Cosens et al., 2014). Therefore it seems timely to build on this scholarship and explore the relatedness and compatibility of adaptive governance and good governance concepts. Do they complement one another? Are they redundant?

As you will see in the next chapter, I include many frameworks related to AM and AG in the development of my synthesis framework. However, I do not limit my search to AM and AG frameworks. Rather I also incorporate frameworks targeting ‘good governance.’ This allows me to explore how the blend of concepts of adaptive governance with the principles of good governance fit into one evaluation framework for water governance decision making processes.

1.5 Chapter Summary and Conclusion

In this chapter, I presented the crisis of water governance that stands in the way of a number of water challenges we face today. If we consider water governance to be composed of three parts, organization, function, and process those are three areas where we can seek to improve water governance to address this crisis. Suhardiman and Giordano (2012) recommend that future research center on process-focused analysis. I follow their recommendation and in my examination of the literature found that two challenges exist for evaluating water governance decision making processes: 1) the lack of a mid-level, operationalized framework for feasible evaluation of water governance processes and 2) a lack of empirical evidence of what about a decision making process

contributes to a desirable outcome (i.e., does how we make decisions in water governance lead to better decisions).

To address these challenges I proposed four research questions and corresponding objectives as well as summarized my methods for each (Table 3). I then explained the theoretical foundations and assumptions I used to answer my research questions. In the next chapter, I tackle my first research question: What are characteristics of a “good” water governance process? In Chapter 2, I develop an operationalized framework for evaluating water governance processes based on existing frameworks for water governance, public participation, and conflict management.

Table 3. Summary of research questions, objectives, and methods

Research Questions	Research Objectives	Methods
Research Question 1 - What are characteristics of a “good” water governance process?	Objective 1 - Develop an operationalized framework for systematically evaluating water governance processes based on existing frameworks for water governance, public participation, and conflict management.	<ul style="list-style-type: none"> • Reviewed literature to identify and synthesize concepts from existing frameworks • Developed synthesis framework • Determined metrics/indicators for each characteristic and how calculate/assign values for each metric
Research Question 2 - How can those characteristics be used to evaluate water governance processes?	Objective 2 - Evaluate both the Canadian and American reviews of the CRT the using the framework developed (the Water Governance Process Assessment or Water GPA).	<ul style="list-style-type: none"> • Interviewed and surveyed process participants from federal agencies, First Nations/Tribes, states/province, local governments, and stakeholders
Research Question 3 - What are lessons learned for good water governance from the Canadian and American reviews of the CRT?	Objective 3 - Identify barriers to and building blocks for good water governance from the two programs and glean lessons for future CRT-related efforts and water governance processes.	<ul style="list-style-type: none"> • Transcribed recordings • Analyzed transcripts using NVivo software • Applied synthesis framework (Water GPA) to evaluate decision making process
Research Question 4 - What characteristics of a water governance process contribute to water governance outcomes?	Objective 4 - Use the Water GPA and CRT case studies to examine what characteristics of those processes contributed to their respective process outcomes.	<ul style="list-style-type: none"> ○ Identified what about process worked well and what could be improved ○ Examined link between process and outcomes

Table 3 provides a summary of my research question, objectives, and methods.

2 Synthesis Framework Development

To answer my research questions “What are characteristics of a “good” water governance process?” and “How can those characteristics be used to evaluate water governance processes?” I reviewed the existing literature on good water governance processes and their evaluation. From the literature I developed a synthesis framework for evaluating water governance processes. This chapter explains my literature review approach and how I developed the synthesis framework. Then I present the synthesis framework, which I call the Water Governance Process Assessment (Water GPA).

2.1 Literature Review

My first step in the development of the synthesis framework was to survey the water and natural resource governance literature to identify existing frameworks to draw from. I set a list of six criteria for frameworks to be included in my synthesis framework (Table 4). I chose these criteria because I felt they addressed the core aspects of my question and limited the scope of the literature review to manageable size.

Table 4: Framework inclusion criteria, explanation, and justification

Framework (versus theory or model) - I follow the delineation put forth by Elinor Ostrom and others of what makes a framework, theory, or model. A framework “identifies, categorizes, and organizes those factors deemed relevant to understanding some phenomena” (McGinnis, 2011).

Theoretically or empirically derived - Frameworks must be either derived theoretically (based in theory) or empirically (based on experiment or observation).

Socio-ecological and system scale focus - Frameworks must be applicable at the larger system scale and incorporate both the social and ecological components foundational to socio-ecological systems and resilience.

Water governance or natural resource governance - Frameworks were developed with water governance or natural resource governance in mind. This means they are broader in scope than the participation and collaboration literature, which have already been surveyed or reviewed (Carr, Blöschl, & Loucks, 2012).

Applicable to decision making processes - Frameworks must be intended and designed for application to decision making processes

Table 4 presents the criteria I developed for including a water or natural resource governance framework in my literature review for the development of my synthesis framework.

Using these criteria, I identified 22 frameworks (Table 5). An initial review of the frameworks reveals that each is one of three types: 1) characteristic focused, which describe the qualities a good water governance process seeks to achieve, 2) phase focused, which lay out the stages a process works through, and 3) component focused, which list what to include or consider during process development or implementation.

Table 5: Frameworks identified for inclusion in the synthesis framework

Framework with Citation and Organized by Type
<i>Phase-Focused (3 frameworks)</i>
Adaptive Participatory Multicriteria Framework for Climate Adaptation Decision Making (Munaretto, Siciliano, & Turvani, 2014)
Management and Transition Framework (process component only) (Pahl-Wostl et al., 2010)
Human Environment Systems Framework (R. Scholz, 2011)
<i>Component-Focused (13 frameworks)</i>
Resilience Design (Curtin, 2014)
Braving the Currents Framework (D'Estree & Colby, 2004)
Unifying Negotiations Framework (Daniels, Walker, & Emborg, 2012)
Framework for Analysis of Process Mechanisms in Regime Building (Hearns, 2010)
Institutional Prescriptions of Adaptive (Co-) Management from a Governance Perspective (Huitema et al., 2009)
Sustainable Water Governance Index (Iribarnegaray & Seghezze, 2012)
Socio-Ecological Systems Framework (Ostrom, 2009)
Social Learning (Pahl-Wostl, Craps, & Dewulf, 2007; Pahl-Wostl, 2002, 2009; Pahl-Wostl, Sendzimir, et al., 2007)
Characteristics of adaptive co-management and generic process parameters for evaluation (Plummer & FitzGibbon, 2004)
Watershed Governance Prism (Parkes et al., 2010)
Three Pillars and One Beam for Quality of River Basin Governance Processes (Pereira & Quintana, 2009)
Co-operative Natural Resource Management Assessment Framework (Plummer & FitzGibbon, 2007)
Conceptual Structure for Evaluating Policy Analytic Activities (Thissen & Twaalfhoven, 2001)
<i>Characteristic-Focused (6 frameworks)</i>
A "Thick" Analysis of Environmental Decision-Making (Adger et al., 2003)
Principles of Good Governance (Commission of the European Communities, 2001)
Principles of Good Water Governance (UN World Water Assessment Programme, 2003) as explained by the MENA Regional Water Governance Benchmarking Project Concept and Approach Framework (US Agency for International Development, 2009)
Missing Links in Global Water Governance: a Processes-Oriented Analysis (Pahl-Wostl, Conca, Kramer, Maestu, & Schmidt, 2013)
Global Water Partnership's criteria for effective water governance (Rogers & Hall, 2003)
Legal Framework for Good Transboundary Water Governance (Schulz, 2007)

Table 5 lists the frameworks I found in my literature review and incorporated into my synthesis framework. I use a shortened version of the source title for un-named frameworks.

These different types of frameworks work well with one another and, in some ways, are nested within one another (Figure 2). Phase-focused frameworks provide an outline of stages to consider within a decision making process. Component frameworks suggest what components should be considered within a particular phase and characteristic frameworks offer or cross-cutting issues to promote (e.g., transparency). For example, the phase-focused framework by Munaretto et al. (2014), Adaptive Participatory Multicriteria Framework for Climate Adaptation Decision Making, lists three phases of a decision making process, 1) identify starting conditions, 2) processes of decision/process phase, and 3) response phase. Then within the process phase they identify four sub-phases, 1) problem identification and goal setting, 2) identification of adaptation alternatives, 3) identification of evaluation criteria and weights, and 4) ranking alternatives. The component-focused framework, the Unifying Negotiations Framework, by Daniels et al. (2012) pairs well with Munaretto et al.'s framework, by pointing out that during different phases of the process, the lead on the process should consider culture, institutions, agency, incentives, cognition, and actor orientation experience at the micro, meso, and macro scales. While considering those components during the different stages of the process, the leader of the process (or "process lead") can also work to promote the characteristics of good water governance from the MENA ReWaB Concept and Approach Framework (a characteristic-focused framework), namely participation, transparency, equity, accountability, responsiveness, and integration.

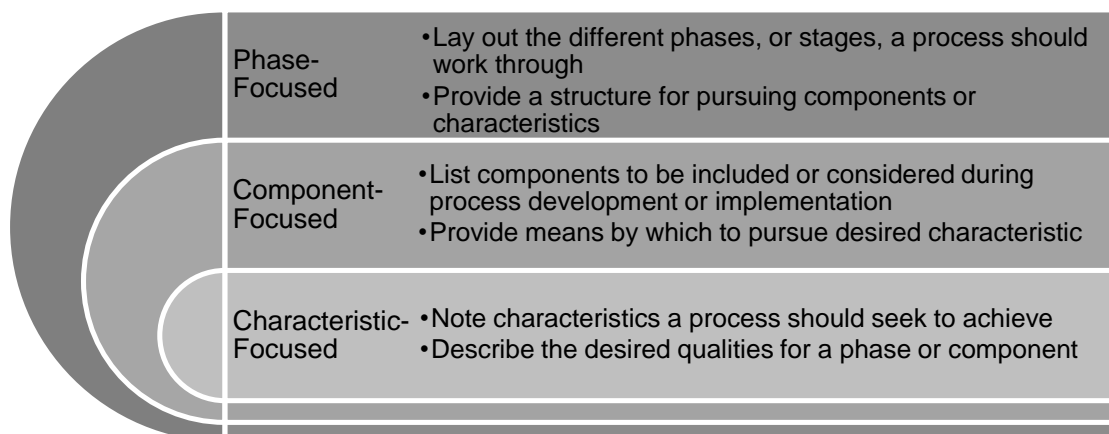


Figure 2: A typology for water governance decision making process frameworks

2.2 Development of the Water Governance Process Assessment

To begin the process of creating a synthesis framework, I inventoried all of the framework ‘pieces’ from the characteristic and component frameworks noting the term used, citation, and term definition (if given). From there, I used the definitions of the different framework terms to identify and combine duplicate and overlapping pieces from the different frameworks. That step narrowed the list to 61 characteristics or components a good water governance decision making process should consider or include. I developed a concept map of the 61 characteristics and components in order to explore the relationships between them and see if the number of unique terms could be reduced to a more manageable number for practitioners trying to develop or assess a decision making process (Figure 3). I excluded phase-focused frameworks because, instead of detailing what to consider in a decision making process or how the process should unfold, they focus on the recommended steps for making a decision. However, while the specific phases from the phase-focused frameworks were not included in the concept map, the spirit of the phases was represented by the characteristics and components. For example, all three phase-focused frameworks, emphasize the importance of assessing the current

state of the basin as well as identifying the problem/task at hand and goals of the process (Munaretto et al., 2014; Pahl-Wostl et al., 2010; R. Scholz, 2011). These concepts are covered in the characteristics and components proposed by other frameworks.

Concept maps are diagrams or graphics that visually represent organized knowledge (Cañas et al., 2003; Novak & Cañas, 2008). Founded in learning theory, concept mapping has most frequently been used as a tool in education as a means for students and instructors to organize course content or assess student understanding. Concept mapping is one variation of a technique for visualizing an abstract and/or complex situation or set of ideas. Other variations of the method include situation, conflict, and institutional mapping (Aligica, 2006; Chaffin, 2014; Daniels & Walker, 2001, 2012; C. L. Smith, 2002; Stimie et al., 2001; Wehr, 1979). At the root of each of these forms of mapping, is that the nodes represent an idea, concept, organization, (i.e., a noun) and the links between the nodes denote some type of a relationship. A number of scholars and practitioners in the natural resources have employed the method to better understand a conflict (Vinett & Jarvis, 2012; Wehr, 1979), complex socio-ecological systems (Daniels & Walker, 2001, 2012), the relationships of various organizations under a particular management scheme (Chaffin, 2014; C. L. Smith, 2002; Stimie et al., 2001), and interdisciplinary communication (Heemskerk, Wilson, & Pavao-Zuckerman, 2003). Here I use concept mapping as a way to visually organize inter-locking and interdependent concepts associated with good decision making in water governance. From this visual I identified the themes and components to include in the synthesis framework.

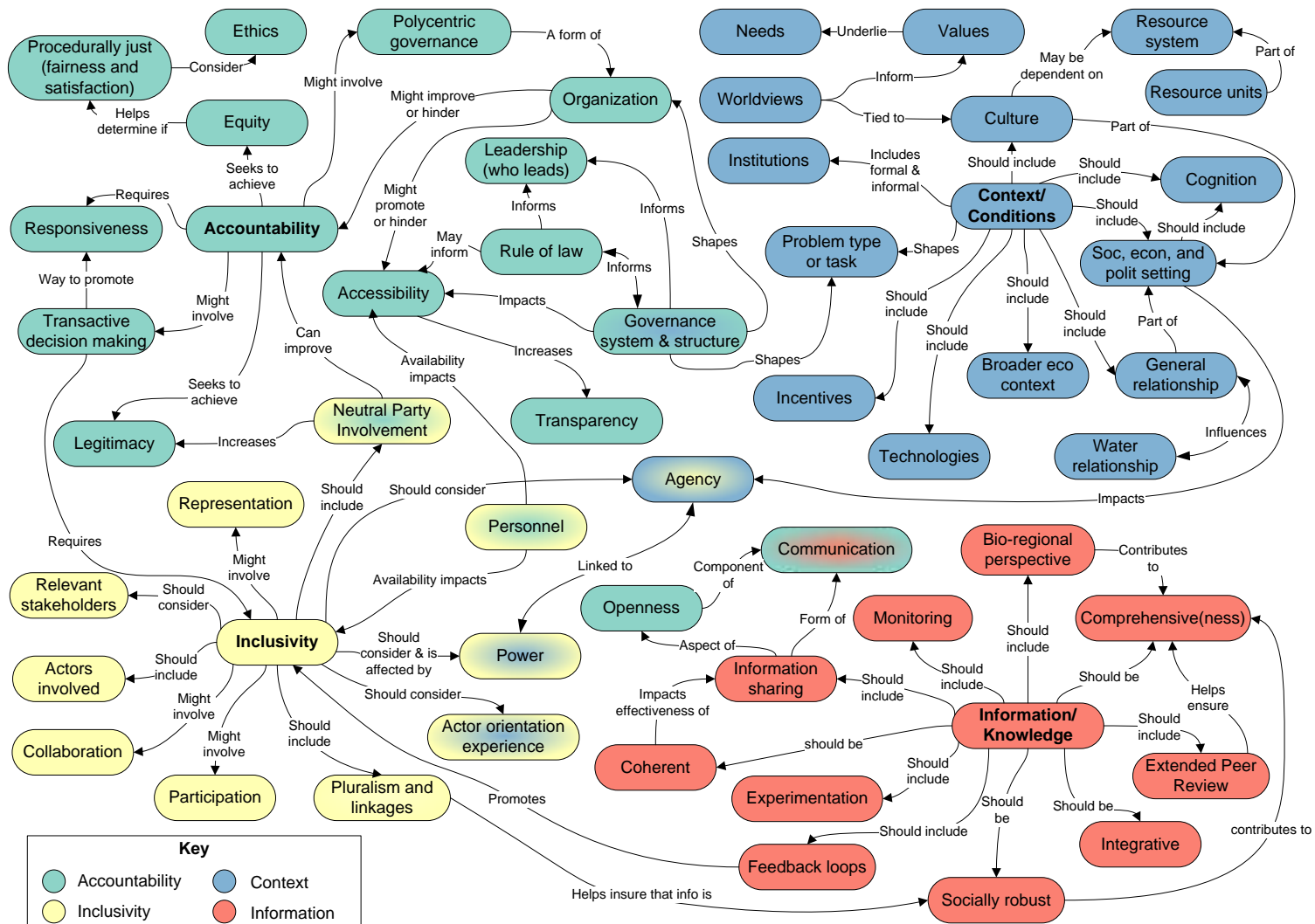


Figure 3. Simplified concept map of elements for good decision making processes

This concept map features elements from 22 frameworks for good water governance decision making processes. The color of each concept indicates which of the four framework categories the concept falls under. Ovals with two colors indicate that the concept fits in two categories.

In the map displayed in Figure 3, all unique framework pieces serve as the nodes of the map and the relationships between the pieces are depicted via the links. The links are either directional (where one term or concept contributed to another) or bi-directional (where the concepts contributed to each other). Looking at the relationships between the concepts in the concept map, I saw five clear categories of characteristics: 1) inclusivity, 2) accountability, 3) information and knowledge, 4) context, and 5) efficacy. I define these themes in Table 6.

Table 6. Characteristic theme definitions

Category and Definition	Example Subcomponents
Context - The various conditions of the basin and socio-ecological system under which the decision is being made. Three subcategories of the context are: social system, ecological system, and the problem.	<ul style="list-style-type: none"> • Culture, worldviews & values • Incentives • Resource system & units • Relationships • Social, economic, & political setting
Inclusivity - The degree and quality of inclusion of interested and affected parties at various stages of the process, which may take many forms (e.g., direct participation or representation) to result in meaningful engagement.	<ul style="list-style-type: none"> • Participation • Power & agency • Representation
Information - The data, information and knowledge used to make the decision, including all stages of collection, modeling, experiments, and analysis.	<ul style="list-style-type: none"> • Comprehensiveness • Integrative • Peer review • Socially robust
Accountability - The organization and atmosphere of the process designed to produce a legitimate decision based on 1) what is the scope of the decision making process, 2) who will make the decision, and 3) how the decision will be made.	<ul style="list-style-type: none"> • Transparency • Rule of law • Leadership • Equity • Responsiveness
Efficacy - The efficiency of the process and its effectiveness in reaching a desirable decision and other positive outcomes	<ul style="list-style-type: none"> • Efficiency • Efficacy • Cost

This table defines the five themes of good decision making process characteristics.

I used these themes as the starting categories for my synthesis framework for evaluating decision making processes. After some consideration, I decided to remove efficacy from the synthesis framework for a couple of reasons. First, efficacy and its

related characteristics such as efficiency, cost, effectiveness, are also aspects of the other four categories and, therefore, efficacy in some way is represented within the framework in other areas. Second, efficacy cannot yet be measured and evaluated in terms of process; rather existing indicators are outcome-based (rather than process-based). While not explicitly included in the framework, aspects of efficacy are implicitly present. The ultimate goal of this work is to find a way to evaluate and improve processes so they lead to desired outcomes, which is a form of efficacy.

The remaining four categories (accountability, information, inclusivity, and context) mirror the four-worlds of perception found in a variety of faith traditions, psychology, and systems theory. Also referred to as the “four worlds construct” (Wolf, 2008, 2012) and four “levels of reality” (H. Smith, 1992), the concept offers that the world can be viewed through four lenses, namely the physical, emotional, intellectual/knowing, and spiritual (Figure 4). Wolf applies the four-worlds construct to conflict management in water governance arguing that one can use a transformative approach to guide parties through the four levels in the negotiation process (Wolf, 2008, 2012). The universality of the four worlds construct makes it unsurprising that a similar structure emerges in what water governance decision making processes should include.

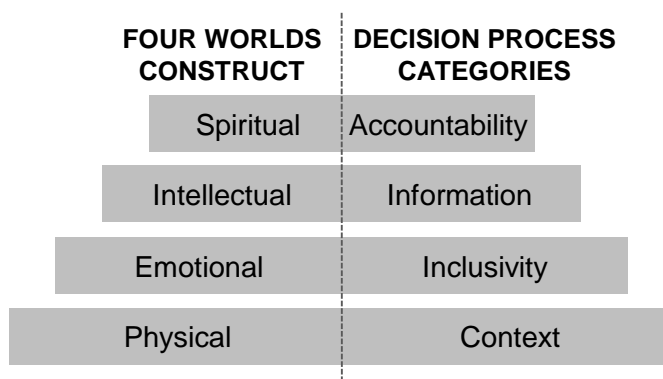


Figure 4. Mirrored structure of the process categories and four worlds construct

The following subsections of this chapter address each of the four categories, highlighting a definition of the category for the synthesis framework and what the various frameworks said about the category/characteristic (e.g., reasons for its importance and its subcomponents).

2.2.1 Context

I define context can as *the various conditions of the basin and socio-ecological system under which the decision is being made*. Context serves as the foundation for the other three categories as context informs how to approach accountability, inclusivity, and information. The context of the basin and water governance decision guides what information to collect, who should be involved in the decision, and what efforts might be legally required or recommended to achieve transparency and legitimacy. Context is important in water governance decision making processes because it informs what engagement strategies may be appropriate or mostly likely to be successful (Daniels et al., 2012). Context also provides the physical, social, and legal constraints within which a process must work. Context is the hardest category to assess and evaluate. Many frameworks provide recommendations on “what” to account for when assessing the context of situation. I observed that these recommendations fall under three general subcategories: social, ecological, and the problem/issue at hand (Table 7).

Social aspects of context include those related to the legal and geopolitical aspects of governance. The social aspects of context range from the person-scale, such as attitudes, cognition, and actor orientation experience, to larger society-scale concepts such as culture, governance regimes, and the state of the economy (Daniels et al., 2012; Hearn, 2010; Iribarnegaray & Seghezzo, 2012; Ostrom, 2009; Pahl-Wostl, 2002, 2009;

Plummer & FitzGibbon, 2004). The ecological dimension of context includes both the nature of the water resource as well as the larger ecological system in which it resides (Ostrom, 2009; Pahl-Wostl, 2002, 2009). The problem/issue subcategory, in many ways, is a blend of the human and ecological dimensions of the context. When assessing context in terms of the problem at hand, it is important to determine both the current state (i.e., what may be unsatisfactory about the social and ecological context at present) and goal (i.e., what is the desired state based on what is known about the needs and values of the social system and characteristics of the ecological system).

Table 7. What to consider in terms of context for decision making processes

Social	Ecological
Legal and geopolitical <ul style="list-style-type: none"> • Rules and processes of governance system(s) (Ostrom, 2009) • Governance structure • Institutions (formal) (Daniels et al., 2012) • Property rights regime (Plummer & FitzGibbon, 2004) 	Resource-focused <ul style="list-style-type: none"> • Characteristics of the resource system (Ostrom, 2009; Plummer & FitzGibbon, 2004) • Nature of the resource units (Ostrom, 2009)
Socioeconomic and cultural <ul style="list-style-type: none"> • Social, economic, and political setting (Ostrom, 2009) • Actors and institutions (Pahl-Wostl, 2002, 2009) • Culture, agency, cognition, actor orientation experience, and institutions (informal) (Daniels et al., 2012) • Attitudes, worldview, and values (Iribarnegaray & Seghezzeo, 2012) 	Larger ecological system <ul style="list-style-type: none"> • Broader ecological context (Ostrom, 2009) • Natural environment (Pahl-Wostl, 2002, 2009)
	Problem
Miscellaneous <ul style="list-style-type: none"> • Technologies (Pahl-Wostl, 2002, 2009) • Incentives (Daniels et al., 2012) • Relationships (Hearns, 2010) 	Problem/task issues (Pahl-Wostl, Sendzimir, et al., 2007) Problem-type (asymmetry of interests) (Hearns, 2010) Goal definition (Munaretto et al., 2014; Pahl-Wostl et al., 2010; R. Scholz, 2011; Thissen & Twaalfhoven, 2001)

This table outlines the different aspects of a basin's context in three different thematic categories: social, ecological, and the problem. The bulleted items are aspects of the context that the 22 frameworks discovered in my literature review propose as important for consideration in the development and implementation of a decision making process.

2.2.2 Inclusivity

I define inclusivity as *how interested and affected parties are involved in various stages of the decision making process, both in terms of degree and quality*. It includes, but is not limited to direct public participation, consultation, designation of representatives, and collaborative approaches. Inclusivity is important in large part because it impacts buy-in and acceptance of the decision as it contributes or detracts from deliberative legitimacy (Cosens, 2013). In an era with frequent legal battles in the US and other countries, support for a decision may help avoid costly lawsuits. Inclusivity may also influence the creativity of ideas as well as promote learning (Huitema et al., 2009; Pahl-Wostl et al., 2013). With greater involvement, decision makers may be better able to identify or challenges as well as avoid surprises (Iribarnegaray & Seghezzo, 2012; Pahl-Wostl et al., 2013; Rogers & Hall, 2003).

In describing what constitutes successful inclusivity in water governance decision making processes, the frameworks touch on: 1) who should be involved, 2) how they should be involved, and 3) when they should be involved. The frameworks advocating for inclusive processes all note the importance of pluralism and incorporating a diverse set of perspectives in a decision making process. More specifically they advocate including all parties interested in the subject at hand as well as those who will be impacted by the decision (Huitema et al., 2009; Iribarnegaray & Seghezzo, 2012; Pahl-Wostl et al., 2013; Plummer & Armitage, 2007; Rogers & Hall, 2003; Thissen & Twaalfhoven, 2001; UN World Water Assessment Programme, 2003; US Agency for International Development, 2010). These groups or individuals are referred to as “interested and affected parties,” “relevant stakeholders,” or “actors.” In considering who

to include in a decision making process, Thissen and Twaalfhoven (2001) recommend the process lead consider the potential participants reason for involvement, the extent of their participation, extent of cooperation, and the representativeness and relevancy of their selection. How the relevant stakeholders should be included in a decision making process will vary depending on the situation (Iribarnegaray & Seghezzo, 2012). There is no standard approach to participation, consultation, or representation and there is some potential that groups should not be included in the same capacity, though making distinctions of who is included to a lesser or greater degree is both controversial and potentially counter-productive (Daniels et al., 2012; Iribarnegaray & Seghezzo, 2012; Pahl-Wostl et al., 2013). Linking back to the context of the basin, different groups will likely have different capacities for engagement in a process (Cheng & Sturtevant, 2012; Cosens et al., 2014; Rogers & Hall, 2003). Drawing from participation and collaboration literature, the frameworks recommend developing strategies for meaningful engagement of interested and affected parties by finding the appropriate degree of participation and focusing on ensuring quality participation through communication, transparency, and the ability to influence the decision (Carr et al., 2012; Shirk et al., 2012; Stewart & Sinclair, 2007). Whatever form inclusivity may take, the frameworks advocate for early involvement (Pahl-Wostl, Craps, et al., 2007; Rogers & Hall, 2003).

2.2.3 Information

Information and knowledge includes *the efforts to collect, vet, analyze, and manipulate data, information, and knowledge to make or inform the decision, including all stages of collection, modeling, experiments, and analysis*. For some decision making processes, this may include extensive modeling of a river-system, an assessment of the

stakeholders in the basin and their interests, and/or monitoring of a stream. In water governance, information and knowledge not only deals with technical models and scientific data, but also may include traditional ecological knowledge (TEK) and other forms of knowledge, though this information may be harder to validate. Information may be collected, processed, and analyzed via monitoring (Curtin, 2014; Munaretto et al., 2014; Pahl-Wostl et al., 2010), experimentation (Curtin, 2014; Huitema et al., 2009), and peer-review (Pereira & Quintana, 2009).

Characteristics of information/knowledge regarded as important include that it should be comprehensive/complete, accurate, applicable, coherent, and accessible. In terms of comprehensiveness, Huitema et al., (2009) recommend that information be collected and modeled at the bio-regional scale. Pereira and Quintana (2009) contend that knowledge used in decision making should be socially robust, that is it fits the purpose of the decision and context of the issue as well as is relevant to the social actors involved. The World Water Assessment Programme (2003) and Commission of the European Communities (2001) note that in an effort for information to be comprehensive it should be integrative and holistic. Requiring that information be accurate and applicable simply means that the information must be correct and honest in terms of the level of uncertainty as well as relevant to the decision at hand (Pereira & Quintana, 2009). Accessibility refers to interested and affected parties having the ability to obtain information used in the decision making process. Coherence (or intelligibility) refers to the ability of those who obtain the information to be able to understand it (Commission of the European Communities, 2001; Pereira & Quintana, 2009). These characteristics are important in information sharing, recommended for by Hearn (2010) explicitly and implicitly by

others promoting communication (Pahl-Wostl, 2002, 2009; Rogers & Hall, 2003; UN World Water Assessment Programme, 2003). Social learning and frameworks incorporating it advocate for process participants to gain knowledge and understanding through sharing values, developing strategies together, and engaging in other collective learning exercises, such as collaborative modelling (Cowie & Borrett, 2005; Mendosa & Cardwell, 2011; Pahl-Wostl, 2002; Plummer & FitzGibbon, 2007).

2.2.4 Accountability

When discussing accountability, framework authors often speak of transparency, equity/fairness, legitimacy, rule of law, leadership, responsiveness, as well as outline the scope and degree of the decision space. Accountability is important in a decision making process because it impacts the legitimacy and acceptance of a decision and therefore may impact the potential for successful implementation. Accountability is also important because it is often the driving force behind the structure of a process and the interactions resulting from that structure. Thus, it can be defined as *the organization and atmosphere of the process designed to produce a legitimate decision*.

Accountability as it relates to the structure of a process can be characterized via three subcategories: 1) what is the scope of the decision making process, 2) who will make the decision, and 3) how the decision will be made (Figure 5). It also may include if/how the decision can be challenged or reviewed, an integral step in adaptive management approaches (Gunderson & Light, 2006; Olsson et al., 2004; Pahl-Wostl, Sendzimir, et al., 2007; Plummer, Armitage, & Loë, 2013; Plummer, 2009). Addressing these subcategories helps set clear expectations for the various parties involved as well as commitments to which the process lead can be held accountable. To answer the three

questions in Figure 5, the process lead should consider how to best be transparent, open, communicative, and responsive, which are noted by many to promote legitimacy (Biermann & Gupta, 2011a, 2011b; Cosens, 2013; Pahl-Wostl et al., 2013; Pereira & Quintana, 2009; Plummer & FitzGibbon, 2007; Rogers & Hall, 2003; Thissen & Twaalfhoven, 2001; UN World Water Assessment Programme, 2003). Legitimacy may be results-based, order-based, deliberative, systemic, and/or procedural (Cosens, 2013). A number of frameworks highlight legal obligations or the ‘rule of law,’ that is following the appropriate laws and regulations (Ostrom, 2009; Schulz, 2007). However, accountability is not met simply by doing the legal minimum. D'Estree and Colby (2004) and Adger et al., (2003) note the importance of a process being procedurally fair and just, as well as equitable.

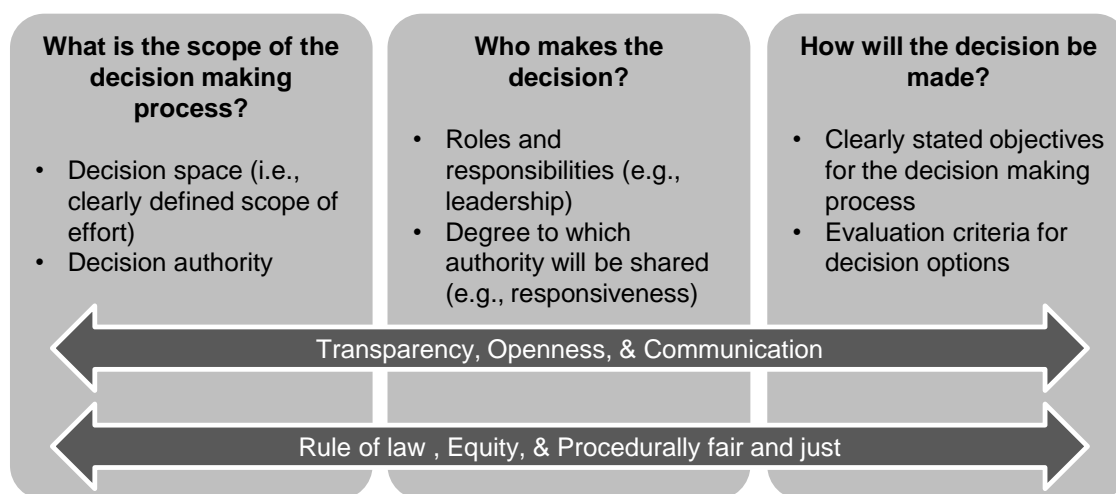


Figure 5. Central issues related to accountability in decision making processes

While accountability emphasizes the importance of early planning and consideration in the development of the process, it also sits in tension with the fact that one cannot predict everything that might happen. A challenge of addressing accountability in a decision making process is figuring out how to incorporate flexibility

into the process (Munaretto et al., 2014; Thissen & Twaalfhoven, 2001). New information may come available or the scope may change in the middle of decision making process, requiring the leaders and participants of the decision making process to adapt. As such, institutional capacity, or the ability of the decision making body and basin to adapt to change is an important aspect of accountability.

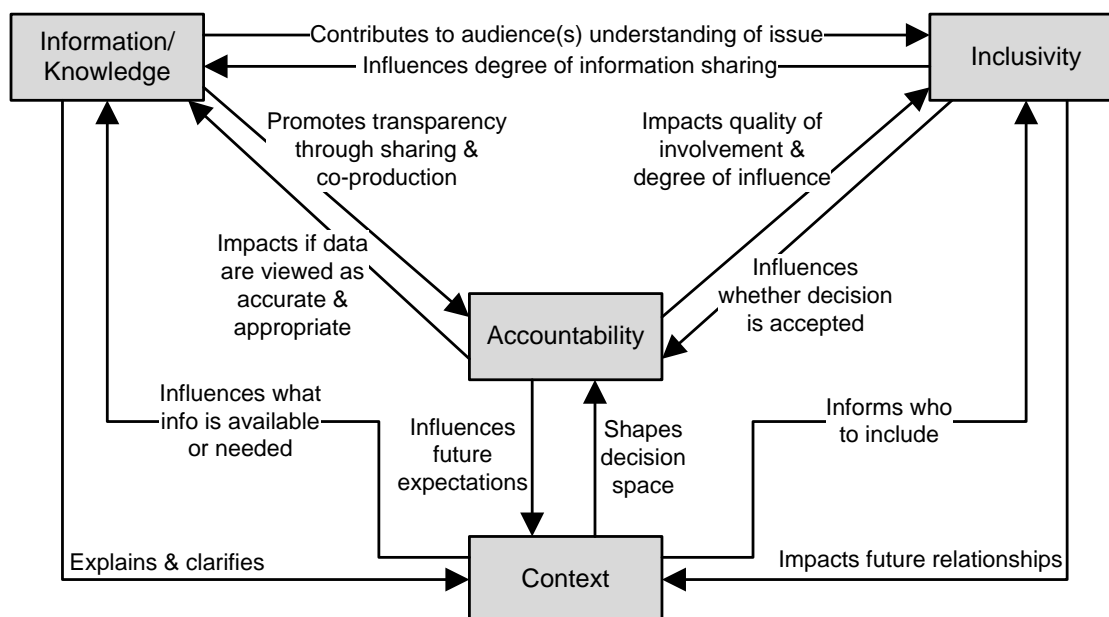
2.2.5 Connecting the Process Categories

Table 8 provides a summary of the four process categories presented by this framework. These four categories, while distinct, are inter-dependent. Figure 6 illustrates how each of the categories links to others. The links displayed are not the complete set of interactions between the categories but offer examples of how success or failure in one area may contribute to the success or challenges in another. For example, if a process is not as inclusive as it needs to be, parties excluded from the process may view the decision as illegitimate because those making the decision were not accountable to all interested and effected parties. Information and inclusivity are linked in who has access to information and by how information can shape participant views and hopefully bring groups towards a shared decision. The existing conditions or context of the basin dictate what the decision makers have to work with in terms of information, decision space, and potential interested and effected parties. The accountability, information, and inclusivity of a process then in turn update or create new conditions to consider in future decisions.

Table 8. Summary of Water Governance Process Assessment categories

Category and Definition	Importance	Example Subcomponents
Context - The various conditions of the basin and socio-ecological system under which the decision is being made. Three subcategories of the context are: social system, ecological system, and the problem.	Highlights barriers to overcome and opportunities to capitalize on.	<ul style="list-style-type: none"> • Culture, worldviews & values • Incentives • Resource system & units • Relationships • Social, economic, & political setting
Inclusivity - The degree and quality of inclusion of interested and effected parties at various stages of the process, which may take many forms (e.g., direct participation or representation) to result in meaningful engagement.	Influences the content and acceptance of the decision.	<ul style="list-style-type: none"> • Participation • Power & agency • Representation
Information - The data, information and knowledge used to make the decision, including all stages of collection, modeling, experiments, and analysis.	Often serves as the foundation or justification for a decision.	<ul style="list-style-type: none"> • Comprehensiveness • Integrative • Peer review • Socially robust
Accountability - The organization and atmosphere of the process designed to produce a legitimate decision based on 1) what is the scope of the decision making process, 2) who will make the decision, and 3) how the decision will be made.	Influences legitimacy/ acceptance of the decision.	<ul style="list-style-type: none"> • Transparency • Rule of law • Leadership • Equity • Responsiveness

Table 8 is my summary of the Water GPA process categories, their importance in a decision making process and example components of those categories from my source frameworks.

**Figure 6. Example inter-dependencies between framework categories**

A few characteristics noted in the concept map are cross-cutting issues through two or more of the synthesis framework categories, such as: capacity, efficacy, openness,

and communication. These characteristics may have a stronger connection with one of the categories, but are still present in the others. For example, openness might be closely tied to accountability in how it contributes to transparency, but it is also seen in information through information sharing and inclusivity in various parties' access to information and ability to influence the decision. Likewise good communication demonstrates accountability via transparency and managing expectations, involves producing and sharing accurate and appropriate information, and promotes quality inclusivity.

Capacity, in its different forms, is another cross-cutting issue that is important to the process as well as byproduct outcomes such as community capacity. Adaptive capacity includes the authority and resources to respond to change (Cosens et al., 2014; Pahl-Wostl, 2009). Participatory capacity is the ability of a person or group to participate in a decision making process (Cosens et al., 2014; Huitema et al., 2009). It includes the right to participate as well as the resources to do so. The issue of capacity emerges in all four of the Water GPA process characteristics.

The capacity of the basin, as well as groups and individuals within it, to adapt to change is a component of the basin context. Likewise, resource availability of different groups is an aspect of capacity within the social context of the basin. That capacity influences the ability of groups to participate and be included in the decision making process. In terms of accountability, capacity is linked to the right of a person or organization to participate in a process. Inclusivity is tied to capacity in whether not groups have the resources to participate. The technical capacity and level of scientific expertise of a person or group impacts their ability to access and understand technical

information. As capacity is such a cross-cutting issue, my synthesis framework does not include capacity as a separate category. Rather different aspects of capacity are included in the four other process categories as well as the byproducts. Operationalizing the Water Governance Process Assessment

2.2.6 Assessing the Process Categories

With these four categories set as the scaffolding of the synthesis framework, which I call the Water Governance Process Assessment (Water GPA), I returned to the literature to see how the original frameworks evaluated the characteristics and components within each category, including what indicators were used and how to assess the indicator(s). This step of operationalizing each of the four categories is crucial to avoiding the common pitfall of presenting a general concept for decision making processes to follow, but not providing water managers a means by which to evaluate whether or not they are adequately incorporating or addressing the concept.

One way to evaluate the categories of accountability, information, and inclusivity is via a survey and/or semi-structured interview with a wide variety of process participants, the process lead(s), and those not included in the process. The exact method depends on the resources and time available for assessment. One can ask participants to evaluate whether or not they agree that the process successfully incorporated or addressed several indicators for each of the three categories. To minimize the effects of bias on the evaluation, the application of the Water-GPA framework should include multiple sources of information, including views from various parties engaged in the process, process documents, and/or observations by an independent party. Appendix

A provides an example survey of how these three process categories were evaluated in the two case studies presented below.

As with the other categories, data on how well the process lead considered the context of the basin, can be collected from the process documentation as well as semi-structured interviews. However, as context varies so widely from basin to basin, a survey is less helpful. While data collection may be done via the same methods as data collection for the other process categories, context must be evaluated differently. Often in case studies or assessments of water governance, context is merely considered through a description of the setting. Some resources, such as the workbooks produced by the Resilience Alliance (2010), offer helpful approaches for thoroughly describing the context. While important, a description, no matter how thorough, offers little inherent guidance on what a lead organization (or the process lead) should do to develop a sound decision making process for that basin, on that issue, at that point in time. To further our understanding of context and its place in water governance, particularly decision making processes, I propose a simple way for how one can consider context and utilize it in a way to improve a decision making process.

After collecting and cataloging the various aspects of the context of a basin, work through the list to identify: 1) the potential barriers to the process or decision, and 2) the potential opportunities or leverage points to capitalize on to reach an accepted decision for each of the three other categories. For example, identify what about the existing relationships, physical geography of the basin, resource system, economics, and other aspects of the basin context may impede inclusivity in the process or can be used by the process lead (or facilitator) to promote inclusivity. The result may look something like

Table 9. Facilitators and mediators frequently do some variation of this exercise in their stakeholder assessments and preparation for negotiations and mediations (Moore, Harty, & Woodrow, 2001).

Table 9. Example assessment of context

	Potential Barrier	Potential Leverage Point
Inclusivity	<ul style="list-style-type: none"> • Large geographic extent to cover • Large number of relevant stakeholders 	<ul style="list-style-type: none"> • Existing coalitions • Lessons learned from previous consultations or collaborations
Information	<ul style="list-style-type: none"> • Lack of data • Concerns about data validity 	<ul style="list-style-type: none"> • Information collected and studies conducted by various parties • Existing models
Accountability	<ul style="list-style-type: none"> • Limited authority of lead organization and its ability to share that authority • Lack of trust in lead organization 	<ul style="list-style-type: none"> • Trusted person/organization in basin that can serve as 'neutral' facilitator • Collective authority of parties involved

Table 9 provides an example of how one can assess context and evaluate how it was considered in a decision making process. For example, one can identify potential barriers in accountability in order to be sure to address them in the development of a process. When evaluating a process to improve it the evaluator can check to make sure that the process lead did what it could to address potential accountability barriers or leverage points.

Whoever is leading the decision making process can address these barriers or utilize the leverage points at different stages of the process. For example, in the early stages of process development for a large scale effort, the organizer can take the time to explicitly consider how s/he can attempt to promote an inclusive process through communication and representation strategies in a cost effective way. At that time, the decision lead can also inquire what might be necessary to get various parties to trust data produced during the decision making process and incorporate those recommendations into the plans for collecting and analyzing data. In mid-program evaluation, the process lead can see if the potential barriers have been adequately addressed or if issues such as lack of trust, missing information, etc. still need to be tackled. In announcing the decision

and pursuing implementation, the process lead can utilize existing networks to spread the word about a forthcoming decision.

2.2.7 Assessing Outcomes

To explore the link between process and outcome, we must assess both the process and outcome(s). I define outcomes as direct products, or outputs, of the process, namely: 1) the decision resulting from the process, and 2) byproducts of the process (i.e., those non-target outcomes produced as a result of the process, beyond what was intended). This fits with the findings from Carr et al., (2012) in their review of public participation evaluation, which distinguishes between the intermediate outcomes and resource management outcomes. The Water-GPA framework does not yet attempt to evaluate resource management outcomes (e.g., ecological or economic improvement) because to do so would require the ability to distinguish the impacts of the process from impacts related to implementation, something which currently remains out of reach.

Like the process categories, one can evaluate the decision via a survey and/or conversation with a wide variety of review participants, the process lead(s), and those not included in the process. To aid in assessing byproducts, I created a 'byproduct bank' by identifying various outcomes, often intangible ones, that often result from, increase/improve, or decrease/decline as a result of a decision making process. The list of byproducts was created by identifying past results from decision making processes from the water governance literature and public participation literature (Table 10). To determine if the decision making process affected any of these byproducts, evaluators can be asked to note whether each byproduct emerged new as a result of the process, increased/improved, or decreased/declined, or experienced no change. To explore the link

between the process and byproducts, they can be asked to explain what about the process contributed to or hindered the byproducts. The byproduct bank (i.e., the byproducts listed and evaluated) is something that water managers can adapt and adjust according to their own evaluation needs.

Table 10. Byproduct bank

Byproduct	Emerged (new)	Increased	Decreased	No change or don't know
Ability to resolve future disputes				
Changes in water management				
Coalitions				
Communication				
Community capacity for environmental/policy decision making				
Co-produced science				
Economic costs				
Economic opportunities				
Your own education/awareness				
Your organization's education/awareness about the issues at hand				
Public education/awareness				
Human capital				
Innovation (innovative ideas or solutions)				
Institutional capacity				
Mutual/shared understanding				
Programs or initiatives (outside of the decision)				
Quality of relationships				
Level of conflict and hostility				
Social capital				
Shared knowledge and information				
Technical models				
Trust in the lead agency				
Trust in others involved				
Understanding of ecological/biophysical system				
Understanding of the social system				
Understanding of other's views, positions, etc.				
Other - please specify:				
Other - please specify:				

This table lists potential byproducts of a process. It is structured so that process participants can identify how a process did or did not influence each byproduct. It is drawn from the 22 frameworks used in the creation of the Water GPA as well as Carr et al., 2012.

2.3 Limitations of the Synthesis Framework

The Water GPA has several limitations. One is that current application of the framework uses participant perceptions to evaluate the quality of a process category/characteristic. Including a variety of perceptions from various process participants, as well as those leading the process, can help overcome potential biases. In fact using participant perception in process evaluation may reveal strengths and weaknesses of different parts of the decision making process. For example, stakeholders and government officials often participate in different aspects of decision making processes and, therefore, can speak to and help the process lead identify what may be successful or problematic within those initiatives.

Another limitation is that some elements of the framework are out of the decision maker or process lead's control. A water manager may use the framework to evaluate a process and discover that the barrier to good water governance is not something s/he can manipulate to improve the process. Many of the aspects of the context component of the framework are good examples of this. The geographic extent of a river basin is defined by topography and hydrology. Laws, which may either impede or facilitate good governance, are generally considered a given constraint within which a process must work. It is not that these elements never change. Rather some may change over timescales longer than the process or may be something that the process lead cannot change on their own. Legislatures can change laws, agencies can release new regulations, and courts issue new opinions that clarify previously undefined or unclear aspects of the law. Likewise, power dynamics of different interested and affected parties can be both entrenched but also shift over time. For example, court decisions over the past 40 years

have reaffirmed tribal rights and authorities and increased their power and influence in water management. In these situations, the process lead can work within the latitude available to them or try to compensate for an issue in another area.

2.4 Chapter Conclusion

In this chapter, I completed my first objective to develop an operationalized framework for systematically evaluating water governance processes based on existing frameworks for water governance, natural resource management, resilience, AM, and AG. I did this through a review of the water and natural resource governance literature, through which I identified 22 frameworks to draw from. Using concept mapping I identified five themes, or process categories/characteristics, that the frameworks identify as important to good water governance and high quality decision making processes. I adopted four of those characteristics of the process into the Water Governance Process Assessment (Water GPA). I operationalized measurement/assessment of those aspects of the process as well as the process decision and byproducts so that water managers can evaluate the quality of a process and decision as well as track the byproducts produced during a process.

My next task is to use the framework to demonstrate how it can be applied and to examine whether or not it is a practical tool for feasible water governance process evaluation. In the next chapter, I explain my methodology for applying the framework. I will also later use the framework in Chapter 7 to investigate the link between process and outcomes in order to determine what about a process influences the decision and byproduct outcomes.

3 Case Study Methodology

Equipped with my new synthesis framework, I set out to apply it in order to 1) investigate its usefulness as an evaluation framework for decision making processes in water governance, and 2) examine which characteristics of a process influence the process outcomes. I decided to use two case studies to accomplish these tasks. In this chapter, I provide a detailed look at the methods I employed for data collection and analysis in the two case study applications of the Water Governance Process Assessment (Water GPA). I start with a general description of case studies as a qualitative research method and explanation of why I chose to use case studies. Next, I explain how I selected my case studies. Third, I document how I collected data for the case studies. Finally, I describe my approach for data analysis.

3.1 Research Design

In this section, I describe my research design for applying the Water GPA. I begin with a discussion of case studies as one method of qualitative inquiry. Then I explain why I selected a case study approach and how I designed and implemented my case studies. The following sections dive into further details on my data collection and analysis.

3.1.1 Case Studies a Method of Qualitative Inquiry

Case studies are one form of qualitative inquiry employed in research (Creswell, 2013). Yin (2014) defines a case study as an “empirical inquiry that investigates a contemporary phenomenon (the ‘case’) in depth and within its real-world context, especially when the boundaries between phenomenon and context may not be clearly evident” (16). Case studies typically rely on multiple sources of evidence in order to triangulate findings (Yin, 2014). Case studies are well-suited for analyzing “how” and

“why” questions. While case studies address “how” and “why” questions their ability to determine true causal relationships is limited as it is difficult to tease out what is a universal concept and what is linked to the specifics of the case itself (Yin, 2014). However, they can offer much to theory development (George & Bennett, 2005).

Yin (2014) identifies five key components of research design for case studies: 1) the questions, 2) case study propositions, 3) the unit(s) of analysis, 4) the logic of linking the data to propositions, and 5) the criteria for interpreting findings. There are three types of case studies: descriptive (intended to describe a phenomenon in its context), exploratory (intends to identify the questions or procedures for future studies), and explanatory (intends to explain how or why something did or did not happen) (Yin, 2014). In the next subsection, I describe how I selected my case studies, what kind of case studies they are, and how I addressed the five key components of case study research design.

3.1.2 Review of Research Questions and Hypotheses

Before I describe my case study and methodology, I want to review my research questions and hypotheses for the case studies. As presented in Chapter 1, my research questions are as follows:

1. What are characteristics of a “good” water governance process?
2. How can those characteristics be used to evaluate water governance processes?
3. What are lessons learned for good water governance from the case studies?
4. What characteristics of a water governance process contribute to water governance outcomes?

The first research question is addressed in the development of the Water GPA in Chapter 2 (not in the case studies). My case studies help answer the last three questions. I hypothesize that the Water GPA and the characteristics it identifies as important to

decision making processes (i.e., accountability, information, inclusivity, and context) will: 1) be a useful tool for process evaluation, 2) identify what helped promote or hindered good water governance in my case studies, and 3) will influence the outcomes of the two processes (Table 11).

Table 11. Case study research questions and hypotheses

Research Questions	Hypotheses
Research Question 2 - How can those characteristics be used to evaluate water governance processes?	Hypothesis 2 - The Water GPA is a useful tool for feasible evaluation of a water governance decision making process.
Research Question 3 - What were barriers and building blocks for good water governance in the Canadian and American reviews of the CRT?	Hypothesis 3 - Different aspects of accountability, information, inclusivity, and context helped promote or hindered good water governance in the two reviews.
Research Question 4 - What characteristics of a water governance process contribute to water governance outcomes?	Hypothesis 4 - The accountability, information, inclusivity, and context of a decision making process influence and therefore help explain outcomes.

Table 11 lists out the research questions I hope to address in my case studies along with their corresponding hypotheses.

3.1.3 Case Study Selection

To answer these research questions and examine the validity of these hypotheses, I conducted two case studies. I selected a case study method because the variables in my research outnumber the number of cases (i.e., there is a problem with degrees of freedom). While this is a critique of the case study approach, academics accept the method as a valid form of inquiry (Yin, 2014). I used the Water Governance Process Assessment (presented above) to evaluate two recent reviews of the Columbia River Treaty (CRT) by the United States and Canada. Ratified in 1964, CRT provisions maximize flood control and hydropower benefits received on both sides of the US-Canada border from the Columbia River. While the Treaty continues indefinitely, some of its flood control provisions will expire in 2024 and others (i.e., Called Upon flood control where the US pays Canada for flood control on an as-needed basis) will come

into effect. September 2024 was also the earliest date the CRT can be terminated unilaterally, given 10 years notice. Since September 16, 2024 either nation can give 10 years notice to unilaterally terminate the Treaty. This provides both nations with the opportunity to consider pursuing a change in water governance of the Columbia River. Both took the opportunity to engage in a process to decide whether or not to update the CRT's water governance approach. The Army Corps of Engineers (the Corps) and Bonneville Power Authority (BPA) led the US CRT 2014/2024 Review to develop a recommendation to the Department of State. In British Columbia (BC), Canada, the Ministry of Energy and Mines conducted its own investigation of the CRT to provide its decision for potential action by Canada.

I selected these two decision making processes as my case studies for several reasons. I believe these two case studies are compelling applications of the framework because they demonstrate two different water governance processes striving to make the same decision in the same basin (i.e., recommend continuing with the Treaty as is, terminating the Treaty, or pursuing modifications to the Treaty). The unique contexts for the American and Canadian reviews also aid in identifying potential barriers or building blocks to good water governance. The fact that the two reviews were completed recently means the process is relatively fresh in the minds of the involved parties and evaluation is timely. In some ways my case study selection is also one of convenience. In addition to the timing matching up, I also observed the two decision making processes since the fall of 2010 by attending meetings on conferences associated with the two reviews. This meant I had access to the two reviews and their participants, which helped me avoid some of the barriers to entry researchers often encounter.

3.1.4 Case Study Research Design

As described above, my units of analysis are the two CRT reviews. The Treaty reviews are ongoing and therefore I bounded my case studies to look at the Phase 2 decision making process (Figure 7). This phase started after the completion of the Phase 1 joint technical studies conducted by the US and Canadian Entity, in 2010 when the two countries decided to embark on separate reviews of the Treaty. Phase 2 ends with the delivery of each reviews decision/recommendation to their respective national government. Therefore, the time period of the US case study is the summer of 2010 through December 2013 and the BC case study begins in the fall of 2011 and ends in March 2014 (Table 12).

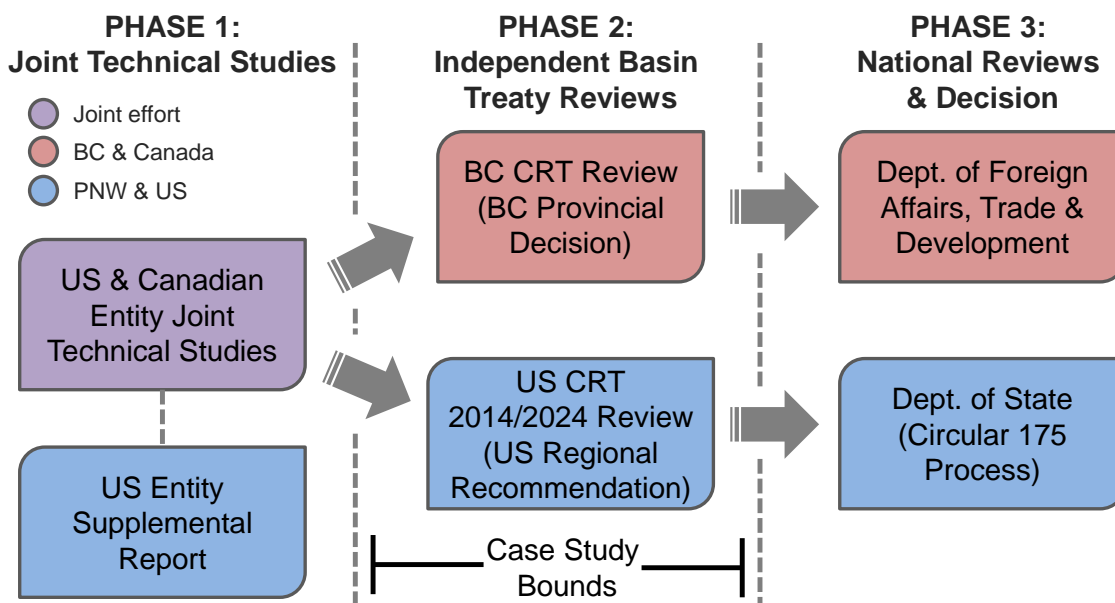


Figure 7. Diagram of case study boundaries

Table 12. Summary of case study boundaries

Case Study Name	Lead Agency	Start Date	End Date
British Columbia (BC) Columbia River Treaty Review	BC Ministry of Energy and Mines	Fall 2011	March 2014 (delivery of the BC Provincial Decision to Canada)
United States 21014/2024 Columbia River Treaty Review	US Entity (US Army Corps of Engineers and Bonneville Power Administration)	Summer 2010	December 2013 (delivery of the US Regional Recommendation to the Department of State)

Table 12 summarizes my case study boundaries in terms of what decision making process, who led the process, and the timing of that process.

Table 13 explains Yin's (2014) five components of case study research and then identifies those components in the context of my case studies. While my case studies include extensive descriptions, they are explanatory case studies. The purpose of the case studies is to explain how the decision making process influenced or impacted the outcomes. Presented in a slightly different way, my case studies seek to explain why the US and Canada achieved certain outcomes in their reviews of the Columbia River Treaty with the proposition being that aspects of the decision making process had some influence. My hypothesis for the second question is that the four categories of the Water GPA (accountability, information, inclusivity, and context) identify the characteristics that influence the content and degree of support for the BC Provincial Decision and US Regional Recommendation as well as influencing a number of byproducts. To test this hypothesis and contribute to theory development, I use pattern matching to investigate whether my empirical findings support the existing theory. As appropriate, I make analytical generalizations about how my case studies relate to resilience theory and adaptive water governance.

Table 13. Summary of case study research design

Component & Definition	My Application
<i>Case study questions</i> - The research questions which the case study seeks to address	My case studies seek to answer the following questions: 2) How can those characteristics in the Water GPA be used to evaluate water governance processes? 3) What are lessons learned for good water governance from the case studies? And 4) What characteristics of a water governance process contribute to water governance outcomes?
<i>Case study propositions</i> - The hypotheses and assumptions proposed/made by the researcher that further direct what data will be collected	I hypothesize that the four categories of the Water GPA (accountability, information, inclusivity, and context) influenced the content and degree of support for the BC Provincial Decision and US Regional Recommendation as well as influencing a number of byproducts.
<i>Unit(s) of analysis</i> - The “case” to be examined after it is defined and bounded by the researcher	My units of analysis are the Phase 2 reviews of the Columbia River Treaty by the United States and British Columbia.
<i>Logic linking data to propositions</i> - Analytic approach (e.g., pattern matching, explanation building, logic models, cross-case synthesis) to be taken	I employ a pattern matching technique in each case study to see if the empirical results match my hypothesis.
<i>Criteria for interpreting findings</i> - How the researcher plans to interpret results and develop conclusions, including how to address rival explanations.	I address rival explanations through inductive coding of emergent themes of other factors that may have influenced the review outcomes.

Table 13 summarizes the different components of case study research design and how I defined or addressed each component in my two case studies.

3.2 Data Collection

3.2.1 Semi-structured interviews and surveys

I collected data for the case studies using a mixed methods approach of semi-structured interviews, a survey, as well as some document analysis. Study participants are individuals who participated in either the US or Canadian review of the Columbia River Treaty representing the federal agencies, First Nations/Tribes, states/province, local governments, and stakeholders listed in Table 14. My overall sampling strategy for selecting potential survey and interview participants was a purposive stratified-quota sampling approach. I selected that approach in order to ensure that a variety of perspectives are represented in the data collected. I set out to interview around 40 total individuals--around 20 from each side of the US-Canadian border. However, this was a

tentative target. My goal for the interviews was to reach saturation, where no new information or themes emerge with additional interviews or other data collected (Guest, Bunce, & Johnson, 2006). Arksey and Knight (1999) and Guest et al. (2006) note that researchers typically reach saturation between six to twelve interviews.

Table 14. Groups included in stratified sampling approach

	US CRT 2014/2024 Review	BC CRT Review
Program Leads	<ul style="list-style-type: none"> • US Army Corps of Engineers • Bonneville Power Administration 	<ul style="list-style-type: none"> • BC Ministry of Energy and Mines
Federal Government	<ul style="list-style-type: none"> • US Environmental Protection Agency • US Forest Service • US Fish and Wildlife Service • US Geological Survey • US Bureau of Indian Affairs • US National Marine Fisheries Service • US National Park Service • US Bureau of Reclamation • US Department of the Interior 	<ul style="list-style-type: none"> • Natural Resources Canada • Environment Canada • Fisheries and Oceans Canada
Native American Tribes	<ul style="list-style-type: none"> • Cowlitz Tribe • Columbia River Inter-Tribal Fish Commission • Confederated Salish & Kootenai Tribes • Upper Columbia United Tribes • Upper Snake River Tribes • Confederated Tribes of the Grand Ronde 	<ul style="list-style-type: none"> • Ktunaxa Nation • Okanagan Nation • Secwepemc Nation (Neskonlith Band) • Sinixt
State, Provincial, & Local Government	<ul style="list-style-type: none"> • Idaho • Montana • Oregon • Washington • County Commissioners in basin 	<ul style="list-style-type: none"> • BC Hydro • Ministry of Forests, Lands and Natural Resource Operations • Ministry of Environment • Local Government Committee
Stakeholders	<ul style="list-style-type: none"> • Power interests • Irrigation interests • Navigation interests • Environmental interests • Recreation interests 	<ul style="list-style-type: none"> • BC CRT Review Sounding Board Members • Other citizens

This table outlines the various groups of process participants I attempted to interview and survey for my case studies. I interviewed a minimum of two individuals from each category for each review. To ensure confidentiality all organizations/affiliations I contacted are listed, instead of only those interviewed.

I identified potential interviewees by reviewing the lists of members or participants for various Treaty review committees and teams as well as public comments made on the draft BC Provincial Decision as well as the working draft and draft versions of the US Regional Recommendation. All of these sources are publically available. I

recruited participants in the study via phone, email, and personal requests at conferences in the basin. Roughly half of those contacted agreed to participate in the study. Others did not respond to my inquiries or were not able to participate due to their busy schedules. At the conclusion of data collection, I interviewed 22 individuals involved in the US CRT 2014/2024 Review and 16 individuals involved in the BC CRT Review (Table 15 and Table 16). Of those individuals 14 from the BC CRT Review and 20 from the US 2014/2024 Review filled out surveys. The four individuals who did not complete the survey either declined due to the time commitment or have not returned the survey as of the date of completion of this study. A number of other individuals--six in the United States and three in British Columbia--completed the survey but did not participate in an interview. I provide a copy of the survey and the interview question guide in Appendix B.

Table 15. BC Columbia River Treaty Review case study participants

Category	Affiliations	Number Completed Survey	Number Interviewed
Federal Government	<ul style="list-style-type: none"> • Natural Resources Canada • Environment Canada • Fisheries and Oceans Canada 	2	2
First Nations	<ul style="list-style-type: none"> • Ktunaxa Nation • Okanagan Nation • Secwepemc Nation (Neskonlith Band) • Sinixt 	0	2
Provincial Government	<ul style="list-style-type: none"> • BC Ministry of Energy and Mines (Lead Agency) • BC Hydro • Ministry of Forests, Lands and Natural Resource Operations • Ministry of Environment 	5	5
Local Government	<ul style="list-style-type: none"> • Members of Local Government Committee 	3	2
Stakeholders	<ul style="list-style-type: none"> • BC CRT Review Sounding Board Members • Other citizens 	8	5
Total		18	16

Table 15 lists out the organizations and agencies who participated in the BC CRT Review and how many in each category I interviewed and surveyed for my analysis. Sources for identifying potential participants include Sounding Board and Committee rosters as well as other public documents from the BC CRT Review.

Table 16. US 2014/2024 CRT Review case study participants

Category	Affiliations	Number Completed Survey	Number Interviewed
Federal Government	<ul style="list-style-type: none"> • Bonneville Power Administration (Lead Agency) • US Army Corps of Engineers (Lead Agency) • US Environmental Protection Agency • US Forest Service • US Fish and Wildlife Service • US Geological Survey • US Bureau of Indian Affairs • US National Marine Fisheries Service • US National Park Service • US Bureau of Reclamation • US Department of the Interior • US Department of State 	8	6
Native American Tribes	<ul style="list-style-type: none"> • Cowlitz Tribe • Columbia River Inter-Tribal Fish Commission • Confederated Salish & Kootenai Tribes • Upper Columbia United Tribes • Upper Snake River Tribes • Confederated Tribes of the Grand Ronde 	4	3
State & Local Government	<ul style="list-style-type: none"> • Idaho • Montana • Oregon • Washington • County Commissioners • State Representatives 	3	3
Stakeholders	<ul style="list-style-type: none"> • Power interests • Irrigation interests • Navigation interests • Environmental interests 	13	10
Total		28	22

Table 16 lists out the organizations and agencies who participated in the US CRT 2014/2024 Review and how many in each category I interviewed and surveyed for my analysis. Sources for identifying potential participants include SRT and STT Rosters, public comments on the Working Draft and Draft versions of the Regional Recommendations, public comments received at other points during the US CRT Review.

The length of the interviews ranged from twenty minutes to two hours depending on how much time the participant was able to contribute and how much they wanted to share. I asked each interviewee if it was acceptable for me to record our conversation in order to transcribe and analyze the text. All but one person allowed me to record and

transcribe our conversation. For that individual I took copious notes during our conversation to collect his/her insights. I transcribed the audio recordings and that one set of interview notes into text files, specifically Microsoft Word documents. A few interviewees requested that I share the transcription for their review before data analysis. I sent those individuals copies of their interview transcript so they could redact, expand upon, or clarify any statements they made. One interviewee made minor revisions to the transcript to improve clarity of language. I also transcribed the survey responses into an Excel spreadsheet. As this research included human subjects, I submitted the research to the Oregon State University Institutional Review Board (IRB) for ethics review and approval prior to data collection. I include a copy of the IRB Approval Form in Appendix C. To help ensure confidentiality I did not collect names or other personal identifiers in this study. Transcriptions (and all other documentation) used identification code numbers instead of names. After transcription, I shredded and discarded the paper surveys. Only I had access to the digital audio recordings of the interviews and the survey results. The recordings, transcriptions of the recordings, and transcribed survey results are stored digitally in a locked room on a password-protected computer. As per IRB recommended guidelines, the digital audio recordings and transcriptions will be erased after seven years. I include select text quotes from participants in the presentation of research findings here and in other publications. These quotes are not attributed to the interviewees by name but rather by general interest or involvement in the two cases (e.g., hydropower interest, technical committee member). The purpose for these quotes is to provide examples that illustrate findings and concepts resulting from the study.

3.2.2 Documents

My document analysis took two forms. First, was a comparison of the different iterations of the decision documents produced by the two Treaty reviews. I compared the draft and final versions of the BC Provincial Decision as well as the working draft, draft, and final versions of the US Regional Recommendation. In my analysis, I reviewed the documents for 1) the inclusion of new language, and 2) changes in language that give new meaning (i.e., assert or clarify a view or position as opposed to improve the grammar of the document). This analysis simply documents the changes. I also used documents, produced during the two reviews to verify interview and survey data. These documents included public comments on the decision documents as well as reports and products produced by the lead agencies and other organizations participating in or observing the reviews. In the next section of this chapter I explain how I analyzed the data collected.

3.3 Data Analysis

In this section of Chapter 3, I describe my strategy for data analysis. I address it in three parts. First, I explain how I analyzed the two decision making processes that serve as my cases (i.e., the BC CRT Review and US CRT 2014/2024 Review). Second, I describe my strategy for analyzing the outcomes of the two decision making processes. Finally, I explain how I analyzed the link between a decision making process and its outcomes. It is important to note that all three areas of analysis use data from the semi-structured interviews, surveys, and documentation described in the chapter section on data collection. How I analyzed each data source is included in each subsection.

3.3.1 Decision Making Process

I used data from the surveys and interview transcripts to analyze the two decision making processes (i.e., the BC CRT Review and US 2014/2024 CRT Review) and identify what participants felt worked well and what did not using the categories of the Water Governance Process Assessment (Water GPA). The Water GPA includes four primary codes or themes for evaluating decision making processes: context, inclusivity, information, and accountability. As I discussed earlier, both the survey and interviews recorded perceptions about different aspects of the process. For instance, in the survey, participants rated the degree to which they agreed or disagreed that the process reflected certain desirable traits or criteria. In the interviews, the participants provided examples or reasons for those scores.

The survey responses included data for three categories of the Water GPA, accountability, information, and inclusivity. For each criterion within a category, I calculated the mean score as well as made counts for the distribution of responses. This allowed me to see if the survey respondents were largely in agreement or disagreement in their scores. If there was disagreement among the scores, I investigated what may account for the differences in perception. For example, in the US 2014/2024 CRT Review I parsed out the scores from stakeholders and sovereigns to see if that explained the variation in views.

I manually coded the interview transcripts and open-ended survey responses using NVivo qualitative software and the framework I created (Water GPA). Within each primary code (e.g., context, accountability, inclusivity, and information) are several sub-codes that evaluate a specific aspect of the theme. For example, within the primary code

of accountability, sub-codes include decision authority, criteria used for making the decision, rule of law, procedural fairness. In addition to this deductive coding, I also inductively coded the interviews based on the emergent themes I encountered in multiple interviews (Strauss, 1987). A complete list and description/definition of the codes is available in Appendix D. In addition to coding the text to identify the theme/subtheme, I also coded each piece of coded text for whether or not the comment from the participant was positive, negative, or neutral/mixed. This allowed me to explore trends in what aspects of the two reviews were viewed favorably and which were not. From this information, I identified lessons learned from the two reviews that the US and Canada may want to consider as they proceed with the next steps of the Treaty reviews or in future decision making processes within the basin.

3.3.2 Process Outcomes

As explained in Chapter 2, I consider process outcomes to consist of two categories: decisions and byproducts. These are direct outputs resulting from a process or what Carr et al. (2012) consider to be “intermediary outcomes.” Decisions are the intended goal or result of a decision making process; whereas, byproducts are non-target outcomes. That is, byproducts are ancillary results that a decision making process did not set as a goal of the process, but still resulted from the process. Table 17 includes a summary of how I collected and analyzed data on the two different types of outcomes.

Table 17. Summary of data analysis of process outcomes

Outcome	Survey	Interviews	Document Analysis
Decision (i.e., BC Provincial Decision and US Regional Recommendation)	<ul style="list-style-type: none"> Calculated mean scores Counted distribution of responses 	<ul style="list-style-type: none"> Coded views as positive, negative, neutral/mixed 	<ul style="list-style-type: none"> Compared text of draft versions to note content and language changes Summarized themes from public comments on documents
Byproducts (e.g., trust, understanding of ecological system, technical models, etc.)	<ul style="list-style-type: none"> Tallied counts of what respondents noted as emerged, increased, decreased, or no change 	<ul style="list-style-type: none"> Coded examples of different byproducts 	<ul style="list-style-type: none"> None

Table 17 summarizes the different types of data analysis I used for my surveys, interviews, and document analysis.

Study participants provided feedback on the review decisions via the survey and interview. In the survey, participants rated the degree to which they agreed or disagreed with statements about the BC Provincial Decision or US Regional Recommendation. These responses captured survey respondents perceptions about the decision's legitimacy, potential for it to be accepted by the federal government to which it was presented, and if the document reflected the views of the region and survey respondent. For each of these criteria, I calculated the mean score of the participants as well as made counts for the distribution of responses. If there was disagreement among the scores, I investigated what may account for the differences in perception. In the interview transcripts, I manually coded statements about the decisions as positive, negative, or neutral/mixed in order to investigate what participants thought of the decision documents and what influenced those views.

Data on the byproducts primarily came from the survey responses. In their surveys, participants noted which byproducts from the list provided emerged, increased, decreased, or did not change as a result of the Treaty review process they were evaluating. I tallied counts of the responses to document how many participants observed

changes in the byproducts. In the survey, participants also identified up to three byproducts that were most important to them and up to three byproducts that they wished had resulted from the Treaty review. In those responses, some participants cited byproducts from the list provided. Others did not. For the byproducts noted that did not explicitly appear in the list I provided, I categorized them according to the list or included them in the list of “other.” I also used the list of byproducts to manually code the interview transcripts using NVivo qualitative software. This served to supplement the survey data by capturing specific examples of the various byproducts. For example, new programs or initiatives is one potential byproduct of a decision making process. Several interviewees mentioned the Columbia Basin Regional Advisory Committee as a new program resulting from the BC CRT Review, which brings together government agencies, First Nations, and BC citizens to address both domestic and Treaty-related issues in the BC portion of the basin.

3.3.3 The Link between Process and Outcomes

My investigation of whether there is a link between decision making process and outcomes included a multi-prong approach. I employed the semi-structured interviews described above to examine the link between the process and outcomes, both the decisions and byproducts of the two reviews. During the interviews for the two case studies, the United States 2014/2024 Columbia River Treaty Review and the British Columbia CRT Review, I asked participants if the review process in terms of accountability, information, inclusivity, and context shaped or influenced the outcomes of the decision making process. I also inquired if other aspects of the review process or outside factors influenced the decision (in my case studies that would be either the US

Regional Recommendation or BC Provincial Decision) or review byproducts. For investigating the link between the two processes and their decisions (the US Regional Recommendation and BC Provincial Review) I supplemented my methodology with document analysis.

Using QSR NVivo software I manually coded the interviews deductively using the Water GPA as described above in the sub-section titled “Decision Making Processes.” I identified all statements where a participant talks about some aspect of the process influencing or not influencing the decision or byproducts. I coded those statements for which aspect of the process the participant was referring to (i.e., accountability, inclusivity, context, and information as well as their secondary codes (see Chapter x and Appendix for list). Statements that did not fit under any of these four primary codes were coded as “Other.” I then inductively coded the statements in the “Other” code to identify subthemes they may explain what influenced the two review decisions and their byproducts. This inductive coding process is important for identifying potential rival explanations.

I then went through all those coded statements a second time to identify the kind of influence or lack of influence the participant discussed. Table 18 lists these codes for statements related to the decision. Table 19 lists the codes for statements about byproducts. Using the matrix coding query in NVivo I was then able to identify which aspects of decision making process did or did not influence the outcomes (Table 20).

Table 18. Additional codes for analysis of link between a process and its decision

Code	Explanation
Influenced content	Some aspect of the process influenced the structure or content of the decision
Increased support	Some aspect of the process <i>increased</i> participant support for the decision
Decreased support	Some aspect of the process <i>decreased</i> participant support for the decision
No influence	The process did not influence the decision in terms of content or support
Other	The process had some other impact on the decision

Table 18 displays the codes I used to document potential links between the characteristics of a process and the decision.

Table 19. Additional codes for analysis of link between a process and its byproducts

Code	Explanation
Increased byproduct	Some aspect of the process promoted the emergence or increase of a byproduct
Worked against byproduct	Some aspect of the process impeded the emergence or increase of a byproduct
No influence	The aspect of the process had no impact on the byproduct
Would have helped	Recommendations or statements about how if the process was run or structured differently, it would have contributed to a byproduct

Table 19 displays the codes I used to document potential links between the characteristics of a process and the process byproducts.

Table 20. Example NVivo matrix coding query results: how process influenced the US Regional Recommendation

	Number of Coded References				
	Contributed to US Regional Recommendation		Other influence	No influence	Decreased support
	Increased support	Influenced content			
Accountability	10	16	5	3	3
Context	0	6	2	1	2
Inclusivity	15	38	2	7	10
Information	5	5	2	13	1
Other	0	1	0	1	1

Table 20Table 99 displays the number of coded references noting that the four Water GPA process characteristics and an 'other' category (for potential rival explanations) had one of four types of influence (increased support, influenced content, decreased support, or other influence) or had no influence on the US Regional Recommendation.

I conducted two different forms of document analysis to help examine what influenced the content and support for the US Regional Recommendation and BC Provincial Decision. To examine the evolution of the two decision documents (i.e., the BC Provincial Decision and US Regional Recommendation), I compared the language

and content of each version of the two documents. To compare the versions I copied the text into a Microsoft Word document and used the “Compare Documents” function in Microsoft Word to identify changes. I reviewed the resulting comparison documents for: 1) the inclusion of new language, and 2) changes in language that give new meaning (i.e., assert or clarify a view or position as opposed to improve the grammar of the document). That analysis catalogues the changes between versions of the two decision documents. The second document analysis I completed was to summarize the comments made by various parties on draft versions of the documents.

3.3.4 Statement of Potential Research Bias

Like other qualitative methods, some academics criticize case studies for the lack of rigor in some previous work and the challenges of addressing research bias (Flyvbjerg, 2006). In an effort to ensure full transparency in this research, I wanted to briefly share the history of my involvement with the discussions around and reviews of the Columbia River Treaty. I first became involved in the Columbia River Treaty discussions in the fall of 2010, when I attended the second symposium hosted by the Universities Consortium on Columbia Basin Governance. These symposia are informal, transboundary events with the aim of fostering transboundary dialogue between Canadians, Americans, Tribes, and First Nations. Since then, I attended all subsequent symposia in 2011 and 2012 as well as the Columbia River Basin 2014 Transboundary Conference in the fall of 2014. At each event I served as a rapporteur taking notes for various Consortium products. I also co-produced a short film, *Voices of the Basin*, in order to share various perspectives of basin residents on the Columbia River Treaty reviews (DuMond, Ogren, Petersen-Perlman, & Watson, 2012). From July 2013 through January 2014, I joined the US CRT 2014/2024

as a Visiting Scholar with the Army Corps of Engineers Portland District. In this position, I provided program support, including attending various review meetings, developing presentations, summarizing public comments, investigating Canadian views of the Columbia River Treaty and its reviews, and leading the Corps internal After Action Review. Throughout this five year timeframe, I have done my best to participate in the as a neutral researcher working to identify lessons learned through the two review processes in order to share my findings so they might improve future decision making processes.

Funding for this research comes from several sources. The primary funding source is the Hydro Research Foundation (HRF) Research Awards Program². The Sasakawa Young Leaders Fellowship Fund (Sylff) Graduate Fellowship for International Research³ also contributed significant funding for my research. Other funding sources include the American Association of Geographers Water Research Specialty Group and Geography Program within the College of Earth, Ocean, and Atmospheric Sciences at Oregon State University (Arthur Parenzin Fellowship).

These experiences and funding sources all positively impacted my study by giving me greater access to the two CRT reviews, allowing for a more thorough understanding of the cases and more nuanced analysis. However, they may also bias my research. I perceive my potential biases to include: 1) sympathy for the US Entity as I

² Description from HRF website: “The Hydro Research Foundation, Inc. (Foundation) is leading the Hydro Research Awards Program that is designed to stimulate new student research and academic interest in research and careers in conventional or pumped storage hydropower. The awards are made possible by a grant from the Energy Efficiency and Renewable Energy Program of the U.S. Department of Energy (DOE). The awards are designed to allow outstanding early-career researchers to facilitate research related to hydropower.” For more information visit: <http://www.hydrofoundation.org/research-awards-program.html>

³ Program description from website: “The goal of the Sylff Program is to nurture future leaders who will transcend geopolitical, religious, ethnic, and cultural boundaries in the world community for the peace and the well-being of humankind.” For more information visit: <http://gradschool.uoregon.edu/SYLFF>

witnessed its efforts firsthand, and 2) increased focus on hydropower interests as I need to report their observations as part of my deliverables to the HRF as a condition of my funding. A third bias is that I am an American living in the US portion of the basin with greater access to the US CRT 2014/2024 Review. Therefore that case study is more thorough than the BC CRT Review case study. A fourth bias is that I know many of the study participants personally, on both sides of the border and in a variety of roles in the two reviews. As a conflict management professional, I prefer cooperation to conflict and want this basin to find a way for all parties to come out ahead. Therefore, I may have a tendency to avoid presenting information I feel may make the two countries more positional or may tilt negotiations in favor of one country or the other. A final researcher bias of mine is that I created the Water GPA and therefore might favor the process characteristics it says are important and miss other characteristics or explanations for process outcomes.

Aware of my potential biases, I actively scrutinized my work throughout the research process to work to ensure that I was as an objective as researcher as possible. I adopted recommendations from Yin's 2014 book, *Case Study Research*. My efforts to be as neutral as possible include: 1) reflecting on whether I am too gentle with the process leads, 2) checking my work to make sure my findings reflect all stakeholders and sovereigns and that hydropower is not overly represented, 3) clearly identifying whose views I am presenting so the reader can consider the source of information, 4) extra trips to the BC portion of the basin and the creation of a database of Canadian perspectives to ensure that my BC CRT Review case study is robust, 5) presenting my findings regardless of how they may help or hurt either side (or parties within each country) in any

future negotiations, 6) actively searching for other explanations outside of the Water GPA that might explain the link between process and outcome (Table 21). Having taken those measures, I feel I did my best to report my observations, findings, and conclusions in a fair way that is true to the people I interviewed and surveyed as well as the documents I analyzed.

Table 21. Potential researcher biases and how I worked to mitigate them

Potential Bias	What I did to combat it
Being too gentle with the US Entity whom I previously consulted for in the US CRT 2014/2024 Review	<ul style="list-style-type: none"> Presented both negative and positive views from interviewee and survey respondents Reflected on whether I am too gentle with the process leads
Over-representation of hydropower interests	<ul style="list-style-type: none"> Checked my work to make sure my findings reflect all stakeholders and sovereigns and that hydropower is not overly represented Clearly identified whose views I am presenting so the reader can consider the source of information
My BC case study may not be as thorough as my US case study because I am an American who worked on the US CRT 2014/2024 Review	<ul style="list-style-type: none"> Made extra trips to the BC portion of the basin Created a database of Canadian perspectives to ensure that my BC CRT Review case study is robust
Not presenting findings that may decrease potential cooperation between countries	<ul style="list-style-type: none"> Presented my findings regardless of how they may help or hurt either side (or parties within each country) in any future negotiations
I created the Water GPA and may favor the characteristics it proposes as influencing water governance outcomes over other explanations	<ul style="list-style-type: none"> Actively searched for other explanations outside of the Water GPA that might explain the link between process and outcome

In Table 21, I identify my potential researcher biases and how I worked to mitigate their impacts on my research.

3.4 Chapter Summary and Conclusion

In this chapter, I provided detailed explanation of the case study methodology I used to answer three of my four research questions. I started with a general discussion about case studies and their usefulness in qualitative research. I presented the justification for my case study selections as well as my case study research design. Specifically, I chose the US CRT 2014/2024 Review and BC CRT Review as my units of analysis because they set out to make the same decision in different contexts (but the same

transboundary basin), the processes recently ended, and I had increased access to the two processes. I bounded my case studies to Phase 2 of the reviews (from the completion of the joint Phase 1 technical studies to the delivery of a recommendation to the national level government, the initiating event for Phase 3). I hypothesized that the four process characteristics identified in the Water GPA would allow me to evaluate the two processes, identify barriers to building blocks to good water governance in those parts of the Columbia River Basin, and determine what about a decision making process influences water governance outcomes. After explaining my cases, I then described my approach for data collection, which includes interviews, surveys, and document analysis. I explained that I will use the Water GPA to deductively code and analyze my data as well as inductively code to look for and address rival explanations. I also discussed how I will use basic statistics to analyze the surveys and will compare versions of the US Regional Recommendation and BC Provincial Decision to track the evolution of the two decisions. I conclude the chapter with an explanation of my potential research bias and what I did to combat those biases. Next, I provide background information about the Columbia River Basin, Columbia River Treaty, and two case studies before my case study analysis.

4 Case Studies Setting: The Transboundary Columbia River and its Treaty

In this chapter, I provide a detailed look at the setting of the two case studies. In addition to describing the geography of the basin, I provide an explanation of the Treaty and its major provisions along with summaries of other transboundary water management mechanisms governing the river. I take an in-depth look at Columbia River Treaty, the document at the heart of the two case studies. Information specific to either the Canadian or US portion of the basin (e.g., Canadian or US laws) is included in the subsequent case study chapters.

4.1 Basin Geography

The Columbia River is one of many names. It has been described as a river lost (Harden, 1996), a river loved (Watson, 2012), and the organic machine (White, 1995). Lewis and Clark called it “The Great River of the West” (Holbrook, 1990). “Nch’i-Wana,” is the Sahaptin word for the Columbia, or “Great River” (Lang & Carriker, 2000). Other indigenous peoples names translate to English as “The River” (Holbrook, 1990). The name “Columbia” itself comes from the name of an American ship, the *Columbia Rediviva*, captained by Robert Gray who journeyed into the mouth of the Columbia in May 1792 (The Superintendent of the Coast, 1859).

4.1.1 Political Boundaries and People

The Columbia River basin (CRB) is an international basin shared between the United States and Canada which covers an area of 259,500 mi² or 671,000 km² (Muckleston, 2003) (Figure 8). Seven states and one Canadian province have land within the basin. A number of sovereign First and Tribal Nations either reside in the basin, have

natural resource management authorities, and/or have asserted interests in the basin (Table 22 and Table 23). Over 7.8 million people live in the basin (Oak Ridge National Laboratory, 2012). The US portion basin is home to over 7,325,200 million people and approximately 505,600 people live in the Canadian portion of the basin (Oak Ridge National Laboratory, 2012).



Figure 8. Columbia River Basin
Cartographer: Kim Ogren

Table 22. List of some of the Tribal Nations in the Columbia River Basin

Tribal Nations in the United States*	
<ul style="list-style-type: none"> • Burns Paiute Tribe • Coeur d'Alene Tribe • Confederated Salish and Kootenai Tribes of the Flathead Nation • Confederated Tribes and Bands of the Yakama Nation • Confederated Tribes of the Colville Reservation • Confederated Tribes of the Umatilla Indian Reservation • Confederated Tribes of the Warm Springs Reservation of Oregon 	<ul style="list-style-type: none"> • Cowlitz Indian Tribe • Ft. McDermitt Paiute Shoshone Tribes • Kalispel Tribe of Indians • Kootenai Tribe of Idaho • Nez Perce Tribe • Shoshone Paiute Tribe of the Duck Valley Indian Reservation • Shoshone-Bannock Tribes of the Ft. Hall Reservation • Spokane Tribe of Indians

Table 22 lists the tribes with management authorities and responsibilities affected by the Columbia River Treaty. This table does not include all tribes in the Columbia River Basin (Columbia River Inter-Tribal Fish Commission, 2014).

Table 23. List of some of the First Nations in the Columbia River Basin

First Nations in Canada	
<i>Inside the Columbia Basin</i>	<i>Outside the Basin with Asserted Interests</i>
KTUNAXA NATION <ul style="list-style-type: none"> • Yaqaṇ nuʔkiy (<i>Lower Kootenay Indian Band</i>) • ʔakink_um_asnuq_iʔit (<i>Tobacco Plains Indian Band</i>) • ʔakisq_nuk (<i>Columbia Lake Indian Band</i>) • ʔaq_am (<i>St. Mary's Indian Band</i>) 	OKANAGAN NATION <ul style="list-style-type: none"> • spaxomən (<i>Upper Nicola Band</i>)
OKANAGAN NATION <ul style="list-style-type: none"> • c'əc'əwixaʔ (<i>Upper Similkameen Indian Band</i>) • kʔk'ər'míws (<i>Lower Similkameen Indian Band</i>) • snpíntktn (<i>Penticton Indian Band</i>) • stqaʔtkwəʔwt (<i>Westbank First Nation</i>) • suknaqinx (<i>Okanagan Indian Band</i>) • swíws (<i>Osoyoos Indian Band</i>) 	SECWEPEMC NATION <ul style="list-style-type: none"> • Qwʔewt (<i>Little Shuswap Indian Band</i>) • Sexqeltqín (<i>Adams Lake Indian Band</i>) • Simpcw (<i>Simpcw First Nation</i>) • Sk_emtsin (<i>Neskonlith Indian Band</i>) • Splatsín (<i>Splatsín First Nation</i>)
SECWEPEMC NATION <ul style="list-style-type: none"> • Kenpésq't (<i>Shuswap Indian Band</i>) 	

Table 23 lists recognized First Nations inside the BC portion of the CRB or outside the basin with asserted interests in the river and/or basin (Columbia River Inter-Tribal Fish Commission, 2014).

Roughly 15% (102,400 km²) of the basin is in Canada, specifically interior British Columbia (BC) (Hearns, 2008). Approximately 85% (567,600 km²) of the basin is below the 49th parallel, primarily in the states of Idaho, Montana, Oregon, and Washington with small portions also in Nevada, Utah, and Wyoming. The territory of the four primary states and single province with the basin ranges from 9% (BC) to 95% (ID) (Table 24).

Table 24. Percent of State or Province in Columbia River Basin

State/Province	% of State/Province's Land in Basin
Idaho (ID)	95%
Washington (WA)	69%
Oregon (OR)	57%
Montana (MT)	17%
British Columbia (BC)	9%

Table 24 displays the percent of a state/province's within the CRB (Muckleston, 2003).

4.1.2 Hydrology of the Basin

The 1,214 mile (1,954 km) main-stem originates in British Columbia, Canada and flows through the United States to the Pacific Ocean (Muckleston, 2003). The Columbia River has several major tributaries including the Kootenay (or Kootenai), Snake, Pend Oreille (or Pend d'Oreille), Willamette, and Spokane (Hatcher & Jones, 2013; Hearn, 2008; Matheussen et al., 2000). The Kootenay River originates in BC, flows across the border into Montana (at Koocanusa Reservoir), through part of Idaho, and then back into BC (Muckleston, 2003). The Okanagan River is also a tributary of the Columbia, however, the Okanagan River is not included in the Columbia River Treaty because its confluence with the Columbia is in Washington state downstream of the international border (Hearn et al., 2008).

Precipitation ranges widely in the basin from 6 to 180 inches a year (1500 – 4600 mm), with most precipitation falling in the winter months (Bonneville Power Administration, US Army Corps of Engineers, & US Bureau of Reclamation, 2001). The main-stem of the Columbia River has an annual average flow of 198 million acre-feet (MAF) or 244 billion cubic meters making it the fourth largest river on North America, as measured by average annual flow (Bonneville Power Administration et al., 2001; Hearn, 2008; Hyde, 2010). Of that flow, 25% to 40% of the water originates in the BC portion of the basin in any given year. In times of flooding, upwards of 50% of the runoff originates

in BC (Bonneville Power Administration et al., 2001; Ketchum & Barroso, 2006). The storage capacity on the river is 49.85 MAF, less than 30% of the average annual flow (Table 25) (Hamlet, 2003; US Army Corps of Engineers, 2011). The basin currently relies on natural storage via snowpack, which is projected to decrease with climate change (Hamlet, Lee, Mickelson, & Elsner, 2010; Mckenzie, 2013).

Table 25. Columbia Basin Storage

Project Groups	Active Storage (MAF)	Authorized		Not Authorized Incidental Storage (MAF)	Total Storage (MAF)
		System Flood Control (MAF)	Local Flood Storage (MAF)		
Projects Authorized and Currently Operated for System Flood Control	19.738	18.282	---	0	18.282
Projects Authorized for Conditional System Flood Control	1.275	0.745	---	---	0.745
Projects Authorized and Operated for Local Flood Control	2.149	---	2.149	0	2.149
Projects Not Authorized for Local Flood Control but at times may provide incidental system flood protection	2.938	---	0.231	1.96	2.191
Irrigation Projects Not Authorized for Local Flood Control with No Flood Control Operations	1.766	---	---	---	0
Projects with Minimal or No Storage Capacity(not effective at reducing flow at The Dalles)	0.875	---	---	---	0
Run of River Projects with Minimal or No Storage Capacity	0.607	---	---	0.345	0.345
Total US Storage	29.348	19.027	2.38	2.305	23.712
Canadian Storage	20.5	15.5			20.5
Total Columbia Basin Storage	49.848	34.527	2.38	2.305	44.212

Table 25 provides a detailed account of the storage available in the CRB for different purposes and how much of that storage is available for local or system flood control (reproduced from US Army Corps of Engineers, 2011).

4.1.3 Other Natural Resources in the Basin

There are multiple types of land cover in the basin (Table 26). The three dominant types of land cover present are evergreen needleleaf forest, shrubland, and grassland (Table 26). This diverse habitat supports an abundance of wildlife. The Columbia River

Basin Biodiversity Atlas (2015) notes that over 700 species of mammals, birds, fish and reptiles live in the Canadian portion of the basin.

Table 26. Land cover in the Columbia River Basin

Land cover Type	Canada		United States	
	Area of Type (km ²)	Percent of Basin Country Unit	Area of Type (km ²)	Percent of Basin Country Unit
Urban and Built-Up Land	445	0.4	6,685	1.18
Dryland, Cropland, and Pasture	145	0.13	24,355	4.3
Irrigated Cropland and Pasture	285	0.26	22,010	3.89
Cropland/Grassland Mosaic	525	0.47	6,250	1.1
Cropland/Woodland Mosaic	120	0.11	270	0.05
Grassland	1,610	1.45	101,395	17.9
Shrubland	1,675	1.51	139,280	24.59
Mixed Shrubland/Grassland	435	0.39	285	0.05
Savanna	95	0.09	215	0.04
Deciduous Broadleaf Forest	9,310	8.37	19,115	3.37
Evergreen Needleleaf Forest	68,945	61.99	239,960	42.36
Mixed Forest	9,445	8.49	3,100	0.55
Mixed Forest	9,445	8.49	3,100	0.55
Wooded Wetland	730	0.66	45	0.01
Barren or Sparsely Vegetated	540	0.49	35	0.01
Wooded Tundra	7,160	6.44	395	0.07
Mixed Tundra	5	< 0.01	0	0
Snow or Ice	310	0.28	0	0

Table 26 displays the area of different land cover types in the US and BC portions of the CRB. This table is a product of the Transboundary Freshwater Dispute Database (TFDD), College of Earth, Ocean, and Atmospheric Sciences, Oregon State University. Additional information about the TFDD can be found at: <http://www.transboundarywaters.orst.edu>.

4.2 Columbia River Treaty

4.2.1 Overview

In 1948, severe flooding hit the Columbia River basin causing multiple deaths and extensive property damage in both Canada and the United States. In response to this and other flood events as well as to foster hydroelectric development, the US and Canada ratified the Columbia River Treaty (CRT or Treaty) in 1964. The CRT provisions include flood control protocols and river usage guidelines for power generation. To ensure equal sharing of downstream benefits the US paid Canada \$64.4 million at treaty ratification for

assured flood control for expected avoidance of flood damages through 2024. Each year the US also returns some power to Canada for projected optimal operation, known as the Canadian Entitlement, which totals “50% of the agreed projected amounts of energy and capacity” from US dams on the Columbia River. The estimated value of the Canadian Entitlement ranges from \$100 to \$300 million per year (BC Ministry of Energy and Mines, 2012; Hearn, 2008; United States Entity, 2012).

While the Treaty continues indefinitely, some of its flood control provisions will expire in 2024 and two other major provisions will come into effect. First, flood control operations shift from assured flood control for 8.95 MAF of storage in Canada to “Called Upon” flood control through which the US can request and pay for emergency storage to prevent flooding after it has utilized its own storage. Second, both nations can choose to unilaterally terminate the Treaty, given ten years notice. Therefore, if either nation wanted to terminate the Treaty in 2024 (the earliest date to do so), the US or Canada would have needed to give notice of its intent in 2014 (Canadian and United States Entities, 2010; Cosens, 2010a; Hearn, 2008; Stephan & Rea, 2011a). Notice given in 2015 would result in termination in 2025. Thus, the basin is at a critical juncture with the two nations facing the decision of whether or not to give notice to unilaterally terminate the CRT or pursue an alternative path. In this situation, four policy options exist: 1) continuation of the CRT as it currently is ratified, 2) termination with separate management, 3) joint treaty modification, and 4) termination with new management agreement (United States Entity, 2012; University of Idaho & Oregon State University, 2011). At stake in this decision is millions of dollars in hydropower revenues, flood control (now called flood risk management), ecosystem impacts, and other services or

benefits impacted by dam operations (Bonneville Power Administration, 2012b; Stephan & Rea, 2011b; United States Entity, 2012; Watson, 2012). The following subsections describe the Treaty, its development, implementation, and impacts in greater detail.

4.2.2 History and Development

The development and ratification of the Columbia River Treaty took around two decades. Figure 9 outlines important dates in the development of the Columbia River Treaty (Beesley, 1970; Cosens & Fremier, 2014; Hearn, 2008, 2010; Hyde, 2010). In 1944, Canada and the US requested the International Joint Commission (IJC), a joint water governance body established by the 1909 Boundary Water Treaty between the two nations, to investigate the potential and make recommendations for dam development in the upper Columbia basin (Swainson, 1986). In the 15 years the IJC conducted its studies a major flood occurred in the basin. While the flood impacted a number of communities, including Trail, BC, the greatest damage occurred in the lower portion of the basin. The flood wiped Vanport, OR, then the second largest city in Oregon, off the map, killing more than 15 people and displacing an additional 30,000 (United States Entity, 2014a). The US and Canada also conducted their own studies and developed different plans as options for development during that time. The IJC submitted its findings, including technical studies as well as 16 principles for negotiation (Weber, McNaughton, Adams, Dansereau, & Stephens, 1959). Formal negotiations commenced on February 11, 1960. After nine negotiation sessions, the two countries had an agreement which was signed on January 17, 1961 (Hearn et al., 2008; Hearn, 2010; Hyde, 2010).

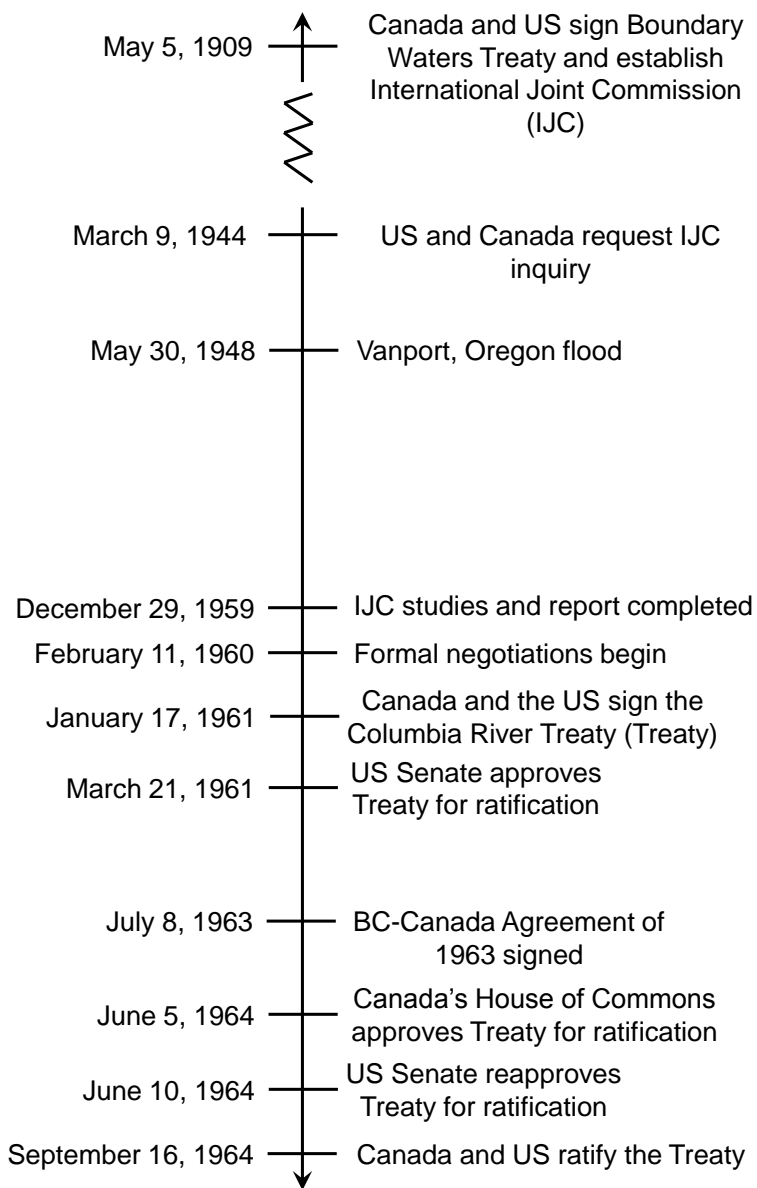


Figure 9. Timeline of the Development of the Columbia River Treaty

Drawn from: (Beesley, 1970; Cosens & Fremier, 2014; Hearn, 2008, 2010; Hyde, 2010)

The US Senate quickly approved the agreement for ratification on March 21, 1961 (Hyde, 2010). However, Canada was much slower to accept and adopt the Treaty. British Columbia objected to the terms of the Treaty, noting that it shouldered the costs of the Treaty while Canada received all the benefits. To gain provincial support, Canada signed the 1963 BC-Canada Agreement with the Province (BC Ministry of Energy and

Mines, 2012). This agreement transferred the Treaty benefits, authorities, and responsibilities from the federal Crown to the Province (BC Ministry of Energy and Mines, 2012). Canada's House of Commons approved the Treaty in June 1964 and the two countries ratified the Treaty on September 16, 1964 (Beesley, 1970; Hearn, 2008; Hyde, 2010).

4.2.3 Dam Authorization and Construction

The Treaty authorized the construction of three dams in Canada (Mica, Duncan, and Arrow) and permitted the US to construct one in the US (Libby in Montana) (Table 27). The 15.5 MAF of storage authorized by CRT for dams in Canada is often referred to as 'Treaty storage' or 'Canadian storage.' The total storage in the Columbia River system, including Treaty dams as well as other public and private dams is roughly 50 MAF (Hearn, 2008). I include a description of the use of the Treaty storage for flood reduction in the section titled, 'Flood Risk Management.' I discuss dam impacts later in this chapter.

Table 27. Columbia River Treaty Dams

Dam Name	Date Completed	Reservoir Name	River	Storage Capacity	Generation Capacity
Arrow Dam (Keenleyside)	1968	Arrow Reservoir	Columbia	8.8 km ³ or 7.1 MAF	185 MW
Duncan Dam	1967	Duncan Reservoir	Duncan	1.7 km ³ or 1.4 MAF	None
Mica Dam	1973	Kinbasket Reservoir	Columbia	14.8 km ³ or 12 MAF	1,805 MW
Libby Dam	1973	Koocanusa Reservoir	Kootenay	7.2 km ³ or 4.98 MAF	600 MW

Table 27 provides information about the CRT dams (Bonneville Power Administration et al., 2001; Ketchum & Barroso, 2006). Current capacity listed. Power generation at some dams increased since construction. There are plans to increase capacity at Mica by 1000MW. Mica was built with an extra 5 MAF of storage. Only 8.6 km³ (7 MAF) is CRT storage and regulated by the Treaty. A discussion of the extra 5 MAF is in the section titled 'Non-Treaty Storage Agreements.'

4.2.4 Joint Coordination

The CRT established the US and Canadian Entities as organizations appointed by their respective governments to implement the CRT (Table 28). The Administrator of the Bonneville Power Administration (BPA) and the Northwestern Division Engineer of the US Army Corps of Engineers (Corps) serve as the US Entity. BC Hydro Power and Authority (BC Hydro) serves as the Canadian Entity (Hyde, 2010). Together the two Entities implement the CRT through two committees: the Hydro-Meteorological Committee and the Operating Committee which develop a number of plans to operate the Treaty (Table 29).

Table 28. Columbia River Treaty roles

Organization	Description	Members
Entities	<ul style="list-style-type: none"> Established by CRT Article XIV to implement treaty on behalf of Canada and US 	<ul style="list-style-type: none"> US Entity is appointed by the President by Executive Order (Administrator of BPA and the Corps Northwestern Division Engineer) Canadian Entity is appointed by the Province of BC (BC Hydro)
Permanent Engineering Board (PEB)	<ul style="list-style-type: none"> Established by CRT Article XV Reviews reports and other efforts associated with treaty implementation to ensure CRT objectives are met Helps reconcile technical or operational issues between Entities Reports annually to the US and Canada on Treaty implementation 	<ul style="list-style-type: none"> Two members, two alternates, and one secretary from each country In the US, the Secretary of the Army and Secretary of Energy each appoint a member and alternate In Canada, the federal Canada and the Province of BC each appoint a member and alternate
PEB Committee	<ul style="list-style-type: none"> Established by PEB to assist with technical aspects of CRT operations 	<ul style="list-style-type: none"> Appointed by PEB with representatives from both countries
Operating Committee	<ul style="list-style-type: none"> Created by the Entities to help with CRT implementation Develops a number of plans and other documents for operating the various projects in the Columbia River System 	<ul style="list-style-type: none"> Appointed by two Entities
Hydro-Meteorology Committee	<ul style="list-style-type: none"> Formed by the Entities to help implement CRT Provides assistance to the Entities on issues related to hydro-meteorological and water supply forecasting; plans/monitors operation of data facilities 	<ul style="list-style-type: none"> Appointed by two Entities

Table 28 summarizes the CRT roles, including a description and who fills the role (compiled from CRT, 1964; Hearn, 2008; Hyde 2010).

Table 29. CRT operating plans and agreements

Plan/Agreement	Description	Timing
Flood Control Operating Plan	A plan developed by the US in consultation with Canada that specifies maximum reservoir levels for the four treaty dams at different times of the year in order to minimize flooding in both countries.	Updated as needed
Principles and Procedures (POP)	The documents that guides the preparation and use of hydroelectric operating plans for Canadian storage (e.g., AOP and DOP, described below).	Updated as needed
Assured Operating Plan (AOP)	A plan that lays out dam operating criteria, which include: 1) a series of rule curves that direct reservoir operation for flood control, optimum power generation, and reservoir refill in average and better water years; 2) critical rule curves for reservoir operation for ensuring firm power in low flow conditions; 3) operating criteria (e.g., minimum and maximum flows, procedures for target flows) for Mica and Arrow that optimize Canadian power generation.	Developed annually for sixth successive year
Determination of Downstream Power Benefits (DDPB)	A report that calculates the Canadian Entitlement (amount and delivery) based on the AOP.	Developed annually for sixth successive year
Detailed Operating Plan (DOP)	A plan based on the AOP that presents operating alternatives to increase benefits from river flows or consider non-power and/or non-flood control issues. Both Entities must agree to the DOP; otherwise the Entities operate according to the AOP.	Annually
Treaty Storage Regulation (TSR)	Studies that report monthly operation plans and storage in the Canadian dams using actual inflows, forecasted stream flows, and current reservoir levels	Bi-monthly
Supplementary agreements	Agreements on non-power and/or non-flood control issues that can be implemented if accepted by both Entities.	As needed
Treaty flow agreement	Agreements that determine the actual operation of the dams and storage facilities based on the TSR, supplemental agreements, and/or flood control requirements	Conducted weekly via conference call

Table 29 lists out the various agreements that the CRT Entities develop in order to implement the CRT. It includes a brief description of each agreement and the timing of when the agreement is developed/updated (compiled from Hyde 2010, Canadian and US Entity, 2010; Northwestern Division Army Corps of Engineers, 2004).

The CRT operations (the Detailed Operating Plan (DOP) and those plans subsequent to it) can include consideration of non-power and non-flood control issues. However, in order to do so the US and Canadian Entities must agree on their inclusion. Typically, the operating plans incorporate those additional benefits or issues only if they are mutually beneficial for the two countries.

As part of the Columbia River Treaty (CRT), Canada delivers the agreed upon flows at the US-Canada border. To follow domestic regulations and requirements, the US deviates from the various CRT operating plans and alters the river's flows after they cross the border via dam and reservoir management (described in Chapter 5). For example, the Endangered Species Act (ESA) Biological Opinion issued for several salmon species in the river requires increased spill at dams, reducing power generation. Even if power generation decreases due to these changes in operations, the US must still return the value of the Canadian Entitlement calculated from the Annual Operating Plan (AOP) in the Determination of Downstream Power Benefits (DDPB) report in order to meet its obligations under the CRT (Hearns, 2008). This is a source of contention between the two countries (BC Ministry of Energy and Mines, 2012; United States Entity, 2013c).

4.2.5 Hydropower Generation

The Canadian Entitlement is 50% of the projected additional downstream power benefits that the US must return to Canada at the border as part of the Treaty agreement to jointly operate dams in Canada for US flood storage and hydropower optimization (Hearns, 2008; Lesser, 1990; Muckleston, 2003). These downstream power benefits are “the difference in the hydroelectric power capable of being generated in the United States of America with and without the use of Canadian storage” (CRT Article VII). Another way to put it is that the Canadian Entitlement is 50% of the potential benefit of increased power production due to the additional storage in Canada resulting from the Treaty and coordinated operations of the various dams and reservoirs in the basin. The Canadian Entitlement is returned to Canada in the form of energy (in this case, electricity) and capacity (the ability to generate or transmit electricity; for the Canadian Entitlement this

is the maximum amount of power that Canada can request over a single hour) (United States Entity, 2013c). The BC Treaty review states that from 2000 to 2010 the average annual Canadian Entitlement was around 1320 megawatts of capacity (which is about 11% of BC Hydro's total capacity) and approximately 4540 gigawatt hours of energy (BC Ministry of Energy and Mines, 2013a).

As mentioned above, the Canadian Entitlement is 50% of the *projected* additional downstream power benefits. The Canadian Entitlement is calculated based off a negotiated formula and the Assured Operating Plan (AOP) that the US and Canadian Entities develop six years prior to the operation year. The AOP projects what the Entities' studies estimate flows (and therefore hydropower potential) will be. The same year that the AOP is developed, the Entities create a report called the Determination of Downstream Power Benefits that calculates the Canadian Entitlement (Hearns, 2008).

Those dam owners/operators that benefit from coordinated river operations contribute to the Canadian Entitlement. This includes the federal government (i.e., Bonneville Power Administration, US Bureau of Reclamation, US Army Corps of Engineers) as well as some utilities. Chelan County PUD, Douglas County PUD and Grant County PUD (known as the Mid-Columbia PUDs) contribute approximately 27.5 percent of the power delivered (United States Entity, 2013c).

The Province of BC owns the Canadian Entitlement. Today, it is sold by Powerex to either BC Hydro or utilities in Alberta or United States at market value. The money earned then goes into the general revenue account of the Province (BC Ministry of Energy and Mines, 2013a). To direct some of those monetary benefits to the Canadian portion of the basin, the Columbia Basin Trust was established in 1995 and

received \$276 million for power project construction, \$45 million for an endowment, and \$2 million a year from 1995-2010 for operations (Cosens, 2010a). The Province of BC sold the first 30 years of the Canadian Entitlement to a group of US utilities for \$254 million (US dollars) (Lesser, 1990). After that agreement expired the Province received and continues to receive the Canadian Entitlement (BC Ministry of Energy and Mines, 2013a). Depending on your source of information, the Canadian Entitlement (since 1998) is valued between \$100- \$350 million (US dollars) per year (BC Ministry of Energy and Mines, 2012, 2013d; United States Entity, 2013c). There are a few reasons why there is such a large range in the values cited (Table 30).

Table 30. Reasons for variation in the values cited for the Canadian Entitlement

Reason	Explanation
<i>Variations in river flow</i>	As the projected river flows vary from year to year so will the projected amount of additional power benefits.
<i>Fluctuation of energy prices</i>	Dollar values placed on the Canadian Entitlement reflect the price Canada receives from selling the energy. As energy prices fluctuate for any number of reasons so will the monetary value of the Canadian Entitlement.
<i>Consideration of flexibility and reliability in monetary evaluation</i>	The US likes to highlight the flexibility aspect of the Canadian Entitlement. Specifically, how Canada can choose which hours of the following day that it wants anywhere from zero to a maximum agreed upon amount of power (in 2013 it was 1,321 MW) to be delivered. The US believes that this flexibility coupled with the reliability of the delivery increases the value of the power source.
<i>Cost to replace the energy</i>	Some estimates of the value of the Canadian Entitlement consider what it would cost Canada to replace the energy source. For example, BPA estimated that it would cost British Columbia \$250-\$350 million each year to replace the Entitlement with a new gas generating resource.

Table 30 summarizes four reasons why you encounter different dollar values for the Canadian Entitlement.

The US and BC disagree on the purpose of the Canadian Entitlement as a benefit-sharing strategy. The US Entity states that:

The U.S. Entity's view is the Canadian Entitlement and the flood risk management payment were designed to produce a value that reflected an appropriate total payment to Canada for the cost of Treaty dams by the time the Treaty could be terminated in 2024. While the Treaty authors did their best to forecast conditions far into the future, their 1960s-era

calculations overestimated regional growth in the demand for electricity and did not anticipate modern constraints on the operation of the dams to protect threatened and endangered species. Also, they could not have anticipated the significant regional development of conservation and renewable energy resources and other electricity market factors, all of which influence the value of power in the region. ***In short, the U.S. Entity believes that over the life of the original Treaty, the U.S. will have fully compensated Canada for its investments in Treaty dams*** [emphasis added] (United States Entity, 2013c, p. 3).

This presents a view that the Canadian Entitlement is intended to compensate Canada for the Treaty dams. Canada, on the other hand, views the Canadian Entitlement also as a means to balance the ongoing dam/reservoir impacts on BC residents and the other benefits received by the US as a result of the altered timing of river flows (e.g., flows more amenable to safe navigation and increased water availability in the summer for irrigation).

The US and Canada also disagree on whether or not the Canadian Entitlement should be adjusted to what the US considers to be a more accurately reflect the actual amount of downstream power benefits after taking into account actual US operations. The AOP and Determination of Downstream Benefits calculate the theoretical flow river and value of the Canadian Entitlement. The river flow calculations are refined as time progresses and more information is available about what the actual river flows will be. The various operating plans under the Treaty set the flows that Canada must deliver at the border and use that to calculate the projected power generation. However, after receiving the flows, the US deviates from the operations laid out in the plan in order to comply with various domestic laws. This means that the dams and reservoirs are often not being optimized for power generation, but for other benefits. Therefore, less power may be produced, but the US still must honor its commitment and return the energy and capacity

projected six years prior. The US would like to adjust how the Entitlement is calculated to reflect how it actually operates its dams and reservoir. If these adjustments were made, the US believes the value of the Canadian Entitlement would be about 10% of what it currently is (Corwin, 2013; United States Entity, 2013c). Canada believes that the US's decision to adjust river flows for other purposes, such as protection of endangered species, is a domestic decision that should not impact the international arrangement (BC Ministry of Energy and Mines, 2012, 2013b). Canada's position is that it upholds its obligations under the Treaty to deliver river flows at the border according to the various operating plans and should not be penalized if the US chooses to manage and to use those flows in ways that are different from the operating plans that optimize power generation (BC Ministry of Energy and Mines, 2012, 2013b, 2013d). Canada, in fact, believes the Canadian Entitlement, or other benefit sharing, should increase in order to properly include the other benefits from Treaty operations, such as irrigation, navigation, and recreation (BC Ministry of Energy and Mines, 2013d).

4.2.6 Flood Risk Management

Originally called "Flood Control" the terminology for the storage of water for the purpose of avoiding flooding has evolved to "Flood Risk Management" and "Flood Risk Reduction." Below I discuss two flood control provisions in the Columbia River Treaty.

Assured Flood Control

As part of the CRT, Canada sold 8.45 MAF of Canadian storage to the US for a period of 60 years, from when the Treaty was ratified on September 16, 1964 until September 16, 2024 when the provision expires. In 1995, this amount was increased to 8.95 MAF as part of an agreement that allowed Canada to reallocate storage between the

Arrow and Kinbasket Reservoirs (BC Hydro and Power Authority, 2013b). This 8.95 MAF is called “Assured Flood Control” or “Primary Flood Control” (Bankes, 2012). The US paid Canada \$64.4 for the assured flood control, which, when negotiated, was estimated to be worth about half of the flood damages to be prevented by Canadian storage (Ginalias, 2008; Hyde, 2010). The actual monetary value of assured flood control, in terms of damages avoided is unclear, if somewhat disputed. The Province of BC notes that at one PEB meeting it was estimated that, as a result of successful operation of the Treaty, the US avoided \$2 billion in potential flood damages in 2012 (BC Ministry of Energy and Mines, 2013d). BC also cites Corps estimates that Treaty storage reduced US flood damage by \$260 million in 1972, \$306 million in 1974, \$227 million in 1996, and \$379 million in 1997--four high flow events (BC Ministry of Energy and Mines, 2013d). To date, no comprehensive study of damages avoided has been published publically.

Called Upon

“Called Upon” post-2024⁴ is the ability of the US to call upon Canada for additional storage in the BC reservoirs under certain conditions. Specifically the Treaty states:

For the purpose of flood control after the expiration of sixty years from the ratification date, and for so long as the flows in the Columbia River in Canada continue to contribute to potential flood hazard in the United States of America, Canada shall, when called upon by an entity designated by the United States of America for that purpose, operate within the limits of existing facilities any storage in the Columbia River basin in Canada as the entity requires to meet flood control needs for the duration of the flood period for which the call is made (Columbia River Treaty, 1964).

⁴ Called Upon is also available pre-2024. It has never been used by the US and the terms of the provision pre-2024 are different than those post-2024, namely in that the amount of compensation is pre-determined and included in the Treaty text.

This provision of the Treaty will continue to exist regardless of whether the Treaty is terminated or continues (Columbia River Treaty, 1964). The specifications of how the provision should be implemented are not defined in great detail within the Treaty.

“Called Upon” has always been an available option, but it has never been needed (US Army Corps of Engineers, 2011). Therefore, the two countries have not negotiated the specific terms of the Treaty provision. Both the US and Canada reviewed the Treaty, its protocols, and the notes from the original Treaty negotiations as well as their own laws and hold differing opinions of how Called Upon provisions should be interpreted. These differences include: 1) the minimum flow level required before the US can make a call to Canada, and 2) what it means to make “effective use” of “all related storage in the United States” (BC Hydro and Power Authority, 2013b; US Army Corps of Engineers, 2011).

In regards to the flow required for Called Upon to be available to the US, Canada states that the level is 600 kcfs as measured at The Dalles dam, while the US posits the flow is 450 kcfs (BC Hydro and Power Authority, 2013b; US Army Corps of Engineers, 2011). Bankes (2012) provides an in depth discussion of validity of those two numbers and also notes that others mention 800 kcfs as the level at which the two countries sought to control flooding. Citing the CRT and its protocols along with other negotiating notes from the 1960s, Bankes agrees with the Canadian position on this issue (Bankes, 1996, 2012).

The interpretation of what constitutes “effective use” of storage in the US is another contested topic. The Province of British Columbia interprets the Treaty statement “all related storage in the United States” to mean any facility that can effectively reduce flows at The Dalles. In short, Canada believes that this means the US “must first plan for,

and use, to the extent necessary all available US storage that can contribute to providing US flood protection” (BC Ministry of Energy and Mines, 2013d, p. 10). The US believes that “effective use” only pertains to the eight reservoirs authorized to operate for system flood control (as opposed to local flood control, hydropower, conservation, recreation, irrigation and other reservoir purposes). Those eight reservoirs are: Libby, Grand Coulee, Hungry Horse, Albeni Falls, Kerr, Dworshak, Brownlee, and John Day (US Army Corps of Engineers, 2011). This interpretation by the US Entity is widely supported by various stakeholder groups in the US as evidenced by their comments on the draft US Regional Recommendation.

The interpretation of “effective use” has implications for river management in that, new operations under the effective use procedures will differ from current operations guided by storage reservation diagrams (SRDs) (BC Hydro and Power Authority, 2013b; US Army Corps of Engineers, 2011). In years where the Called Upon provisions might be needed, river flows and reservoir levels might be different from what we currently see. The questions the two countries are trying to answer right now through studies conducted as part of their Treaty Reviews are: 1) how different will they be? and 2) what impact will those differences have?

When the US and Canadian Entities conducted the Phase 1 studies, they did a preliminary investigation of what the post-2024 Called Upon procedures might look like and how they would impact river operations. In those studies, the Entities assumed three US headwater projects (Libby, Dworshak, and Hungry Horse) would be operated under the effective use procedure. The Phase 1 Studies Report provides a summary of their findings:

In the Phase 1 studies, effective use of flood control storage resulted in U.S. reservoirs being drawn down more frequently and deeper than current conditions, with reduced refill reliability. Comparing Called Upon years to non-Called Upon years, Hungry Horse, Dworshak and Brownlee reservoirs were drawn down an average of 45, 27 and 31 feet deeper, respectively, by April 30. Depending on the alternative flood control operation, Libby Reservoir in Called Upon years was drawn down an average of 11 to 47 feet deeper. At Grand Coulee, for Called Upon years in which refill began after May 1, the reservoir was drawn down an average of 14 to 18 feet deeper. In addition, Grand Coulee drafted empty four years out of the 70-year record in the base condition, compared to 30 years when the flow objective at The Dalles was 450 kcfs and 10 years when the flow objective was 600 kcfs (Canadian Entity & United States Entity, 2010b, p. v).

In addition to determining what flood events qualify for Called Upon in terms of flow and effective use, the two nations must also decide how to calculate the payment for any calls to Canada. The specific provision in the Treaty states that the US is to pay Canada for “(a) the operating cost incurred by Canada in providing the flood control, and (b) compensation for the economic loss to Canada arising directly from Canada foregoing alternative uses of the storage used to provide the flood control ” (Article VI, Columbia River Treaty, 1964). In its preliminary view of Called Upon procedures, the Canadian Entity, BC Hydro, noted that economic losses could include impacts to BC power production, reduced value of generation due to the drafting and refilling of the reservoirs associated with Called Upon procedures, as well as impacts to recreation, irrigation, and transportation interests (BC Hydro and Power Authority, 2013b). The US presents a more limited view simply noting that as specified in the Treaty “Canada will be compensated for their operating costs and economic losses” (Article VI) and notes that Canada may choose to receive some or all compensation in the form of electric power (US Army Corps of Engineers, 2011).

4.2.7 How Disputes are Resolved with the Treaty

Article XVI of the CRT lays out how the two nations are to settle differences in treaty implementation (Figure 10) (CRT, 1964). First, the two nations are to try to resolve the difference themselves through the Entities, the PEB, or an exchange of notes. If they are unable to do so by those three means then they may refer the issue to the International Joint Commission (IJC) for a decision. If the IJC has not made a decision after three months then either nation may request arbitration by a tribunal consisting of three members (one appointed by Canada, one appointed by the US, and one jointly appointed by both nations⁵).

To date, no request has been made to the IJC (Hyde, 2010). The Entities have resolved all disputes on their own or with assistance from the PEB, and on rare occasion, from the British Columbia government, the Canadian Department of Foreign Affairs, Trade and Development, and the U.S. Departments of State, Army, and Energy. Those disputes requiring outside assistance centered on three issues: 1) non-treaty storage, 2) operation of dams for fish and wildlife objectives with power and other impacts, and 3) methods for calculating the amount and delivery of the Canadian Entitlement. Central to addressing disputes out of court is a strong working relationship between the US and Canadian Entities and a concerted effort to focus on win-win strategies in negotiation, sharing technical information and analysis, developing creative alternatives, and avoiding legal disputes (Hyde, 2010).

⁵ If they are unable to form this tribunal within six weeks then either Canada or the US may request the President of the International Court of Justice to appoint the members.

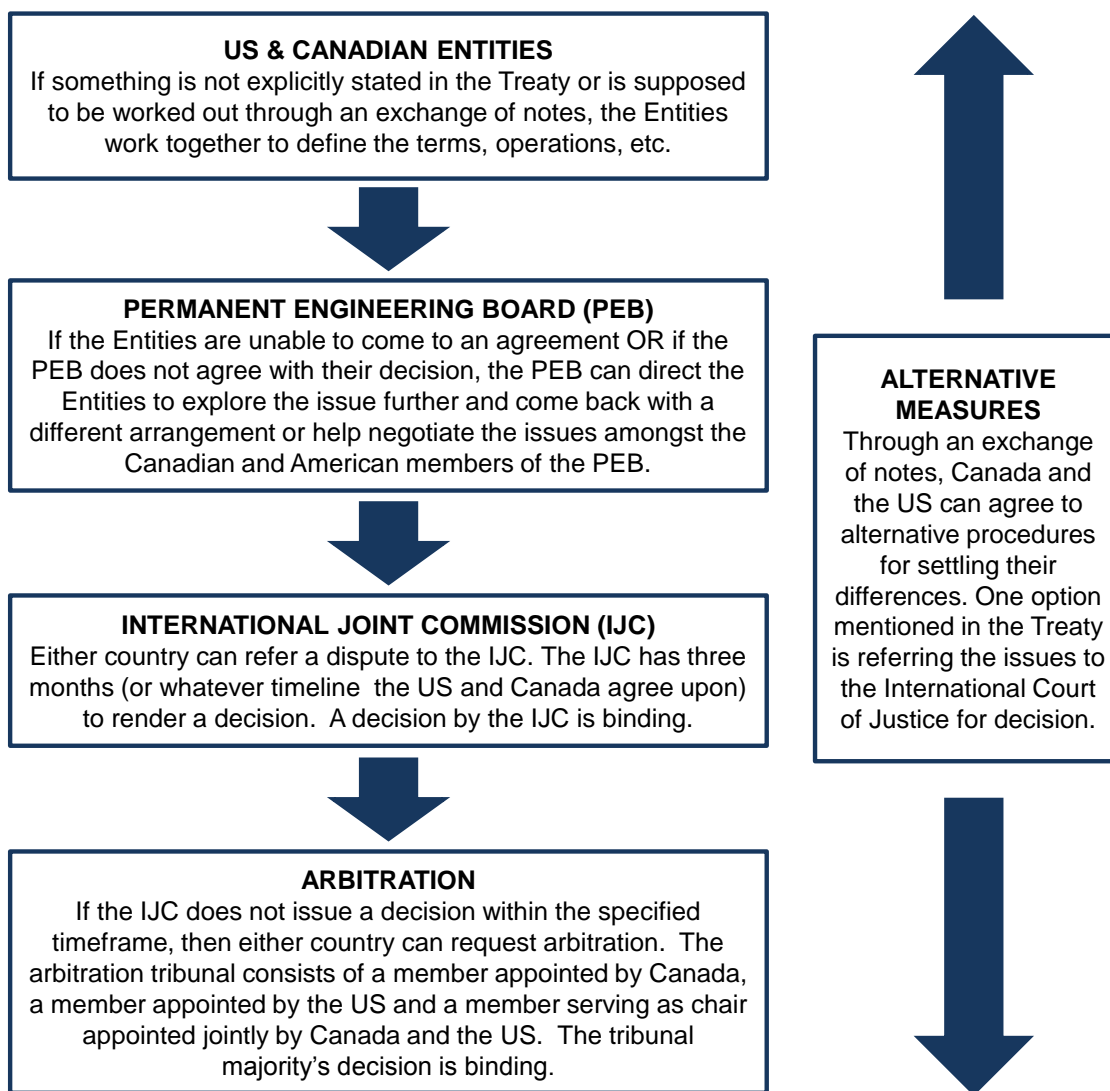


Figure 10. Dispute Resolution in the Columbia River Treaty

Figure created from information in the CRT, Hearn, 2008 & 2010 and Hyde, 2010

One dispute in the implementation of the CRT was how to calculate Capacity Credit Limit, or the maximum limit for the capacity component for the Canadian Entitlement (Hyde, 2010). The CRT states that the Capacity Credit Limit will not exceed “the difference between the capability of the base system without Canadian storage and the maximum feasible capability of the base system with Canadian storage, to supply firm load during the critical stream flow periods” (Columbia River Treaty, 1964). More

simply put it, determines the maximum capacity owed to Canada based on the dependable hydroelectric capacity to be credited to Canadian storage (Hyde, 2010). The issue was first raised in 1981 and the US and Canadian Entities developed a method for the calculation that was rejected by the PEB. They conducted additional investigations in the 1990s, to explore the technical aspects of the issue as well as the intent of the CRT on this issue. This issue was never fully resolved, but the 2003 POP, which assumes all hydro-electric power generated is usable for meeting peak loads (specifically the 1-hour peak capability) partially addressed the matter. The Capacity Credit Limit has never limited the amount of the Canadian Entitlement though it may in the future (Canadian and US Entity, 2010; Hyde, 2010). Lessons learned from this dispute include: 1) the importance of clearly defining policies and procedures in order to avoid differing interpretations (as well as documenting the negotiation process to understand the intent of a legal agreement), 2) how a good working relationship helps sustain a collaborative partnership even through disagreements, and 3) the benefit of checks and balances to ensure that the sovereign parties of the CRT agree with the technical staff's implementation.

4.2.8 Other Provisions

The CRT primarily focuses on shaping river flows to maximize certain benefits from the river, not on allocation of water. Each nation is allowed to divert water for consumptive uses, which are defined in the treaty as “water for domestic, municipal, stock-water, irrigation, mining or industrial purposes” (CRT, 1964). Canada is also allowed to divert flows from Kootenay River in different amounts at different times. Specifically it is allowed to divert: 1) 1.5 MAF from the Kootenay River into the

Columbia River and 2) all Kootenay River flows post-2024 as long as it does not cause Columbia River flows to drop below 2500 cfs at the border, and 3) all Kootenay River flows post-2044 as long as it does not cause Columbia River flows to drop below 1000 cfs at the border (Northwestern Division Army Corps of Engineers, 2004).

4.2.9 Upcoming and Potential Changes to the Treaty

As stated previously, while the Treaty continues indefinitely, some of its flood control provisions will expire in 2024 and others will come into effect. First, flood control operations shift from assured flood control for 8.95 MAF of storage in Canada to “Called Upon” flood control through which the US can request and pay for emergency storage to prevent flooding after it has utilized its own storage. Second, both nations can choose to unilaterally terminate the treaty, given ten years notice. Therefore, if either nation wanted to terminate the CRT in 2024 (the earliest date to do so), the US or Canada would need to give notice of its intent in 2014 (Canadian and United States Entities, 2010; Hearn, 2008).

This provided both nations with the opportunity to pursue a change in governance of the Columbia River. The Corps and BPA led the US CRT 2014/2024 Review process to develop a recommendation to the Department of State. The Province of BC’s Ministry of Energy and Mines conducted its own investigation in order to provide a recommendation to the Canadian Department of Foreign Affairs, Trade, and Development. The US Entity delivered its recommendation to the Department of State in December 2013. The Province of BC delivered its BC Provincial Decision to the Department of Foreign Affairs, Trade and Development in March 2014. Both recommend continuing with the CRT, but modifying it. Where the two differ is what issues should be

considered in modifying the CRT. For example, the US Entity's recommendation advocates that the Treaty should include ecosystem-based function as a primary operating purpose of the Treaty along with hydropower and flood risk management. The BC recommendation states that such considerations are already made and may not merit formal inclusion in the CRT. The two also differ on how benefit sharing should continue under the Treaty, with the US arguing for changes in the calculation of the Canadian Entitlement that would reduce its value, while the Province of BC argues that the Canadian Entitlement should consider other benefits resulting from the CRT beyond flood control and hydropower (which would maintain or increase the value). Despite these differences both recommendations acknowledge the importance of incorporating climate change into future CRT implementation. They also agree that flood control efforts should be flexible and adaptive while also set at a fixed duration that provides certainty in river operations. I include a more extensive discussion of the two reviews and their respective recommendations to their national governments in the case studies to follow (Chapters 5 and 6).

4.3 Overview of Impacts of the Treaty

The construction of the Treaty dams and implementation of the Treaty through joint operations impacted the basin in a number of positive and negative ways. In this section I *briefly* summarize some of the social, cultural, ecological, and economic impacts. I first address the impacts of the construction of the Treaty dams and then the effects of their operation in an attempt to organize the information in a clear manner.

4.3.1 Impacts of Dam Development

The Treaty dams inundated 60,000 hectares (231 square miles) of land in British Columbia, trading other uses of the land for flood control and hydropower generation benefits (Table 31). Inundation resulted in a loss of jobs and opportunities in the forestry, tourism, recreation, and agriculture industries. The shift from some of these industries negatively altered the social fabric of the community. More than 2,300 people were displaced in BC. Relocation, which involved land sale negotiations, uncertainty, watching properties being burned or bulldozed after the sale, and moving, was stressful and emotional (BC Ministry of Energy and Mines, 2012, 2014). In addition to these social and economic impacts, inundation also negatively affected the ecology of the basin. Wildlife, including migratory birds, numbers declined due to loss of habitat. Duncan Dam cut off access to spawning habitat for fish such as kokanee (BC Ministry of Energy and Mines, 2012, 2014).

Table 31. Area of Pre-Dam Aquatic and Terrestrial Ecosystems inundated by the Treaty and Revelstoke Reservoirs (ha)

	Mica/ Kinbasket	Revelstoke	Keenleyside/ Arrow	Libby/ Koocanusa (BC)	Duncan	Total
Lakes	2343.0	0.0	34992.3	0.0	2583.9	39919.2
Rivers	4896.6	2654.4	2021.9	1490.1	424.5	11487.5
Streams	192.1	53.4	50.6	10.3	17.7	324.1
Shallow ponds	555.1	26.9	102.9	210.6	172.3	1067.8
Gravel Bars	235.6	56.9	3262.8	80.4	22.0	3657.7
Wetlands	5862.6	456.0	3431.6	1071.9	1824.5	12646.6
Floodplains, Riparian Forests	15526.5	4004.7	3563.5	2173.1	1396.6	26664.4
Upland Ecosystems	13035.7	4199.1	3844.3	1646.8	860.0	23585.9
Total	42647.2	11451.4	51269.9	6683.2	7301.5	119353.2

Table 31 lists out the area of land by land type inundated by different CRT dams/reservoirs (Reproduced from BC Ministry of Energy and Mines, 2012).

In addition to those negative impacts, the Treaty dams produced some benefits for the BC portion of the basin. In addition to the hydropower generation and flood control benefits laid out in the terms of the Treaty, the construction of the Treaty dams produced a large number of temporary and permanent jobs. Also, through the Columbia Power Corporation (CPC), the Province has also been able to increase the generation potential at the Treaty dams to produce more power for the Province or for sale to the United States (BC Ministry of Energy and Mines, 2012). Finally, the reservoirs provide some recreational and tourism opportunities, such as house boats on Lake Koocanusa (although the opportunities may be limited in some ways due to Treaty and other dam operations).

In the US, dam construction meant 8.95 MAF of storage to protect areas such as Portland, OR and Vancouver, WA from flooding. To date there has been no major flood incident requiring a request to exercise the Called Upon option in the Treaty as that storage and coordinated Treaty operations have provided sufficient protection (BC Hydro and Power Authority, 2013b; US Army Corps of Engineers, 2011). On the negative side, the United States' decision to construct of Libby Dam resulted in a portion of the Kootenai River being inundated, reduced flood flows (good for flood risk management, bad for the ecology of the river), and increased winter discharges. The Koocanusa Reservoir, which stretches from the US and up into Canada acts as a “nutrient sink” causing the river below the dam in both the US and Canada to be ultraoligotrophic (phosphorus limited) (Holderman, Hoyle, Hardy, & Anders, 2009). These factors have greatly reduced fish populations in that portion of the basin (Table 32).

Table 32. Fish declines in the Kootenai River downstream of Libby Dam

Fish Species	Percent of Historic Abundance
Bull trout (<i>Salvelinus confluentus</i>)	60
Kokanee (<i>Oncorhynchus nerka</i>)	40 to 50
Westslope cutthroat trout	20
Columbia River redband trout	10
White sturgeon (<i>Acipenser transmontanus</i>)	0 to 10
Burbot (<i>Lota lota</i>)	0 to 10

Table 32 indicates fish decline (in terms of percent of historic abundance still present in 2009) for species below Libby Dam. I created this table from data in Holderman et al., 2009.

4.3.2 Impacts of Dam and Reservoir Operations

In Canada, Treaty operations result in a number of negative impacts due to the rate of change in reservoir levels as well as the degree of change over the course of the year (Table 33). Quickly refilling and drawing down reservoirs results in erosion and damage to cultural sites. High reservoir levels impede First Nation hunting and gathering, while low levels expose un-vegetated soil and result in dust storms (BC Ministry of Energy and Mines, 2012, 2014).

A number of the benefits of Treaty operations in BC are related to the hydropower generated. Forty-four percent of BC's power is generated by dams on the Columbia and Kootenay Rivers. Hydropower generation is a critical component to reducing carbon emissions in BC. The Province of British Columbia and many local governments are committed to public sector carbon neutrality. For example, BC passed a law stating that greenhouse gas emissions will be 33% less than 2007 levels in 2020 and 80% less than 2007 levels in 2050. The Province also makes money off the sale of the Canadian Entitlement, which it uses in its General Fund (BC Ministry of Energy and Mines, 2012).

Table 33. Negative Treaty operation impacts in British Columbia

Impact	Description
Dust	Exposed portions of reservoirs at low water levels can result in dust storms. In addition to dust, exposed mudflats are unsightly
Erosion	Changing reservoir levels can result in erosion of dikes and bank slumping. Wave action also results in erosion at that level in the reservoir.
Debris	High reservoirs can mobilize debris. When reservoirs are drawn down the remaining debris impedes navigation and other boat access for transportation and recreation.
Archeological and cultural sites	Wave action can erode and degrade cultural sites and low levels expose sites to the elements and human disturbance.
First Nation's hunting and gathering rights	Inundation of specific areas can limit First Nation access to areas where they have hunt and gathering rights.
Economic Impacts	Reservoir operations result in a variety of economic impacts on different sectors such as forestry, agriculture, recreation and tourism. For recreation, low reservoirs limit boat access and angling, while high reservoirs limit shore-based recreation access. Low reservoirs reduce navigability in Kinbasket and Arrow Reservoirs impeding transport in the forest sector. High reservoir levels result in high pumping costs to prepare areas for spring dry-land farming.

Table 33 summarizes different negative impacts of Treaty dam operations in BC. I created this list from my conversations with BC residents and observations during the BC CRT Review.

Treaty operations also provide regional flood risk management benefits in the BC portion of the basin (BC Ministry of Energy and Mines, 2012). For example, Treaty operations helped mitigate a 2012 flood near Creston, BC (BC Hydro and Power Authority, 2013a). Trail and Castlegar, both situated next to the Columbia River, also benefit from flood protection (BC Ministry of Energy and Mines, 2012).

In the United States, Treaty dams and their operations are linked to the dramatic decline of a number of salmonid species (Cosens & Fremier, 2014). These fish as well as other flora and fauna are integral to the culture and faith of the Tribal Nations within the US portion of the basin (Cosens & Fremier, 2014; McKinney et al., 2010; University of Idaho & Oregon State University, 2011; Watson, 2012). While the extirpation of salmonids from large portions of the basin are due to the construction and operation of non-Treaty dams, such as Grand Coulee, Treaty operations reduce the spring freshet from

melting snow and effectively push the water flows earlier in the water year (Cosens & Fremier, 2014). Juvenile salmon used to rely on the spring freshet to help transport them out to the ocean. Now they encounter warm, slow moving reservoirs in their migration to the sea (Petrosky & Schaller, 2010). Also, in their comments on the Working Draft and Draft US Regional Recommendation, residents of Lincoln County note lost recreational and other economic opportunities due to Libby Dam operations.

In addition to these costs, a number of industries and the overall economy of the US Pacific Northwest benefited from alterations to the hydrograph. Fewer high and low flows, help ensure safe conditions for the navigation industry. Likewise, irrigated agriculture and recreation benefit from increased water in times of need. Cheap, abundant hydropower also attracted a number of energy intensive industries such as aluminum plants and, more recently, tech industries and their jobs to the basin and surrounding region such as Intel, Google, Amazon, and Microsoft (BC Ministry of Energy and Mines, 2013d).

4.3.3 Efforts to Mitigate Negative Impacts

I would be remiss to not point out that several organizations and programs currently work to address the negative impacts of the Columbia River Treaty dams and their operations. Below I simply describe the various efforts. I do not attempt to characterize their effectiveness or sufficiency.

In the Canadian portion of the basin, the BC Fish and Wildlife Compensation Program for the Columbia River is a partnership program between BC Hydro, the Province of BC and Fisheries and Oceans Canada, done in collaboration with First Nations, local governments, and community organizations. The FWCP-Columbia, along

with its partners, spent \$67 million between 1995 and 2012 on 750 projects that help conserve and improve fish and wildlife habitat in areas affected by BC Hydro facilities (BC Ministry of Energy and Mines, 2012). The CPC also runs a program that mitigates environmental impacts of its dam operations (BC Ministry of Energy and Mines, 2012).

The Province of British Columbia established the Columbia Basin Trust (CBT) in 1995 in order to address some of the social, economic, and environmental impacts of the Treaty dams and operations. As mentioned earlier, when the CBT was established in 1995 it received \$276 million for power project construction, \$45 million for an endowment, and \$2 million a year from 1995-2010 for operations (Cosens, 2010a). Each year, CBT sends funds to communities affected by the Treaty based on the population of the community. The community then distributes that money to various social, economic, and environmental programs. In 2012, CBT grew its funds to a total of \$624.4 million in investments and provided basin communities with over \$18 million that year (BC Ministry of Energy and Mines, 2012). In addition to distributing funds to communities, CBT also directly funds a number of programs to address the impacts of the CRT. For example, recently CBT along with the BC Fish and Wildlife Program, developed the Upper Kootenay Ecosystem Enhancement Plan, an initiative to address fish, wildlife, and habitat issues around the Koochanusa Reservoir and tributaries of the Kootenay River.

The BC Hydro Columbia and Duncan Water Use Plans (WUP) incorporate two approaches to mitigation (BC Hydro and Power Authority, 2007a, 2007b). Through its WUPs, BC Hydro works to address negative impacts of dam and reservoir management through physical works, monitoring, and other mitigation programs, which include debris management, re-vegetation, upgrading boat ramps, and archeological site protection

efforts (Table 34). Also, in some cases dams and their reservoirs have operational constraints, that they must follow (Table 35). The WUPs also may contain soft constraints, which they try to follow, when possible (BC Hydro and Power Authority, 2007a, 2007b; BC Ministry of Energy and Mines, 2012).

Table 34. Mitigation efforts in the Columbia and Duncan Water Use Plans

Geographic Area	Debris Mgt.	Re-veg.	Boat Efforts	Archeo-logical sites	Other
Kinbasket Reservoir/ Mica Dam	X	X	X	X	
Revelstoke Dam & Reservoir				X	
Mid-Columbia River & Arrow Lakes	X	X	X	X	Sturgeon aquaculture; wildlife habitat studies
Lower Columbia (below Keenleyside)	X				Turbidity & opportunistic high flows; dredging
Duncan Reservoir			X	X	Erosion protection; nutrient loading
Duncan Dam					Bull trout migration

Table 34 summarizes the mitigation efforts required of BC Hydro at different dams and reservoirs along the Columbia and Kootenay Rivers as part of the Columbia River and Duncan WUP (BC Hydro and Power Authority, 2007a, 2007b).

Table 35. Operational and Soft Constraints in the Columbia and Duncan WUPs

Geographic Area	Operational Constraints	Soft Constraints
Kinbasket Reservoir/Mica Dam	None	Surcharge (safety& flood control)
Revelstoke Dam & Reservoir	5 kcfs min. year-round flow (fish); Jul-Aug experimental flow for white sturgeon	Surcharge (safety& flood control)
Mid-Columbia River & Arrow Lakes	None	Surcharge (safety & flood control), vegetation, wildlife, fish, recreation, erosion, cultural sites, power generation
Lower Columbia (below Keenleyside)	None	Minimum fish stranding; flows for whitefish & rainbow trout
Duncan Reservoir	Target to reach full between Aug 1-10 (recreation. & water supply); 4 ft draft (fish)	None
Duncan Dam	100 cfs min. flow (fish), 10 kcfs max (FC); Max rates of change	None

Table 35 summarizes the operational and soft constraints listed by WUPs for different dams and reservoirs operated by BC Hydro in the BC portion of the CRB (BC Hydro and Power Authority, 2007a, 2007b).

In the United States, the Northwest Power and Conservation Council addresses negative impacts of Treaty operations through its Fish and Wildlife Program (Northwest Power and Conservation Council, 2014). Established via interstate compact as authorized by the Northwest Power Act in 1980 and funded via BPA, the Council's Fish and Wildlife Program distributes over \$250 million each year to 350 projects, including fish hatcheries, floodplain and habitat restorations, and efforts to protect and enhance wild fish populations (Northwest Power and Conservation Council, 2014). It also crafts a plan every five years to ensure power supply and acquire cost-effective energy efficiency in the US Pacific Northwest. Other programs designed to address the environmental impacts from Treaty operations and other dams on the Columbia and its tributaries include the Federal Columbia River Power System Biological Opinion (as legally required under the Endangered Species Act (ESA)), requirements resulting from Federal Energy Regulatory Commission relicensing, ESA Habitat Conservation Plans, and the Columbia Basin Fish Accords (Bonneville Power Administration et al., 2001; Cosens & Fremier, 2014; Cosens & Williams, 2012; Cosens, 2010a).

4.4 Other Transboundary Basin Management

The Columbia River Treaty is not the only transboundary water governance mechanism in the Columbia River Basin. Several other international agreements, some of which are tied to the Treaty in one way or another, exist between the US and Canada (Table 36). Transboundary management also happens at a number of different scales, such as country-to-country, state-to-province (e.g., Washington and BC), state-to-state (e.g., Oregon and Washington), and so forth. Below I describe some of the major transboundary efforts across the 49th parallel, dividing the two countries. I selected those

mechanisms which are relevant to CRT operations in either that they: 1) help dictate dam operations, or 2) were brought up as potential negotiation points in either of the two CRT reviews.

Table 36. Other Transboundary Columbia River Agreements

Agreement	Date
Libby Coordination Agreement	2000
Agreement between Bonneville Power Administration and British Columbia Hydro and Power Authority relating to (1) Use of the Columbia River Non-treaty Storage, (2) Mica and Arrow Reservoir Refill Enhancement, and (3) Initial Filling of Non-Treaty Reservoirs	1990
Whitefish Agreements	Prior to 2001
Summer Treaty Storage Agreement	2001
Libby/Canadian Treaty Storage SWAP	2002
Columbia River Treaty Entity Agreement on Operation of Treaty Storage for Non-Power Uses for January 1 through July 31	2001

Table 36 lists out other transboundary agreements between the US and Canada on the Columbia River (Hearns, 2008 & 2010).

4.4.1 Boundary Waters Treaty and International Joint Commission

The United States and the United Kingdom (signing on behalf of Canada) ratified the Boundary Water Treaty (BWT) in 1909. This agreement established the International Joint Commission (IJC) as a body to address transboundary water management issues and implement the (BWT) (Shurts & Paisley, 2013). The IJC consists of three representatives from each country (US and Canada) who work together to complete three tasks. First, it can make binding decisions and appoint boards of control to oversee those decisions on actions that impact the natural flow of a boundary water (Paisley, Leon, Graizbord, & Bricklemeyer, 2004). Second, the IJC conducts investigations and provides recommendations on issues the countries present to it. For example, in 1944 and as described above in the subsection on Treaty history and development, Canada and the US referred the issue of dam development and hydropower coordination to the IJC (Hearns, 2008). Finally, the IJC arbitrates disagreements that the two countries refer to it (Paisley

et al., 2004). The dispute resolution provisions with the CRT above describe this responsibility (Hyde, 2010).

4.4.2 Libby Coordination Agreement

Signed in 2000, the Libby Coordination Agreement (LCA) addresses a dispute over Libby Dam operations that started in 1996 (Barton, 2010). Fish species, including salmon, steelhead, and sturgeon, were listed as endangered under the US Endangered Species Act. To comply with that law, the US needs to release more water in the spring from Libby Dam. Canada objected to this change in operations because it resulted in sub-optimal power generation at downstream Canadian facilities on the Kootenay River (Barton, 2010). The US and Canadian Entities, under the auspices of their Treaty roles, resolved the conflict through the LCA by finding a way to balance costs and benefits (United States Entity, 2000). It allows for reservoir releases to aid white sturgeon and salmon populations spawning downstream of the dam, within the confines of the Treaty and AOP (Ginalias, 2008). Then as part of the agreement, BC can offset lost power generation due to changes in Libby operations (Bankes & Cosens, 2014). When the US operates Libby for those fish interests, BC can generate more power at other facilities and exchange power with BPA (Hyde, 2010). This is a long term agreement between the countries and either country can terminate the agreement with 30 days-notice (United States Entity, 2000).

While the LCA addressed part of the dispute over the operations of Libby Dam, the issue is not completely resolved. A number of Canadian residents and the Canadian Entity object to VARQ (variable flow) operations at Libby Dam (BC Ministry of Energy and Mines, 2013c; Ketchum & Barroso, 2006). This procedure enables higher spring and

summer flows for fish and in doing so raises the flood control cover to near median water conditions (Hyde, 2010). The Canadian Entity notes that this procedure adversely impacts power production and potentially impacts on flood risk management (Ketchum & Barroso, 2006). Due to BC resident concerns, the BC Ministry of Energy and Mines commissioned a study to investigate the impact of VARQ operations on dikes along the Kootenay River between the border and Kootenay Lake in BC (BC Ministry of Energy and Mines, 2013c; Weatherly, 2012). The study found that VARQ flood control has not had a significant negative impact on the Kootenay River diking infrastructure adjacent to the Kootenay River in BC (BC Ministry of Energy and Mines, 2013c; Weatherly, 2012).

4.4.3 Non-Treaty Storage Agreements

As mentioned above, when Canada constructed Mica dam they built it to store five MAF more than required by the Treaty. This storage falls outside of the purview of the Columbia River Treaty. It is constrained by the Treaty in that Canada cannot use the storage in ways that may alter river flow across the border and therefore reduce the flood control and power benefits agreed to under the Treaty. Therefore, BC Hydro typically used the storage for redistributing water among its reservoirs to optimize power benefits (Bonneville Power Administration, 2011). From the late 1970s until 2012, BC Hydro and BPA, in their roles as Entities under the CRT, negotiated a series of agreements called Non-Treaty Storage Agreements (NTSA) to improve the benefits from the storage. The 1984 NTSA also helped settle a dispute over the filling of the Revelstoke Reservoir (Hyde, 2010). The most recent agreement, negotiated after an agreement expired in 2011, and signed in March 2012, remains in effect until September 2024 (Bonneville Power Administration, 2012a). With some NTSAs, BPA also signed companion agreements

with the Mid-Columbia non-federal hydroelectric projects that made the Mid-Columbia PUDs party to the benefits and obligations of the NTSAs (Bonneville Power Administration et al., 2001).

As with the CRT, the NTSAs focus on mutual benefit to both nations. Over the years, Canadian benefits include increasing power generation, protecting of whitefish and trout eggs in the BC portion of the basin, and improving Canadian reservoirs levels for summer recreation (BC Hydro, 2012). US benefits include access to the non-Treaty storage, which is used for increasing flexibility to store and release water for ESA-listed species needing improved flows in the summer, increasing power benefits, and reducing flows and spill when dissolved gas levels exceed state standards (Bonneville Power Administration, 2011, 2012a).

4.5 Water Governance in Canada and British Columbia

With an understanding of the transboundary governance of water in the Columbia River Basin, I now summarize water governance in Canada and British Columbia. This provides context for the BC case study in Chapter 5. I first describe the roles that the Federal, Provincial and First Nations play in management of water. I then discuss their roles in international treaties. Finally I summarize the various domestic laws, regulations, and guidelines that govern dams and reservoirs in BC.

4.5.1 Water Management Jurisdictions

Canada is all at once a constitutional monarchy, a federal system, and a parliamentary democracy (Universities Consortium on Columbia River Governance, 2015). The jurisdictions of the federal and provincial governments (called the Crown) and First Nations are defined in the Canadian Constitution, various statutes, regulations,

and guidelines as well as case law (Bankes & Cosens, 2012; Universities Consortium on Columbia River Governance, 2015). In terms of jurisdiction in water governance, Section 92 of Canada's Constitution Act of 1867 and Section 92A of Canada's Constitution Act of 1982 identify the exclusive authorities held by the Provincial legislatures. These powers generally fall under three categories: resources (including water), property, and local matters (Cairns, 1992; Sparling, 2014). While the Province maintains primary jurisdiction in water governance, the federal government of Canada still has a role when transboundary issues such as migratory species are involved (Cairns, 1992; Sparling, 2014). For example, four statutes play a role in water governance in the Columbia River Basin: Fisheries Act, Species at Risk Act (SARA), Migratory Birds Convention Act, and International Rivers Improvements Act (IRIA) (Sparling, 2014).

Several First Nations are also sovereigns in the basin and therefore have certain rights and management authorities. The controversial Indian Act of 1876 provides the process through the federal government of Canada claimed the authority to define "status Indian" and manage First Nation governments and resources (Coates, 2008). The extent of First Nation rights can be defined or reserved in treaties. However, in the BC portion of the Columbia River Basin First Nations did not cede their lands and enter into treaties. Therefore, many are going through a land claim process, through which they are seeking to assert their Aboriginal rights and title with the Federal and Provincial Governments. Aboriginal rights and title of First Nations are recognized in Section 35 of the Canadian Constitution Act of 1982 (Bankes & Cosens, 2012; Quig, 2004; Universities Consortium on Columbia River Governance, 2015). The First Nations in the BC portion of the Columbia River Basin are still negotiating their treaties with Canada. The Ktunaxa

Kinbasket Treaty Council and Northern Shuswap Tribal Council are currently in Stage 4 (agreement-in-principle negotiations) of treaty negotiations (BC Treaty Commission, 2015).

The Crown (i.e., the federal and provincial governments) has a legal obligation to “consult” and “accommodate” First Nations interests if a proposed government decision or action may potentially affect an aboriginal right or title (Bankes & Cosens, 2012; Universities Consortium on Columbia River Governance, 2015). This duty does not apply to past harms, but rather on present and future actions (Bankes & Cosens, 2012).

Once established First Nations rights and title are not absolute and can be infringed upon by the federal government of Canada if it: 1) demonstrates a compelling and substantive legislative objective for doing so, 2) consults with the Aboriginal group prior to acting, and 3) provides compensation when required (Quig, 2004). However a series of court decisions (e.g., *Haida Nation v. British Columbia*, 2004 SCC 73 and *Mikisew Cree First Nation v. Canada (Minister of Canada Heritage)*, 2005 SCC 69) have limited the Crown’s ability to override First Nations’ rights and title. Most recently in 2014 (after the completion of Phase 2 of the BC CRT Review), the Supreme Court of Canada acknowledged that title extends to the entire traditional territory and that the government must obtain consent from First Nations with Aboriginal title for actions on that territory in the case *Tsilhqot'in Nation v. British Columbia*. The case also specified that the Crown must have “a compelling and substantial public purpose” to infringe on an Aboriginal title (Universities Consortium on Columbia River Governance, 2015).

4.5.2 International Treaties

In Canada, the federal Crown has the authority to enter into, modify and terminate treaties with other foreign governments (Bankes & Cosens, 2012; Barnett, 2012). As stated in the Department of Foreign Affairs and International Trade Act, the Minister of Foreign Affairs is responsible for negotiating international treaties (Barnett, 2012). This can be more of a supervisory role when another executive ministry is the subject matter expert. Bankes and Cosens (2012) identify Natural Resources Canada as the likely subject matter expert at the federal ministry level.

While the federal Crown has a large role in international treaties, BC is also a major player when it comes to the Columbia River Treaty for two primary reasons. First, as stated above, the Canadian Constitution reserves a large portion of natural resource management to the Province. Second, the BC-Canada Agreement of 1963 transferred the benefits and responsibilities for implementing the CRT to the Province. For these two reasons, the Province of BC led the Treaty review and it is unlikely the federal government of Canada would not include the BC provincial government in negotiations related to the CRT (Bankes & Cosens, 2012).

The potential role of First Nations in any CRT negotiations is less defined. At minimum it would include consultation of those First Nations that may be affected by a CRT decision. In their examination of the past and potential future role of US Tribes and Canadian First Nations in international Columbia River management, Paisley et al. (2015) note that “there are a number of very compelling policy and pragmatic reasons to include tribes and First Nations in negotiating and implementing future governance for the international Columbia Basin” (8).

4.5.3 Dam and Reservoir Management

As mentioned above, the Province of BC has primary jurisdiction over water management. The chief piece of legislation governing water in BC is the BC Water Act (*British Columbia Water Act*, 1996). This act will be repealed when the Water Sustainability Act comes into effect in 2016. The BC Water Act includes provisions for licensing hydroelectric projects. This licensing process also includes Water Use Planning and results in a Water Use Plan for the project (*British Columbia Water Act*, 1996). The Province issued guidelines for this process in 1998 (Province of British Columbia, 1998). A Water Use Plan (WUP) is a technical document that defines how water control facilities will be operated. The general process for creating a WUP is as follows: 1) conduct a multi-stakeholder consultative process to identify recommendations for a preferred operating strategy, 2) write WUP based on those recommendations and other system constraints (e.g., CRT, Non-Treaty Storage Agreements, etc.) 3) provincial and federal agencies review plan, and 4) the provincial Comptroller of Water Rights accepts the plan (Province of British Columbia, 1998).

The BC Hydro Columbia River System and Duncan Dam and Reservoir both have WUPs which include provisions based on the current operations dictated under the CRT (BC Hydro and Power Authority, 2007a, 2007b). Consultation efforts related to the development of WUPs provide some insight on what basin residents value and are concerned about. The Columbia and Duncan WUPs operation constraints include minimum and maximum flows for recreation, fish and wildlife as well as surcharge efforts for safety and flood control (Table 35) (BC Hydro and Power Authority, 2007a, 2007b). Columbia and Duncan WUPs mitigation efforts include debris management,

revegetation, boat ramp installation and maintenance, and protection/relocation of archeological sites (Table 34) (BC Hydro and Power Authority, 2007a, 2007b). The Kootenay River and Koocanusa Reservoir do not have a WUP (BC Ministry of Energy and Mines, 2012).

Table 35. Columbia and Duncan Water Use Plan operational and soft constraints

Geographic Area	Operational Constraints	Soft Constraints
Kinbasket Reservoir/Mica Dam	None	Surcharge (safety& flood control)
Revelstoke Dam & Reservoir	5 kcfs min. year-round flow (fish); Jul-Aug experimental flow for white sturgeon	Surcharge (safety& flood control)
Mid-Columbia River & Arrow Lakes	None	Surcharge (safety & flood control), vegetation, wildlife, fish, recreation, erosion, cultural sites, power generation
Lower Columbia (below Keenleyside)	None	Minimum fish stranding; flows for whitefish & rainbow trout
Duncan Reservoir	Target to reach full between Aug 1-10 (recreation. & water supply); 4 ft draft (fish)	None
Duncan Dam	100 cfs min. flow (fish), 10 kcfs max (FC); Max rates of change	None

Table 34. Columbia and Duncan Water Use Plan mitigation efforts

Geographic Area	Debris Mgt.	Re-veg.	Boat Efforts	Archeo-logical sites	Other
Kinbasket Reservoir/ Mica Dam	X	X	X	X	
Revelstoke Dam & Reservoir				X	
Mid-Columbia River & Arrow Lakes	X	X	X	X	Sturgeon aquaculture; wildlife habitat studies
Lower Columbia (below Keenleyside)	X				Turbidity & opportunistic high flows; dredging
Duncan Reservoir			X	X	Erosion protection; nutrient loading
Duncan Dam					Bull trout migration

In addition to Provincial licensing, dam and reservoir management must follow federal legislation such as the Fisheries Act, Species at Risk Act (SARA), Migratory Birds Convention Act (MBCA), and International Rivers Improvements Act (IRIA). For example, the Department of Fisheries and Oceans can set minimum flows, require the

construction of fish ladders or screens, and mandate fish habitat protection in order to conserve and protect fish and their habitat (Hutchings & Post, 2013; Kwasniak, 2004). I summarize the purpose and relevance of these statutes in Table 37.

Table 37. Canada's federal environmental legislation relevant to dams and reservoirs

Act	Purpose	Relevance
Fisheries Act	“to provide for the sustainability and ongoing productivity of commercial, recreational and Aboriginal fisheries” (Section 6.1) [the original Fisheries Act purpose was repealed in 1985; the above quote which came into effect in 2013 clarifies the purpose of decision-making under the fisheries protection provisions]	Cited as reason why restoration of salmon into Canada is a federal, not a provincial decision
International Rivers Improvement Act	“The Governor in Council may, for the purpose of developing and utilizing the water resources of Canada in the national interest, make regulations (a) respecting the construction, operation and maintenance of international river improvements; (b) respecting the issue, cancellation and suspension of licenses for the construction, operation and maintenance of international river improvements; (c) prescribing fees for licenses issued under this Act; (d) respecting the exemption of international river improvements from the operation of this Act; (e) authorizing the conduct of inspections under this Act in respect of any improvement exempted from the operation of this Act under the authority of regulations made under paragraph (d) and setting out the purposes for which those inspections may be carried out; and (f) designating provisions of the regulations for the purpose of paragraph 33(1)(b).” [IRIA doesn't have a listed “purpose” but rather “regulations” listed here]	May potentially justify increased role of federal government in any CRT negotiations
Migratory Birds Convention Act	“protecting and conserving migratory birds — as populations and individual birds — and their nests” (section 4 of MBCA)	Dam and reservoir operations can flood nesting and other habitat
Species at Risk Act	“To prevent wildlife species from being extirpated or becoming extinct, to provide for the recovery of wildlife species that are extirpated, endangered or threatened as a result of human activity and to manage species of special concern to prevent them from becoming endangered or threatened” (section 6 of SARA)	White sturgeon present are listed under SARA

Table 37 highlights the federal environmental statutes in Canada that are relevant to dam and reservoir operations in the BC portion of the Columbia River Basin. Content is drawn from statute text, conversations with basin residents, and case study interviews.

4.6 Water Governance in United States and Pacific Northwest Region

This section provides a summary of how water is governed in the United States and then more specifically within the Pacific Northwest, where the Columbia River Basin is situated in the US. Below I include a description of the governance systems to give background information on the system, or context, in which the US Columbia River Treaty 2014/2024 Review (US CRT 2014/2024 Review) took place. The basic governance structure of the United States is that of a federal system. Water management in the United States is extremely complex, guided by a wide array of laws and programs across multiple levels of governance that vary over geographic space and are divided up among many jurisdictions (Cody, Schneider, Tiemann, & Relf, 2012; Lantz, Bourget, & Manous, 2014).

4.6.1 Federal, State, and Tribal Jurisdictions in Water Management

The federal government, Tribal Nations, and the states all have roles in water management within the US. The Tenth Amendment states that “the powers not delegated to the United States by the Constitution, nor prohibited by it to the States, are reserved to the States respectively, or to the people,” which recognizes the inherent powers of the states. States have the authority and responsibility to manage their waters, including allocation of water. All seven states that include portions of the Columbia River Basin allocate their waters via the Prior Appropriation Doctrine, though the specific interpretations of the doctrine vary from state to state. The federal government retains jurisdiction in a number of areas of water governance. The delineation of these authorities is outlined in the US Constitution via the “Commerce Clause” and Tenth Amendment (Ferrey, 2010). The US Constitution states that Congress has the power “to regulate

Commerce with foreign Nations, and among the several States, and with the Indian Tribes” (Article I, Section 8). This means that the federal government maintains a role in managing waters and activities that affect interstate commerce. In *Gibbons vs. Ogden* (1824), the Supreme Court held that the Commerce Clause included the power to regulate navigation (Ferrey, 2010). The federal government also maintains authority in water governance via the “Property Clause” of the US Constitution which allows the federal government to enact statutes to manage federal lands and through the reservation of federal water rights (e.g., water for national parks and Native American reservations.

Therefore, as water crosses the border into the US, it is subject to a number of federal laws, including the Clean Water Act (CWA) which regulates water pollution, the Rivers and Harbors Act through which the Corps maintains authority over navigation and flood control, the Endangered Species Act (ESA) which in recent years has altered dam and reservoir operations in order to conserve salmon species, the Reclamation Act which authorized reclamation (irrigation) projects, like Grand Coulee, in the arid west, and Federal Energy Regulatory Commission (FERC) licensing/relicensing of non-federal dams (Table 38).

Table 38. US federal environmental legislation relevant to dams and reservoirs

Act	Relevance to basin and Treaty review
Rivers and Harbors Act	Authorizes the Corps to own and operate various dams and reservoirs for a variety of purposes, including navigation and flood control. In terms of flood control, the Corps is often required to operate dams and reservoirs in a way that keeps river flows below a certain level. For example, the Corps states that it is authorized to operate its Columbia River dams to keep flows below 450 kcfs at The Dalles.
Endangered Species Act	Mandates the conservation of ecosystems and the species that depend on those ecosystems. Several species including salmon, bull trout, and white sturgeon are listed as threatened or endangered in the basin. As such they are afforded certain protections, including those under Section 7 of the ESA, which prohibit action by a federal agency that may jeopardize a listed species or adversely modify its critical habitat. The US portion of the basin is entangled in a multi-year lawsuit over whether federal dams and reservoirs are being operated in accordance with this statute.
Clean Water Act	Regulates water pollution and development of wetlands.
Federal Energy Regulatory Commission licensing (Federal Power Act)	Among other responsibilities, FERC issues licenses for construction and operation of non-federal dams that must be renewed roughly every 50 years. This process provides a venue for public input into private dam construction and operation. Section 10(a)(2)(A) of the Federal Power Act requires FERC to consider the extent to which a project is consistent with federal or state plans for improving, developing, or conserving the rivers affected by the project.
Reclamation Act	Authorizes the “reclamation” of arid land in the western US for purposes of agriculture. It authorizes the Department of the Interior and Bureau of Reclamation to construct and operate irrigation and power projects. Thus the Bureau of Reclamation owns and operates dams and reservoirs, like Grand Coulee, for irrigation and power production. Grand Coulee is the largest producer of hydro-electric power in the nation and also blocks salmon migration.

Table 38 highlights the federal environmental statutes in the US that are relevant to dam and reservoir operations in the US portion of the Columbia River Basin.

The Endangered Species Act (ESA) is one federal law with implications for water management in the basin. It seeks to conserve the ecosystems upon which endangered or threatened species depend. It does this by offering special protections to species that are listed as endangered (at risk of extinction) and threatened (at risk of becoming endangered). These protections include prohibiting the “take” of an endangered species, which is defined in Section 3(18) of the ESA as “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.”

Section 7 of the ESA also requires that federal agencies not take any actions that might jeopardize the continued existence of a threatened or endangered species or result in adverse modification of its critical habitat⁶. If the federal agency (called the action agency) seeking to act and a threatened or endangered species may be present it must go through the ESA Section 7 consultation process whereby, depending on the species, the National Marine Fisheries Service (for ocean and anadromous species) or US Fish and Wildlife Service (for all other species) (both called the listing agency by the ESA) must review the action and its possible consequences to issue a Biological Opinion. The Biological Opinion will either state that there is no jeopardy (and the action agency can proceed) or will offer a jeopardy opinion in which the listing agency shares any reasonably prudent alternatives the action agency can take to proceed with the action in a way that would not jeopardize the listed species. There are a number of listed endangered and threatened species in the Columbia River Basin, most notably several species of salmon (including 13 distinct population segments), bull trout and white sturgeon. The Biological Opinion for consultation on the impact of operations of the federal dams on salmonids on the Columbia is part of an ongoing lawsuit.

Tribes have a unique role in the management of water and other natural resources. The specifics vary, but generally the tribes have reserved sections of land for the tribe as well as rights to access and manage various natural resources. Tribal rights in ceded lands may be spelled out explicitly or be implied in the treaty, statute, or presidential executive order establishing the reservation or in court decisions (which often seek to interpret the treaty, statute or presidential executive order). For example, tribes may have explicitly

⁶ Critical habitat is therefore also important in the basin. Section 4 of the ESA lists the criteria and process for designating critical habitat.

reserved rights to fish “all usual and accustomed places” outside of their reservations, as well as hunt, and gather roots and berries. An example of an implied reservation of rights would be implied rights to water for the purpose of the reservation land (National Research Council, 2004), or associated with, for example, the treaty right to fish.

The US also holds tribal resources and land in a trust with the tribes as the beneficiary of the trust. This often referred to as the “tribal trust responsibilities” of the federal government, which requires it to consider tribal interests in federal agency actions. Executive Order 13175 and its accompanying memorandum explain the requirements for federal agency consultation and collaboration with tribes.

4.6.2 International Treaties

In addition to these various authorities and jurisdictions related to water governance is also the issue of international treaties. The “Treaty Clause” of Article II, Section 2, Clause 2 of the US Constitution allows the President to negotiate agreements, with foreign governments. These agreements must then be approved by a two-thirds vote in the US Senate. Those two approvals ratify a treaty (US Senate, 2015). This treaty process is one of several ways for the US to enter into an international agreement with another country (Bankes & Cosens, 2012, 2014).

The US Department of State is the executive agency that works on behalf of the President to coordinate the interagency process for authorization to negotiate international agreements via the Circular 175 procedure (US Department of State, 2015b). Circular 175 is a set of regulations that address how the Department of State will ensure it uses its treaty negotiating power properly (US Department of State, 2015a). Since the CRT is an existing treaty between the US and Canada, the appropriate Circular

175 request is action memorandum from a bureau or office in the Department of State to a Department of State Assistant Secretary or higher official, requesting authority to negotiate, conclude, amend, extend, or terminate the Treaty. The memorandum would include several components, including: 1) the proposed action, 2) principal features of the proposal, 3) potential problems as well as solutions, 4) benefits of the proposed action, 5) notes on needed congressional consultations or environmental impact assessments, 6) text to be negotiated, and 7) notes on resources committed by the proposed action, and 8) legal basis for action (US Department of State, 2015a). The memo must be approved by all interested federal agencies as well as pertinent offices within the Department of State.

4.6.3 Dam and Reservoir Management

There are numerous private and public dams on the Columbia River and its tributaries. In the US, dams are authorized to operate for a variety of purposes in addition to hydropower and flood risk management, such as navigation, irrigation, and recreation. Depending on the owner of the dam, its purpose, and its location the dam requires authorization from the state and/or federal government. Authorization from the state and/or federal government dictates the purposes of the dam and reservoir (e.g., irrigation, flood control, etc.). Some of the dams and reservoirs within the US territory make up the Coordinated Columbia River System. In addition to the CRT, they operate under regulations and requirements including, but not limited to, the Pacific Northwest Coordination Agreement (PNCA), fish and wildlife statutes, and other operating requirements. To follow domestic regulations and requirements, the US deviates from the various CRT operating plans and alters the river's flows after they cross the border via dam and reservoir management. As noted in Chapter 4, if power generation decreases due

to these changes in operations, the US must still return the value of the Canadian Entitlement calculated from the Annual Operating Plan (AOP) in the Determination of Downstream Power Benefits (DDPB) report in order to meet its obligations under the CRT. In the following subsections, I describe the domestic regulations and requirements for dams and reservoirs in the Coordinated Columbia River System.

Pacific Northwest Coordination Agreement

The PNCA is an agreement between federal project operators and hydroelectric generating facilities in the Pacific Northwest (private and public) (Bonneville Power Administration et al., 2001; Hearn, 2008). It establishes processes that coordinate the use of planned Canadian storage operations with US project operations in order to optimize system reliability and power production, after giving priority to non-power objectives on a day-to-day basis. The current agreement expires in 2024. The PNCA Coordinating Group (BPA, the Corps, Reclamation, and public and private utilities in the US Pacific Northwest and western Canada) is the group that implements the agreement using a number of rule curves for reservoir operations developed by the Northwest Power Pool Study Group each year (Bonneville Power Administration et al., 2001).

Environmental and Fish and Wildlife Statutes

The most notable environmental regulation in the basin is the Endangered Species Act (ESA), which requires alterations to operations such as increased spill, reservoir drawdowns, and increased/altered timing of flows under a Biological Opinion issued for endangered salmon species. To implement the ESA Biological Opinion the Corps works as part of the National Marine Fisheries Service (NMFS) Regional Implementation Forum, which includes an Executive Committee and Implementation Team, that are

supported by the Technical Management Team (TMT), Water Quality Team (WQT), System Configuration Team (SCT), and others. The TMT is an inter-agency technical group that makes recommendations on dam and reservoir operations for the Coordinated Columbia River System in order to improve passage conditions for adult and juvenile anadromous fish. Chaired by the Corps, the TMT includes representatives from the NMFS, US Fish and Wildlife Service (USFWS), Bureau of Reclamation (BOR), BPA, the Environmental Protection Agency (EPA), National Weather Service (NWS), state agencies, and Native American Tribes (Bonneville Power Administration et al., 2001). The WQT works to lower total dissolved gas levels and water temperatures, which can be harmful to fish and wildlife. The SCT considers how to improve the physical structures in the hydro-electric system for optimal performance and fish and wildlife concerns (Bonneville Power Administration et al., 2001).

Operating Requirements

Each dam and reservoir has specific requirements such as minimum instantaneous discharge, minimum daily discharge, and maximum hourly and daily rates of change for project flows and minimum and maximum reservoir levels, downstream water surface elevations, and maximum hourly and daily rates of change for reservoir elevations. Requirements may be system-wide (applying to multiple dams/projects) or site specific (applying to only one project or one location). These requirements are defined when a project is designed and/or authorized in the authorizing legislation (for federal projects) or in the Federal Energy Regulatory Commission (FERC) operating license (for non-federal projects). Requirements may change or be added later (Bonneville Power Administration et al., 2001).

4.7 Chapter Conclusion

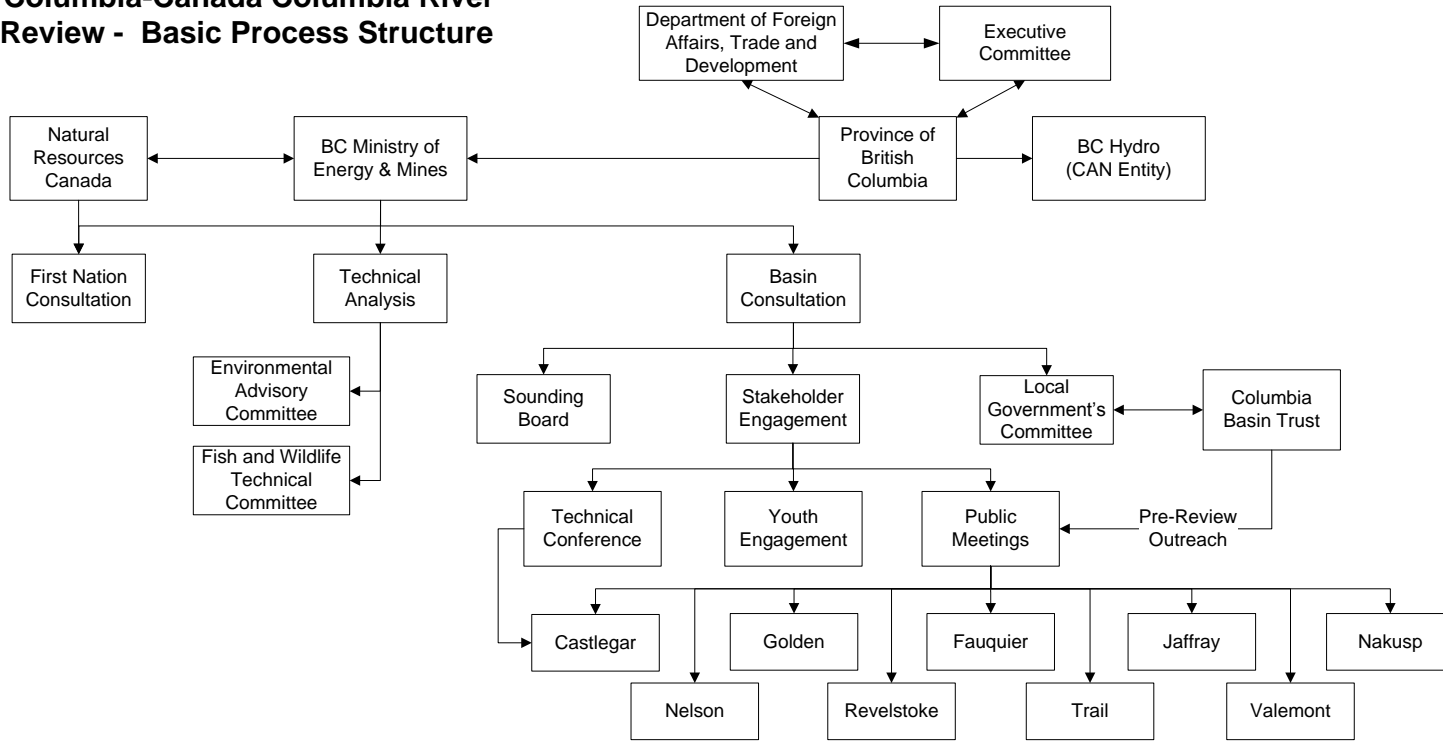
The transboundary Columbia River Basin is a complex social-ecological system. To optimize flood control and hydropower benefits in the basin, Canada and the US ratified the Columbia River Treaty (CRT or Treaty) in September 1964. Together, as directed by the Treaty, the Canadian Entity (BC Hydro) and US Entity (BPA and the Corps) implement the provisions of the Treaty. Construction of Libby, Mica, Arrow (Keenleyside), and Duncan and operations under the Treaty resulted in a number of costs and benefits throughout the basin. While the Treaty continues indefinitely, certain sunset and sunrise clauses of the Treaty come into effect in 2024. Those changes and disagreement between the US and Canada on how to interpret and implement the new provisions, along with the impacts of the Treaty, incentivized the Treaty signatories and residents of the basin to reconsider the water governance regime of the past 50 years. With this history and the upcoming and potential changes to the Treaty approaching, the two countries embarked on separate reviews of the Treaty to determine if they wanted to continue with, modify, or terminate the Treaty. In the following two chapters, I describe and evaluate those two reviews in order to identify lessons learned for the future governance of the river.

5 Treaty Review Case Study: British Columbia's Columbia River Treaty Review

In British Columbia, the Ministry of Energy and Mines led the Columbia River Treaty (CRT or Treaty) review in Canada (Province of British Columbia, 2015). The federal government of Canada, maintains its right to enter treaties with foreign governments (and therefore must approve any changes to the Treaty), but since the 1963 Canada-British Columbia Agreement transferred most Columbia River Treaty benefits, rights and obligations to the Province of BC, Canada deferred the CRT decision to the Province. Therefore, the Province of BC took the lead in Canada's review of the Treaty. I refer to this process as the BC CRT Review. The BC Ministry of Energy and Mines (the parent organization to BC Hydro Power and Authority, the BC Entity of the CRT) housed the BC CRT Review.

An Executive Director and small team coordinated the review process in order to collect information for the Province to consider in its decision. That team worked with an Executive Steering Committee (with federal and provincial ministry members), First Nations, and the BC portion of the basin to develop and guide the BC CRT Review process. The CRT Review by BC and Canada contains three tracks: 1) First Nation consultation, 2) basin consultation, and 3) technical studies (Figure 11). The Province issued a Provincial Decision in March 2014 (Province of British Columbia, 2014). In the following subsections, I describe the BC CRT Review process and the development of the BC Provincial Decision.

British Columbia-Canada Columbia River Treaty Review - Basic Process Structure



First Nations	Technical Analysis		Basin Consultation	
First Nations: <ul style="list-style-type: none"> • Ktunaxa Nation • Secwepemc Nation (Shuswap Band) • Okanagan Nation (Consulted separately - including some bands)	Environmental Advisory Committee: <ul style="list-style-type: none"> • BC Ministry of Energy, Mines & Natural Gas • BC Ministry of Environment • BC Ministry of Forests, Lands & Natural Resource Operations • Natural Resources Canada • Environment Canada • Fisheries and Oceans Canada • BC Hydro 	Fish and Wildlife Technical Committee: <ul style="list-style-type: none"> • Environment Canada • Fisheries and Oceans Canada • BC Hydro • Ministry of Forests, Lands & Natural Resource Operations • Ministry of Environment • Canadian Columbia River Inter-Tribal Fish Commission • Ktunaxa First Nation • Sexqelkemoc te Sewepemc First Nation 	Sounding Board: <ul style="list-style-type: none"> • 1 or more representatives • Northern Kinbasket • Southern Kinbasket • Revelstoke • Kootenay Lake • Lower Columbia • North Kootenay Lake • Kootenay and Arrow • Upper & Lower Columbia • Ktunaxa Nation Council 	Local Governments Committee: 1 or 2 representatives each <ul style="list-style-type: none"> • Upper Arrow • Lower Arrow • Kootenay • Creston • Duncan • Regional District of Central Kootenay • Columbia Shuswap Regional District • Regional District of East Kootenay • Regional District of Kootenay Boundary • Village of Valemont • Association of Kootenay Boundary Local Government

Figure 11. Institutional map of BC-Canada CRT Review structure

5.1.1 First Nation Consultation

The Crown (federal and provincial governments) is required to consult with First Nations when an action under consideration may impact First Nation's rights and title. In the BC CRT Review, the Province led First Nation consultation. To meet consultation obligations, the Provincial BC CRT Review Team reached out to the First Nations within the basin and with asserted interests in the basin. This was initially done via an official letter. The First Nations asked that federal Canada also participate in the consultation led by the Province. The federal government took a more of a back-seat, observer role.

The Province and federal government consulted each First Nation and sometimes different Bands within the Nation separately. The Province designed and proposed a consultation process to the Nations in the initial consultation letter. Most First Nations and Bands adopted that process, but one rejected that process and asked to design its own consultation process. This First Nation worked with the Provincial review team to develop a consultation process it felt was a more acceptable (though not completely satisfactory) means of consultation. First Nations were also given the opportunity to participate in the BC CRT Review technical committees. Some First Nations accepted this invitation. Others did not because they did not agree with the technical committees' approach to the technical studies and did not want their participation to be considered an endorsement of the technical process or its results.

5.1.2 Basin Consultation

Basin consultation consisted of a three pronged approach: 1) elected officials from local governments within the basin, 2) representatives from different interests and different geographic areas of the basin, and 3) engagement of the general public. The

Local Governments' Committee (LGC) consisted of 10 representatives from four regional districts, one village, and one local government in the basin. The LGC members also served as liaisons between the BC CRT Review, their local government, and their constituents. Their role was to help educate citizens about the CRT and its review, provide updates on the progress of the review to their communities, and share perspectives and concerns they heard from their constituents with the BC CRT Review Team.

The Sounding Board consisted of citizens acting as representatives of different geographic areas of the basin. The members of the Sounding Board represented a diverse set of interests, including businesses, economic development agents, as well as recreation, environmental, tourism, business, agricultural and community organizations. The Sounding Board Terms of Reference notes that the function of the body was “1) to act as “sounding board” on Columbia River Treaty reports and other information, providing feedback, opinions and suggestions for improvement, 2) to provide feedback to key Treaty Review questions, in particular regarding Basin interests (e.g. environment, socio-economic, domestic), [and] 3) to help inform recommendations to government on the future of the Treaty” (BC Ministry of Energy and Mines, 2013b, pp. 1–2). The Sounding Board met twice during the BC CRT Review to review technical studies and discuss what concerns in the basin were tied to the CRT and which were domestic, non-Treaty issues.

For stakeholder engagement, the BC CRT Review held public meetings at nine different basin communities at various and multiple occasions, over the course of the decision making process. The BC Review Team collected views and concerns from

residents, reviewed the analyses conducted, shared initial/draft versions of the reports and Provincial Decision, and answered questions at four sets (or phases) of meetings (BC Ministry of Energy and Mines, 2014). In addition to these meetings, a set of pre-review public meetings were held by the Columbia Basin Trust, a Crown corporation formed in 1995 to support the social, economic and environmental well-being in the BC portion of the Columbia River Basin impacted by the CRT. This initial outreach effort served two purposes. Its first goal was to educate the basin about the Columbia River Treaty. Then later it ended up serving as a means by which to introduce the BC CRT Review Team. Other stakeholder engagement efforts included hosting a technical conference to discuss the technical studies and scientific information from the BC CRT Review in greater depth than the public meetings. Specific efforts were also made to engage youth in the basin, by including them on the Sounding Board and through the development of a classroom lesson for students in Grade 6.

5.1.3 Technical Studies

The BC CRT Review Team from the Ministry of Energy and Mines led the technical studies along with BC Hydro, the Canadian Entity for the CRT. Two technical committees completed the technical studies, the Environmental Advisory Committee and the Fish and Wildlife Technical Committee. The committees consisted of representatives from federal ministries, provincial ministries, and First Nations. The BC CRT Review Team, BC Hydro, and the two committees scoped the technical studies, though individuals I spoke with noted that the BC CRT Review Team and BC Hydro had greater control of the scoping. The Sounding Board, LGC, and members of the public also had the ability to request additional technical work and information. The primary technical

work was to develop several post-2024 scenarios, model them, and assess the impacts of those scenarios on a variety of performance measures on topics such as ecosystem health, hydropower generation, flood control, dust storms, erosion, and recreation.

5.2 Development of the British Columbia Provincial Decision

With guidance from professional negotiators, the BC Review Team wrote a draft version of the Provincial Decision, taking into consideration what they heard through the various BC CRT Review forums. The BC Provincial Decision consists of a preamble and fourteen principles, which the Province notes will guide “any changes to the Treaty that may be pursued by the Province.” Initially, the Review Team came up with thirteen principles. It added a fourteenth, to avoid the unlucky number thirteen. The original plan was not to release the draft version (referred to as the draft Provincial Recommendation) for public comment. However, the BC Review Team decided to release the draft document for public review, in part because the US provided that opportunity to its residents. Sovereigns and stakeholders in the basin commented on the document via the BC CRT Review website, community meetings, and government-to-government meetings. The actual comments on the draft Provincial Recommendation are not available to the public; however, some are included in the Final Public Consultation Report and summary of the November 2013 community sessions produced by the BC CRT Review. The BC CRT Review Team reports on residents’ views of the draft Provincial Recommendation reflect the views I heard during my interviews (discussed further in the results portion of this chapter). The LGC also issued a separate recommendation to the federal government of Canada. Likewise, the LGC’s recommendation closely mirrors the BC Provincial Decision, with some exceptions.

There are not many differences between the draft Provincial Recommendation and Provincial Decision. However, there are a few revisions worth noting before I share my analysis of how the BC CRT Review process influenced the Provincial Decision. I simply list the differences in this section and will explain how or why those revisions were made later in the Chapter 7 discussion of what influenced the BC Provincial Decision.

Two important revisions in the BC Provincial Decision are related to impacts to First Nations and their rights. In the preamble, referring to First Nation Consultation, the BC CRT Review Team added the sentence, “Impacts to aboriginal territories, cultures, and practices from the construction and operation of the Treaty dams and reservoirs remain a serious and ongoing concern to First Nations.” This new language specifically calls out impacts to First Nations, which was missing from the draft version of the document. The BC Provincial Decision also adds that the BC CRT Review investigated how do address First Nations’ other interests “in the spirit of the New Relationship⁷ and the Transformative Change Accord.⁸” Later in the BC Provincial Decision principles, the language, “continue to *consult* with First Nations *on a government-to-government basis and engage with Basin* communities throughout the negotiation process” replaced “engage with First Nations and communities throughout any negotiation process” (emphasis added). This revised language highlights how the legal obligation to consult First Nations differs from a commitment to engage the public.

⁷ The New Relationship is a vision document that lays out an initial plan to help move toward reconciliation of Aboriginal and Crown Titles and Jurisdictions within British Columbia.

⁸ The 2005 Transformative Change Accord is a 10-year agreement between the Province, the Federal Government and First Nations (BC Assembly of First Nations, First Nations Summit, and the Union of B.C. Indian Chiefs).

There are four other changes in the Provincial Decision principles of note. First, in Principle 2, BC clarifies that not only are the benefits of the Treaty currently “primarily” the Canadian Entitlement, but in fact the Canadian Entitlement the sole benefit of the Treaty. Second, in a discussion of US benefits of the Treaty, the BC Provincial Decision expands upon what water supply benefits the Province feels should be accounted for in determining benefit sharing under the Treaty. In Principle 3, The Province notes that water supply benefits include municipal, industrial, and agricultural uses. These two revisions seem to serve to strengthen the BC position on how the two countries benefit from the Treaty and its argument why the Canadian Entitlement should not be reduced. A third revision in the BC Provincial Decision is the inclusion of language noting that the US must pay Canada for Called Upon operations. This is not a new concept or a new belief of BC, as the requirement for compensation for Called Upon comes directly from the Treaty itself. The new language simply addresses an omission in the draft. A final substantive change in the language comes in Principle 11, where the Province states that salmon migration “is *currently* not a Treaty issue” (emphasis added) and that BC’s view is that “management of anadromous salmon populations is the responsibility of the Government of Canada.” In the previous version of the document, Principle 11 stated that salmon migration “is not” a Treaty issue and did not make mention of the Government of Canada’s role in managing anadromous species. In addition to these changes, there were a few clarifying and grammar edits. I include a discussion of what influenced these changes in the text of the document in the “Case Study Discussion” portion of this chapter.

5.3 Water GPA Results

In this section of the chapter, I present my findings from my application of the Water Governance Process Assessment (Water GPA) to the BC CRT Review. First, I summarize who participated in the study. Second, I report the survey results, highlighting the scores participants gave the categories of the process (accountability, information, and inclusivity) and the scores for the BC Provincial Decision itself. Next, I list the byproducts the study participants identified as having emerged, increased, or decreased as a result of the review process. Finally, I describe the findings from analysis of the semi-structured interviews focusing on: 1) analysis of context (as that was not included in the survey), and 2) lessons learned from the Review. I further discuss the Water GPA results and their implications, from the surveys and interviews, in the following section titled, “Discussion.”

5.3.1 Study Participants

I interviewed sixteen participants of the BC CRT Review, fourteen of which completed the survey evaluation portion of the study (Table 39). An additional four participants of the review took the survey, but did not participate in an interview. I interviewed and surveyed a variety of BC CRT Review participants who engaged in different parts of the process in order to capture a complete picture of the process (Table 40). Different participants joined the review at various points in the process (Table 41). All those who completed the survey were involved with the BC CRT Review when the Province released the BC Provincial Decision on March 13, 2014 and many are still engaged in Treaty issues today. In both the interview and survey, participants shared their views of the four framework process categories and outcomes of the Water Governance

Process Assessment (Water GPA). I also asked if there was anything else they would like to share about the BC CRT Review for inclusion in my study.

Table 39. Stratified quota sampling strategy for the BC CRT Review case study

Category	Affiliations	Number of Participants (Interviews)	Number of Participants (Surveys)
Federal Government	<ul style="list-style-type: none"> Natural Resources Canada Environment Canada Fisheries and Oceans Canada 	2	2
First Nations	<ul style="list-style-type: none"> Ktunaxa Nation Okanagan Nation Secwepemc Nation (Neskonlith Band) Sinixt 	2	1
Provincial Government	<ul style="list-style-type: none"> BC Ministry of Energy and Mines (Lead Agency) BC Hydro Ministry of Forests, Lands and Natural Resource Operations Ministry of Environment 	5	5
Local Government	<ul style="list-style-type: none"> Members of Local Government Committee 	2	2
Stakeholders	<ul style="list-style-type: none"> BC CRT Review Sounding Board Members Other citizens 	5	8
Total		16	18

This table includes a breakdown of interviewees and survey respondents by affiliation. I identified potential participants using LGC, Sounding Board, and committee rosters, as well as other comments shared publicly during the BC CRT Review.

Table 40. Type of interviewee involvement in the BC CRT Review

Type of Involvement	Number of Participants (Interviews)	Number of Participants (Surveys)
Lead agency	2	2
First Nation consultation	3	1
Sounding Board	3	3
Local Governments Committee	2	2
Technical Committees	3	3
Stakeholder engagement	5	9

This table identifies the number of survey respondents and interviewees engaged in different components of the BC CRT Review.

Table 41. When participants joined the BC CRT Review

When Participant Joined Review	Number of Participants (Interviews)	Number of Participants (Surveys)
Pre-Phase 2	4	5
Start of Phase 2 (Fall 2011)	8	12
2012	2	3
2013	6	6
Total	16	18

This table lists when different study participants joined the BC CRT Review.

5.3.2 Methodology Overview

The semi-structured interviews lasted between 20 minutes and 2 hours, depending on participant availability. The average length of interviews was just under an hour.

During the interviews, I asked participants to explain or provide examples for select survey responses in order to compile a richer assessment of the process categories and outcomes. I also asked them in what ways each of the process categories impacted the content of the decision (or their view of it) as well as if there were any other factors that they believe influenced the outcomes of the decision making process. I recorded the interviews using a digital voice recorder then transcribed them into a text document for analysis. I coded and analyzed the transcribed interviews qualitatively using the Water Governance Process Assessment categories and the QSR NVivo software.

In the survey, I asked participants to score the degree to which they agreed or disagreed with statements for various aspects of the process characteristics: information, accountability, and inclusivity. Participants scored the statements on a Likert scale of one (strongly disagree) to five (strongly agree). Each statement represents one aspect or criteria of those three process characteristics identified by the Water Governance Process Assessment (Water GPA). Participants also scored the degree to which they agreed or disagreed with statements about the review decision, in this case the BC Provincial Decision. I compiled the paper survey responses into an electronic spreadsheet for

analysis. I provide a more detailed explanation of my methods in Chapter 3. Below I present the mean scores for all 18 survey respondents as well as counts of the positive (agree and strongly agree), negative (disagree and strongly disagree) and neutral scores to show the distribution of the scores. If apparent, I point out trends in the responses.

5.3.3 Accountability

In the Water GPA, I define accountability as “*the organization and atmosphere of the process designed to produce a legitimate decision.*” Accountability includes concepts such as transparency, fairness, rule of law, leadership, responsiveness, the scope of the decision making process, who holds decision authority etc.

Survey Results

For all measures of accountability, at least half of those who completed the survey rated the BC CRT Review favorably (Table 42). All survey respondents agreed that the review followed the appropriate laws and 15 (of 17) respondents agreed that the review fulfilled its legal obligations. For two aspects of accountability, decision criteria and decision authority, almost a third of respondents (5 out of 18) disagreed that review clearly explained how it would make a decision and how it would share its authority with the review participants.

Table 42. BC CRT Review accountability scores

Category	Mean	Distribution of Responses			Total
		Disagree	Neutral	Agree	
The review was sufficiently transparent	4.03	2	1	14	17
The review tasks/objectives were clearly specified	4.03	1	4	12	17
Criteria used for how decisions would be made were clearly specified	3.56	5	4	9	18
The degree to which decision authority would be shared was clear	3.65	5	2	10	17
To the best of your knowledge, the review followed the appropriate laws	4.44	0	0	18	18
To the best of your knowledge, the review fulfilled its legal obligations	4.29	1	1	15	17
The review was procedurally fair/just	3.94	1	5	11	17
Representatives of the public and interest groups represented their constituents' interests appropriately	3.94	2	3	13	18
The lead agency of the Treaty review was responsive to review participants	4.12	1	3	13	17

Table 42 presents the mean scores and response counts for the survey questions about the quality of accountability in the BC CRT Review. Survey participants marked whether they strongly disagreed (assigned value = 1), disagreed (assigned value = 2), were neutral (assigned value = 3), agreed (assigned value = 4), or strongly agreed (assigned value = 5) with each statement. A higher mean score indicates higher overall agreement with the statement. I combined the “strongly disagreed” and “disagreed” as well as the “strongly agreed” and “agreed” counts.

To investigate who felt the decision criteria and degree of shared decision authority, I separated the responses into two groups, stakeholders engaged through the public consultation process and government officials (Table 43 and Table 44). For both measures of accountability, more stakeholders disagreed that the BC CRT Review clearly shared its intent in those areas. Overall, government officials scored accountability higher than stakeholders, whose scores were more varied (Table 43 and Table 44).

Table 43. Sovereign participant accountability scores for the BC CRT Review

Category	Mean	Distribution of Responses			Total
		Disagree	Neutral	Agree	
The review was sufficiently transparent	4.50	0	0	8	8
The review tasks/objectives were clearly specified	4.50	0	0	8	8
Criteria used for how decisions would be made were clearly specified	4.00	1	2	6	9
The degree to which decision authority would be shared was clear	4.50	1	0	7	8
To the best of your knowledge, the review followed the appropriate laws	4.78	0	0	9	9
To the best of your knowledge, the review fulfilled its legal obligations	4.88	0	0	8	8
The review was procedurally fair/just	4.44	0	1	8	9
Representatives of the public and interest groups represented their constituents' interests appropriately	4.44	0	1	8	9
The lead agency of the Treaty review was responsive to review participants	4.56	0	1	8	9

This table presents the mean scores and response counts for SOVEREIGN participants in the BC CRT Review on the topic of accountability. Survey participants marked whether they strongly disagreed (assigned value = 1), disagreed (assigned value = 2), were neutral (assigned value = 3), agreed (assigned value = 4), or strongly agreed (assigned value = 5) with each statement. A higher mean score indicates higher overall agreement with the statement. I compiled the “strongly disagreed” and “disagreed” as well as the “strongly agreed” and “agreed” counts.

Table 44. Stakeholder participant accountability scores for the BC CRT Review

Category	Mean	Distribution of Responses			Total
		Disagree	Neutral	Agree	
The review was sufficiently transparent	3.56	2	1	6	9
The review tasks/objectives were clearly specified	3.56	1	4	4	9
Criteria used for how decisions would be made were clearly specified	3.11	4	2	3	9
The degree to which decision authority would be shared was clear	2.89	4	2	3	9
To the best of your knowledge, the review followed the appropriate laws	4.11	0	0	9	9
To the best of your knowledge, the review fulfilled its legal obligations	3.78	1	1	7	9
The review was procedurally fair/just	3.38	1	4	3	8
Representatives of the public and interest groups represented their constituents' interests appropriately	3.44	2	2	5	9
The lead agency of the Treaty review was responsive to review participants	3.63	1	2	5	8

This table presents the mean scores and response counts for STAKEHOLDER participants in the BC CRT Review on the topic of accountability. Survey participants marked whether they strongly disagreed (assigned value = 1), disagreed (assigned value = 2), were neutral (assigned value = 3), agreed (assigned value = 4), or strongly agreed (assigned value = 5) with each statement. A higher mean score indicates higher overall agreement with the statement. I compiled the “strongly disagreed” and “disagreed” as well as the “strongly agreed” and “agreed” counts.

Transparency

During the interviews, I asked participants about the degree of transparency in the process and whether the process was sufficiently transparent. Responses generally fell into two categories. First, several participants felt that the public consultation process was very transparent. On the other hand a few participants felt that the technical aspects of the review (e.g., technical studies) and what would happen after BC issued its Provincial Decision were less transparent. One member of the Sounding Board shared:

We were told [that] our [the BC CRT Review Team] job is to collect your input. We are going to give it to the government and we have no idea what they are going to do with it. It was pretty clear, but it was also pretty fuzzy. They were very open with us that they didn't know and that the government representatives we were working with weren't the ones who were making the decision. In fact the government that is currently in

office, is not the government that will be in charge in 2024. So they were very transparent about 'who knows. - Sounding Board Member

This quote encapsulates a feeling shared by a few participants in the BC CRT Review.

They felt that the Review team did its best to be open and honest during the review process, but in some ways the participants felt that transparency was limited because the actual decision by the Province and then federal Canada was made and moving forward, will be made in a black box. This tied in with concerns or confusion about decision criteria and the sharing of decision authority, which I discuss in the next subsection.

Decision criteria

I saw two themes in what participants thought about the BC CRT Review decision criteria. First, is that several participants did not know what the criteria were. They knew the BC CRT Review team collected their input but were unsure what the Province would base its decision on. One of the BC CRT Review Team members explained that because the decision rested with Cabinet, those deliberations within Cabinet were confidential and the team could not share the decision criteria. Related to this, some individuals wanted more clarity on how BC and Canada would use the information gathered during the consultation process would be used in the decision on the future of the Treaty. Others thought the vague nature of the decision criteria was acceptable. One member of the Local Governments' Committee said:

I think in terms of them informing us as to how they would use our information, at the beginning of the process, I don't think that was clearly laid out--and that was okay because we really didn't know what we were going to discover. -LGC member

Sharing of decision authority

In general, participants acknowledged that this was a consultation process, not a collaborative process or one seeking consensus, and as such, the Province held the decision authority. Mirroring interviewee thoughts on the decision criteria, participants' perceptions of how decision authority would be shared fell into two camps: 1) an understanding that the Province was the sole decision maker and was not sharing any authority and 2) uncertainty as to how much the Province would adopt the views of the basin. Bridging these two camps, one Sounding Board member said, "It was pretty clear that none of us got the decision making authority, but how much our feedback would influence it [the decision] was also not clear."

With this set up, a few participants specifically voiced fears about the views of the residents of the BC portion of basin the being ignored or over-ruled by the rest of BC or Canada. Others expressed concern that the Provincial Cabinet would not listen to or consider the views of the basin. Another Sounding Board member shared:

We have a provincial Cabinet, and they will end up making the decision, and whether the appointee effectively is able to represent our wants or their wants is in dispute. I hope that works for you because many of us get the sense that it doesn't matter what we say. Cabinet's going to do whatever they want anyway. - Sounding Board member

The two First Nations representatives I spoke with had negative views on how decision authority was allocated and shared. They disagreed with the Province leading the review rather than the federal government of Canada. They also believe that, as sovereigns, they should share authority in making the decision that will affect their lands and resources. They felt the Province did not properly include their views in the decision

and entered the process with a predetermined decision. One First Nation representative said:

We challenge that because you can't do that without First Nations involvement because of the constitutional rights and the increasing recognition of the First Nations title rights over those same areas of decision-making. Basically, the First Nations have a role in that process and if you haven't included them then you're not legitimate. - First Nation representative

Scope

The central decision of the BC CRT Review was to decide what BC should recommend Canada do with the CRT post-2024. More specifically should it recommend termination, modification, or continuation of the Treaty post-2024? Technically, issues not related to this decision about the Treaty should be considered out of scope by the BC CRT Review. The BC CRT Review Team took an interesting approach to this issue. A BC CRT Review Team member explained:

When we started the [BC CRT Review] team here from Victoria, some said, "We will need to have a list of the issues we can consider under the Columbia River Treaty and what would be out of scope." And I said, "Don't ever go into a community in the Kootenays and say something is out-of-scope. That is not going to work." So we had a parking lot--I think we had 54 pages of issues that were outside of the Treaty that we committed to coming back to and seeing within government seeing how they could be addressed so those weren't out-of-scope, even though they weren't necessarily Treaty-related. - BC CRT Review Team member

Those involved in the public engagement process that I interviewed seemed satisfied with this approach. In their comments, they shared that this satisfaction was tied to the fact that those 'parking lot' items were not immediately dropped when the BC CRT Review process ended. Rather the Columbia Basin Trust, LGC, and the Province, through the formation of the Columbia Basin Regional Advisory Committee, picked up a number of the issues to begin trying to address them. The BC Ministry of Energy and Mines also let

participants of the review determine what was or was not Treaty-related. With guidance from the BC CRT Review Team, the Sounding Board completed an exercise where they reviewed 96 actions to determine which were Treaty-related and were domestic issues that the Province or Federal Canada could address within their own borders.

This is not to say that all interviewees felt the Treaty review process had the appropriate scope. A few participants felt the BC Ministry of Energy and Mines view of what fell within the scope of the review was too limited, either at the outset or throughout the whole process. One technical committee member recognized the challenge BC had in determining what was in and out of scope, but offered:

If you have BC's hat on, you are planning out what is important and not important and if there is something another agency feels you may have missed then there may be some hesitancy to engage on that. But at the same point there is at least a place for that discussion to happen, for points to be made and considered by BC. So there may be some areas on the environment side or climate change side where BC might not have been considering issues in their initial assessment of what is important or not important for the review but then over time there is a chance for groups or agencies to get why things are important. - Technical Committee member

Leadership

In my examination of the transcripts, I initially focused on how responsive the review lead (the BC Ministry of Energy and Mines in this case study) was to participants. However, as I coded the text, I also found that participants also wanted to share thoughts on who Canada chose to lead the review. Therefore I discuss both in this section.

With only a couple of exceptions, most participants felt the BC CRT Review Team was very responsive to those participating in the Treaty review process. One example of how the Ministry of Energy and Mines team responded to process participants was how they consulted the public in their development of the public

engagement process. This is seen in a story of how the BC CRT Review Team adapted and responded to the needs of one community:

When we chose dates [for community meetings] we would ask the Local Governments Committee if is there anything happening in your communities our meeting would not conflict [with anything]. We chose the days and advertised everything for the last set of meetings. Well in Nakusp there was this piano recital so a lot people in the evening couldn't come. So we said, "Okay, what would you like us to do?" So they said, "Well we would like you to have one in the afternoon and one in the evening." And I went, ugh, because it can be exhausting because you are out there and you are sincere. It takes energy to react and explain and to respond. But we did. And in the little community of Nakusp we basically got almost 200 people to attend between the two sessions in a population of 1000. And there were some people from outlying communities that came as well. -BC CRT Review Team member

The review team also responded to participants' requests for information. One member of the Sounding Board member shared:

If questions were raised of staff, there was always the ability, to for them [the staff member] to say, "We don't have the answer to that but we will go and find out. We will then get back to you." That happened quite often. -Sounding Board member

It was not that the Ministry of Energy and Mines did everything that participants wanted or agreed with all opinions shared. Rather participants commented on how if the BC CRT Review Team disagreed with a participant request it would explain why it would not act on that request. So at the end of the day, all parties might not agree on what studies were done or what the BC Provincial Decision said, but they respected each other. A LGC member commented:

I would say that there was a larger percentage of people that had a renewed respect for a government process because of the government team and how they handled things and how they got back [to us]. You may not always get what you want, but at least you recognize that they cared and that they were trying their best for you. - LGC member

I heard different opinions about whether the right organization was put in charge of the review. Some felt that the BC Ministry of Energy and Mines was appropriate because: 1) the review process should be at the Provincial level and/or 2) the Ministry of Energy and Mines is the parent organization of BC Hydro (the Canadian Entity) and has greater capacity to complete the review. Others felt a different organization should lead the review. First Nations representatives thought it should be led by someone at the federal level. Another participant wondered if the review should be done through the Columbia River Treaty itself (i.e., via the IJC and dispute resolution protocols laid out in the Treaty) to avoid having the two nations become positional through separate review processes. Another interviewee thought that the Ministry of Energy and Mines was not the appropriate process lead because of its biases towards natural resource extraction and continuing or modifying the current Treaty operations to maintain power generation.

Accountability to constituents

In their discussions about accountability, very few participants talked about whether different stakeholders or elected officials were accountable to their constituents. The couple that did simply shared that they felt the LGC members represented their constituents fairly.

Rule of law

In terms of rule of law I found two themes. First, was there was no legal provincial requirement for the Province to consult with members of the public in their review of the Treaty. Participants were appreciative that the Ministry of Energy and Mines still conducted an extensive engagement process even though one was not legally required.

The second theme focused on the role of the BC the legal obligation for both the Province and the federal government of Canada to consult with First Nations. As I discuss more under “Context,” the Province of BC led Canada’s review of the Treaty because of the BC-Canada Agreement of 1963 which delegated the management authorities and responsibilities as well as the benefits of the CRT to the Province. The BC CRT Review team consulted each First Nation or Band separately with a representative of the federal government of Canada present as an observer. The First Nations interviewees did not view this as appropriate and felt that the federal government of Canada failed to meet its federal obligation to consult. In talking about whether the Province followed the rule of law and fulfilled its duty to consult with First Nations, I heard conflicting viewpoints. One First Nation representative shared:

First of all, there isn't a really a good process in place. The consultation is very minimal and it's not adequate and it doesn't meet our recognition of our titled rights, which they always sidestep in the process. - First Nation Chief

A different First Nation appreciated the ability to design its own consultation process which s/he described as a critical path process with trilateral engagement of the First Nation, federal government, and provincial government. S/he felt that process was a step towards acceptable First Nation consultation. The provincial and federal government representatives involved in the First Nation consultation felt they met their legal obligations. One person shared:

We had policies on how we would meaningfully engage and consult First Nations. We were provided with--we had actually a dedicated legal counsel on aboriginal law to ensure that we were meeting our duty to consult the First Nations. - Government representative

Other emergent subthemes of accountability

One emergent theme I discovered while coding was how frequently BC review participants spoke directly about the Executive Director of the BC CRT Review Team, and made a distinction between her and her team versus the Ministry of Energy and Mines or the Province. They expressed confidence in the Executive Director and her staff, but remained skeptical of how the Ministry of Energy and Mines and the Provincial government would act in the future. Some participants mentioned other individual's names from groups like the LGC or Columbia Basin Trust (CBT), but not at the same frequency as the Executive Director. In most other cases, participants referred to someone by their affiliation. For example, they would talk about BC Hydro or the Department of Fisheries and Oceans. Based on my observations, I can think of two possible explanations for this. One is that the Executive Director personally had a large impact on the process. More specifically her personality, history with the basin (she used to live in the region), strengths as a leader, and approach were well-received by BC CRT Review participants. A second possible explanation is that my interviewees were aware that I knew the Executive Director from my involvement in the CRT reviews and so they felt comfortable referring to her by name. I favor the first explanation based on what some participants said about her. For example, when talking about what about the process went well one citizen shared:

Well I think it is having strong facilitated and knowledgeable individuals leading like [the BC CRT Review Team Executive Director]. Seeing capable people with basic social leadership say, "I want to hear what everybody has to say. I have strong opinions myself, but I am willing to listen and incorporate into something going forward." I think that is what has to happen...The leadership makes a huge difference in the success. Don't put weak capacity in as the leaders of those sessions because you will get nowhere and you will make no progress. -BC citizen

5.3.4 Information

Information and knowledge includes *the data, information and knowledge used to make the decision, including all stages of collection, modeling, experiments, and analysis*. Survey respondents rated information in terms of quality (i.e., was the information appropriate and adequate for the decision being made) and access (was the information available and understandable). Survey respondents generally agreed that the BC CRT Review used the appropriate information, conducted the right technical studies, and made that information available in an audience appropriate format (Table 45). A majority of government officials and agency staffers agreed that review collected, used, and shared the right information (Table 47). Seven of nine government officials felt that the information produced in the review was adequate for the decision. Stakeholder views were more varied with three (of 9) disagreeing and five agreeing that the information was adequate (Table 46). The semi-structured interviews provide further insight into the participants views of information produced and used in the BC CRT Review. I discuss those next, highlighting what participants had to say about the quality of information produced and used in the review, information sharing, whether information shared was audience appropriate, and whether it was made available in a timely manner.

Table 45. BC CRT Review information scores

Category	Mean	Distribution of Responses			Total
		Disagree	Neutral	Agree	
The review utilized the appropriate existing information (studies, knowledge, etc.)	4.00	1	2	15	18
The appropriate technical studies were conducted	3.61	4	3	11	18
Information was made available in a timely manner	3.92	1	4	12	17
Information made available was easily understood	3.53	4	2	11	17
Information shared was audience appropriate (e.g., matched the level of technical understanding)	3.78	1	4	13	18
Information produced in the review was adequate (i.e., appropriate for the decision being made)	3.78	3	3	12	18

This table presents the mean scores and response counts for all survey participants in the BC CRT Review on the topic of information. Survey participants marked whether they strongly disagreed (assigned value = 1), disagreed (assigned value = 2), were neutral (assigned value = 3), agreed (assigned value = 4), or strongly agreed (assigned value = 5) with each statement. A higher mean score indicates higher overall agreement with the statement. I compiled the “strongly disagreed” and “disagreed” as well as the “strongly agreed” and “agreed” counts instead of reporting them in separate columns.

Table 46. BC CRT Review stakeholder information scores

Category	Mean	Distribution of Responses			Total
		Disagree	Neutral	Agree	
The review utilized the appropriate existing information (studies, knowledge, etc.)	3.67	1	1	7	9
The appropriate technical studies were conducted	3.00	4	1	4	9
Information was made available in a timely manner	3.50	1	3	4	8
Information made available was easily understood	3.11	3	2	4	9
Information shared was audience appropriate (e.g., matched the level of technical understanding)	3.44	1	3	5	9
Information produced in the review was adequate (i.e., appropriate for the decision being made)	3.22	3	1	5	9

This table presents the mean scores and response counts for STAKEHOLDER survey participants in the BC CRT Review on the topic of information. Survey participants marked whether they strongly disagreed (assigned value = 1), disagreed (assigned value = 2), were neutral (assigned value = 3), agreed (assigned value = 4), or strongly agreed (assigned value = 5) with each statement. A higher mean score indicates higher overall agreement with the statement. I compiled the “strongly disagreed” and “disagreed” as well as the “strongly agreed” and “agreed” counts instead of reporting them in separate columns.

Table 47. BC CRT Review government official information scores

Category	Mean	Distribution of Responses			Total
		Disagree	Neutral	Agree	
The review utilized the appropriate existing information (studies, knowledge, etc.)	4.33	0	1	8	9
The appropriate technical studies were conducted	4.22	0	2	7	9
Information was made available in a timely manner	4.33	0	1	8	9
Information made available was easily understood	3.94	1	0	7	8
Information shared was audience appropriate (e.g., matched the level of technical understanding)	4.11	0	1	8	9
Information produced in the review was adequate (i.e., appropriate for the decision being made)	4.33	0	2	7	9

This table presents the mean scores and response counts for SOVEREIGN survey participants (government officials) in the BC CRT Review on the topic of information. Survey participants marked whether they strongly disagreed (assigned value = 1), disagreed (assigned value = 2), were neutral (assigned value = 3), agreed (assigned value = 4), or strongly agreed (assigned value = 5) with each statement. A higher mean score indicates higher overall agreement with the statement. I compiled the “strongly disagreed” and “disagreed” as well as the “strongly agreed” and “agreed” counts instead of reporting them in separate columns.

Information quality

Information quality refers to collecting the appropriate information and completing the appropriate studies so that a decision can be informed by comprehensive and accurate data and information. In their comments about information quality, study participants talked about instances where they thought the quality of information collected and use was high as well as areas where they thought better information or additional information should have been gathered.

One area where a number of participants thought the BC CRT Review did an excellent job in collecting information was in the public consultation process. Participants felt that the BC CRT Review Team gathered and used community input and, as a result, had a better Provincial Decision. One member of the LGC said, “I think they [the Province] are far better prepared with what they learned from us than what they would

have been if they would not have consulted the region.” A member of the BC CRT

Review Team commented:

I think what the information gathering did was to educate the people that if there is going to be a negotiation, we have so much information that we've got from local residents about where their lines in the sand are. - BC CRT Review Team member

Other participants were also impressed with the scope of the technical studies conducted during the review and the willingness of the BC CRT Review Team to conduct the different technical analyses that communities requested (which I discuss further in the section on inclusivity and the ability of groups to influence technical studies). One member of a technical committee also commented on how the review allowed them to improve their existing technical models and expand their model to the entire Columbia River System and to the mouth of the river. Others felt that while more work would be needed in the future, the BC CRT Review conducted the right studies and gathered adequate information for the BC Provincial Decision. One government agency representative said:

I think the Province did a fairly extensive and intensive effort to gather the right kind of information in evaluating the value of the Treaty and the future of the Treaty for power generation and flood protection. -Technical Committee member

A few technical committee members and a few stakeholders felt that additional studies would have benefited the decision making process and region. One area where a few participants wanted additional investigation was on various environmental impacts including how climate change will impact the region and Treaty operations. A committee member commented:

They [the BC CRT Review Team and committees] did a great job in evaluating pros and cons of different scenarios, and broader socioeconomic issues. They considered the benefits to the Province, not only in terms of revenue but to the region in terms of managing flood risk and the sort of socio-economic benefits. But when it came to climate change, it's not clear that they saw it as important to their decision on the future of the Treaty. They understand that it can impact operational decisions, or it will down the road. But I think their position was that with or without a Treaty the system is going to have to deal with climate change impacts, so it may not be that central to the Treaty itself. I thought that assessing the system with a climate change evaluation approach might influence how the value of the Treaty seen. -Technical Committee member

A second criticism from the two First Nations representatives was that the information for their "Preliminary Assessments" for assessing the strength of their claim and voice in the decision was insufficient. One First Nation representative disagreed with the Province only taking a scientific approach and not considering the traditional ecological knowledge (TEK) of the First Nations when examining the impacts of different river operation scenarios. S/he said:

So we found that when we reviewed these materials [the proposed technical committees' work], not only the types of people they'd invited but the terms and the subject matter and how they framed the subject matter was basically against the indigenous interests...Rather than [adopt] the more challenging approaches of the First Nations that talk about the integration of species, the integration of impacts, the important world view of the holistic perspectives and cumulative impacts and that sort of thing...It's a lot easier when you look at things in isolation, say, "Will X impact on sturgeon in this way when we ask this question?" No. "Okay, then it's all good." The reality is maybe not at all. Maybe it didn't affect their ability to eat kokanee but it may have undermined the ability to get the nutrients they need to survive because it's impacted another species or something. - First Nations representative

A third critique was that the BC CRT Review did not take advantage of the review as an opportunity to think about the bigger picture and more outside of the box in terms of what technical studies to conduct. These three participants thought that the

Province should have used the review to envision a brighter future and investigate more progressive ways that may get the basin there. One member of the Sounding Board shared, “I think that we missed an opportunity for new ways of thinking.”

A final critique was using information and data from the Water Use Planning process. Some people were glad that Water Use Planning information was available due to the relatively recent Water Use Plans for the Columbia River System and Duncan Dam. Those individuals were glad for the existing information to build upon during the Treaty review. Others were concerned about using that information because assumptions about Columbia River Treaty operations are built into those prior technical studies. These individuals argued that if you are trying to examine the impacts of a “Treaty terminates” scenario it does not make sense to include information based on ongoing Treaty operations.

In addition to wishing for different or additional studies, some participants also recognized it was not feasible to complete some of what they thought should be studied in the timeframe of the Treaty review. Therefore, they hoped that the Province and others would continue doing technical analyses to better understand the river ecosystem and develop additional scenarios to consider in future Treaty negotiations and operations.

Information sharing

To capture the degree of information sharing survey respondents answered a question where they selected the category that best described the degree of information sharing between them and the BC Ministry of Energy and Mines. Adapted from the construct scale developed by Glen Hearn (2010), the scale ranges from no exchange of information to an extensive, regular exchange of information on a wide variety of topics

(Table 48). Each category is defined in terms of the timing, method, and content of information shared. Several respondents found the scale confusing as they did not understand what some of the indicators meant. For example, they asked “what is the difference between a regular or irregular exchange of information?” To clarify I shared brief definitions of the terms verbally (Of the government officials I surveyed, most rated information sharing between them and the lead agency as a “10” meaning there was “extensive and regular exchange, joint information gathering and/or processing, socio-economic-environmental, policy and planning information” (Table 48). The three other individuals rated information sharing as a 7, 8, and 9 (Table 48). The information sharing reported by stakeholders ranged from 2 to 10 (Table 48).

Table 49).

Table 48. BC CRT Review information sharing scores

Scale	Indicators (timing/method/content)	Number of Participants	Number of Government Officials	Number of Stakeholders
1	No exchange of information	0	0	0
2	Irregular release of information; informal exchange (e.g., through release of reports or journal articles)	1	0	1
3	Irregular but formal exchange of information that is limited, disputed or questioned	1	0	1
4	Irregular but formal exchange of limited information, validity accepted	0	0	0
5	Regular formal exchange, only one topic included, validity accepted or disputed	1	0	1
6	Regular exchange, multiple topics related to water included, validity accepted	0	0	0
7	Regular exchange, joint gathering and/or processing, only one topic included	3	1	2
8	Regular exchange, joint gathering and/or processing, multiple water issues included	1	1	0
9	Regular exchange, joint gathering and/or processing, multiple water issues included, including socio-economic and environmental issues exchanged or discussed	4	1	3
10	Extensive and regular exchange, joint information gathering and/or processing, socio-economic-environmental, policy and planning information	7	6	1
Blank	No response	0	0	0
Total		18	9	9

Table 48 displays how different survey participants reported the information sharing between themselves and the process lead (Ministry of Energy and Mines). Generally, government representatives reported higher degrees of information sharing than stakeholder participants.

Of the government officials I surveyed, most rated information sharing between them and the lead agency as a “10” meaning there was “extensive and regular exchange, joint information gathering and/or processing, socio-economic-environmental, policy and planning information” (Table 48). The three other individuals rated information sharing as a 7, 8, and 9 (Table 48). The information sharing reported by stakeholders ranged from 2 to 10 (Table 48).

Table 49. Information sharing construct scale term definitions

Scale term	Definition
Irregular exchange	Information is shared periodically at seemingly random intervals, without any assurance that information will continue to be shared in the future
Regular exchange	Information is shared at agreed upon points of the process (e.g., so many times a year, after each iteration of technical studies, etc.)
Informal exchange	Information is shared through back channels or information is released to the public where the party then accesses it (i.e., indirect access)
Formal exchange	Information is directly shared as part of the official process
Validity disputed or questioned	Information shared is not accepted as accurate or appropriate for answering the question at hand
Validity accepted	Information is accepted as valid (accurate or appropriate for answering the question at hand)

Table 78 shares definitions of different terms used in the information sharing scale. I shared these definitions with survey participants when they asked for clarification.

Those that I interviewed largely had positive views of the degree of information sharing in the BC CRT Review. The study participants involved in the public consultation process were particularly grateful for the access they had to information produced during the review as well as the ability to contribute information and perspectives to the review process. When I asked about information sharing, one citizen shared: “Oh it was great, [information sharing] was absolutely fantastic. We were not left out of the loop in any aspect what-so-ever; it was the voice of the people being heard.” A couple of survey respondents were more critical and did not feel the process adequately shared information with the public.

Members of the two technical committees also appreciated the opportunity to access and review the technical studies conducted in the review. They enjoyed working with other agencies. However, a couple of individuals talked about how information sharing was predominantly one way with the BC CRT Review Team and their consultants completing the technical work and simply asking for other agency review.

Those committee members hoped to have greater input on determining what was studied (which I discuss further in “ability to influence policy and technical issues”).

The two First Nations I spoke with were more critical of the information sharing between the Province and their Nation. One First Nation representative shared:

I don't think we got the full information. They had some technical working tables where they provided the technical information, but what we found useful was there was a consortium, some sort of big meeting down in one of the colleges or the universities we were invited to. They provided us probably more information than the government did on the Columbia River. -First Nation representative

Audience appropriate and understandable

A number of participants involved in the public consultation process talked about whether the information produced and shared was audience appropriate (i.e., it matched the level of technical understanding of those receiving the information). Most mentioned that this aspect of information sharing improved over time. Some early presentations by technical experts were overly technical for a public audience and so the review tried to address that problem. As the review process progressed, the technical experts improved their ability to communicate complex topics and the citizenry was more educated and able to understand the technical information presented. One participant noted that helping technical experts, such as engineers, communicate with the general public continues to be an ongoing process in the basin.

Several participants also talked about the challenge of presenting information to a wide audience and how often in the same room there were people who wanted more detailed technical information and others who had no interest in it. One member of the BC CRT Review Team asked:

What do you do when you have a third of the room say that it is still too complicated, a third of the room say that's just fine, and a third of the room say oh it's too general, vague or not technical enough." So what do you do? - BC CRT Review Team member

To address this issue where different people wanted more or less technical information, the BC CRT Review Team hosted a technical conference to provide interested parties with the ability to dive a little deeper into the technical work done during the Treaty review than what was shared at the public meetings.

Available in timely manner

When talking about the timing of the release of information, most interviewees felt that the review made information available in a timely manner. However, a few people mentioned that the BC CRT Review did not have enough time to complete a number of studies that would better prepare it for potential negotiations and enable the basin to better manage the system. They wished the review process started sooner in order to do more in depth modeling, impact studies, and scenario development.

5.3.5 Inclusivity

Inclusivity can be defined as *how interested and effected parties are involved in various stages of the decision making process, both in terms of degree and quality, in order to have meaningful engagement of those parties*. In the following subsections I first discuss the survey results and then present the results of my analysis of the semi-structured interviews on the Water GPA components of inclusivity: 1) representation, 2) ability to influence, 3) resources to participate, and 4) timing of involvement.

Survey Results

In the survey questions about inclusivity, I asked respondents to share their views of the inclusion of all parties as well as specific questions about how they or their

organization was included in the review process (Table 50). Two thirds or more of those who responded to the survey questions on inclusivity agreed that interested and affected parties had a venue for participating in the review, were adequately represented, had the ability to affect the policy issues and technical studies, had the resources to participate, and were given fair notice, time, and the invitation for early involvement (Table 50).

Table 50. BC CRT Review inclusivity scores

Category	Mean	Distribution of Responses			Total
		Disagree	Neutral	Agree	
Interested and affected parties had a venue for participating the Treaty review	4.42	1	0	16	17
Interested and affected parties were adequately represented in the Treaty review	3.74	2	2	10	14
You (or your organization) were adequately represented in the Treaty review	4.03	1	3	13	17
You (or your organization) had the ability to influence the Treaty review <i>on policy issues</i>	3.44	5	1	10	16
You (or your organization) had the ability to influence the Treaty review's <i>technical studies</i>	3.83	3	1	12	16
You (or your organization) had the resources needed to participate (e.g., money, personnel)	3.67	4	2	10	16
You (or your organization) were given the opportunity for early involvement	4.22	1	3	14	18
Your (or your organization) were given fair notice and time to be involved in the Treaty review	4.08	3	0	14	17

This table presents the mean scores and response counts for ALL survey participants in the US BC CRT Review on the topic of inclusivity. Survey participants marked whether they strongly disagreed (assigned value = 1), disagreed (assigned value = 2), were neutral (assigned value = 3), agreed (assigned value = 4), or strongly agreed (assigned value = 5) with each statement. I averaged the responses to calculate a mean score. A higher mean score indicates higher overall agreement with the statement. I compiled the “strongly disagreed” and “disagreed” as well as the “strongly agreed” and “agreed” counts instead of reporting them in separate columns.

When the scores are broken into the categories of stakeholders and government officials, we see that almost all government officials rated those aspects of inclusivity favorably (Table 51). However, stakeholder scores were much more evenly split with close to half of the respondents indicating they did not have the ability to influence policy

issues or the review technical studies and they did not have the resources to participate

(Table 52).

Table 51. BC CRT Review sovereign inclusivity scores

Category	Mean	Distribution of Responses			Total
		Disagree	Neutral	Agree	
Interested and affected parties had a venue for participating the Treaty review	4.67	0	0	9	9
Interested and affected parties were adequately represented in the Treaty review	4.22	0	1	6	7
You (or your organization) were adequately represented in the Treaty review	4.44	0	2	7	9
You (or your organization) had the ability to influence the Treaty review <i>on policy issues</i>	4.38	1	0	7	8
You (or your organization) had the ability to influence the Treaty review's <i>technical studies</i>	4.50	0	1	7	8
You (or your organization) had the resources needed to participate (e.g., money, personnel)	4.17	1	1	6	8
You (or your organization) were given the opportunity for early involvement	4.33	1	0	8	9
Your (or your organization) were given fair notice and time to be involved in the Treaty review	4.67	0	0	9	9

This table presents the mean scores and response counts for SOVEREIGN survey participants in the BC CRT Review on the topic of inclusivity. Survey participants marked whether they strongly disagreed (assigned value = 1), disagreed (assigned value = 2), were neutral (assigned value = 3), agreed (assigned value = 4), or strongly agreed (assigned value = 5) with each statement. I averaged the responses to calculate a mean score. A higher mean score indicates higher overall agreement with the statement. I combined “strongly disagreed” and “disagreed” as well as the “strongly agreed” and “agreed” counts instead of reporting them in separate columns.

Table 52. BC CRT Review stakeholder inclusivity scores

Category	Mean	Distribution of Responses			Total
		Disagree	Neutral	Agree	
Interested and affected parties had a venue for participating the Treaty review	4.17	1	0	7	8
Interested and affected parties were adequately represented in the Treaty review	3.19	2	1	4	7
You (or your organization) were adequately represented in the Treaty review	3.61	1	1	6	8
You (or your organization) had the ability to influence the Treaty review <i>on policy issues</i>	2.61	4	1	3	8
You (or your organization) had the ability to influence the Treaty review's <i>technical studies</i>	3.17	3	0	5	8
You (or your organization) had the resources needed to participate (e.g., money, personnel)	3.17	3	1	4	8
You (or your organization) were given the opportunity for early involvement	4.11	0	3	6	9
Your (or your organization) were given fair notice and time to be involved in the Treaty review	3.50	3	0	5	8

This table presents the mean scores and response counts for STAKEHOLDER survey participants in the BC CRT Review on the topic of inclusivity. Survey participants marked whether they strongly disagreed (assigned value = 1), disagreed (assigned value = 2), were neutral (assigned value = 3), agreed (assigned value = 4), or strongly agreed (assigned value = 5) with each statement. I averaged the responses to calculate a mean score. A higher mean score indicates higher overall agreement with the statement. I compiled the “strongly disagreed” and “disagreed” as well as the “strongly agreed” and “agreed” counts instead of reporting them in separate columns.

Representation in the BC CRT Review

Representation of different interested and affected parties in the BC CRT Review generally fell into three areas: 1) public consultation, 2) technical committees, and 3) First Nation consultation. In this subsection, I share participant views of what worked well or could have been improved in each of those three areas. Specifically I talk about how groups were represented or included in the process. I address their ability to influence policy and technical issues as well as whether they had the resources needed to fully participate in the subsequent subsections.

As described above, public engagement involved a three-pronged approach consisting of the Local Governments Committee (LGC), the Sounding Board, and public outreach. Areas of public outreach that participants felt could use improvement centered on trying to convince groups to participate. For example, the BC CRT Review Team actively reached out to engage youth and had limited success. Likewise, the review reached out to environmental groups and industry but those groups decided to not actively engage in the process. However, several environmental groups formed a coalition the transboundary Columbia River Treaty Roundtable and are actively engaged with each other to identify and then move towards common goals. In terms of what worked well, participants were appreciative that the BC CRT Review Team visited local communities multiple times throughout the review to collect information, presenting technical studies, and close the loop by sharing and explaining the BC Provincial Decision. One citizen said: “Every aspect of the Review is in consideration of the public. Everything. It's getting those views put on paper for consideration.”

Participants also appreciated that the Ministry of Energy and Mines asked community members how they wanted to be engaged and then accepted those recommendations. For example, communities asked for the review team to use social media, host a technical conference, and form an advisory board of representatives from around the BC portion of the basin. In response to this request, the BC CRT Review Team created the Sounding Board which included representatives from different regions of the basin and different stakeholder interests. Positive aspects of this approach included the fact that the group allowed for broad representation of different views in the basin as well as the fact that the

members of the Sounding Board served as liaisons with their communities. In talking about the make-up of the Sounding Board one member said:

It was probably about the right number [of people]. I also think that how people were selected just in terms of the breadth and depth and the different interests. It was really positive. People that were on the Sounding Board, they are active in their communities in a variety of different ways so I think they were able to bring that experience to the table. - Sounding Board member

S/he also talked about how s/he was able to then take what s/he learned back to her/his community to share what the Province said and get the community's feedback. S/he said:

I had opportunities to go back to the different groups I've been involved with and say 'Ok, this is what was discussed, this is what people were thinking, or what they were talking about. This is the direction we think the Province might go. What do you think about that?' It was good to get that feedback. - Sounding Board member

Finally, two of the three Sounding Board members I spoke with felt it would have been good for the group to meet more than a few times in order to be able to contribute more to the review process.

The final piece of the public consultation process was the engagement of the Local Governments Committee (LGC). The Province met with the local elected officials from different communities around the basin to provide updates on the Treaty review as well as gather input from the local governments. The members of the LGC also helped host community meetings with the Province. Both members of the LGC had very positive things to say about this method of representing communities in the review process. One member of the LGC shared, "It's been a real gift to me, as a local politician. Local politicians don't get to do this kind of stuff very often. It's been a very enriching experience for me and I feel like our region has benefited." Several other interviewees,

not involved in the LGC, also felt the interactions between the Ministry of Energy and Mines and the LGC helped ensure representation of different views in the process.

Representation on technical committees consisted of provincial and federal ministries, their consultants, and some First Nations. The BC Ministry of Energy and Mines extended an invitation to those groups to participate on one or two of the technical committees. Some First Nations chose not to participate on the technical committees because they disagreed with the approach taken by the committees and did not want their participation to serve as an endorsement of the committee reports/findings. The committee members I interviewed generally thought that the right groups were invited to participate on the committees. However, a few felt that one agency, the Department of Fisheries and Oceans, was not as active as they should have been. A couple of individuals also expressed concern that the committees were perhaps a little too focused on fisheries issues at the expense of other components of the ecosystem.

Different groups had different opinions about how the BC CRT Review handled representation of First Nations in the review process. Government representatives felt they did their due diligence in consulting First Nations. The two representatives of First Nations I interviewed had different views of First Nation consultation. One First Nation negotiated with the Province to develop a critical path process with trilateral government engagement (First Nation, Province, and Federal Government of Canada). S/he felt this was a step in the right direction towards reconciliation. The other nation shared that s/he had a more negative experience. The First Nation representative commented:

They were merely treating us like stakeholders and we're not stakeholders, we're proper title holders and we're stewards of the land. We call it caretakers of the land. I didn't agree with the Canadian government's

approach on that. If we were involved earlier in the discussions it would be a nation-based approach, a government-to-government, nation-based approach...the government approach should have been at a higher level.

-First Nation Chief

Other participants, specifically citizens/stakeholders and local officials, had mixed views about the decision to separate out First Nation consultation from the rest of the process. All participants recognized that, as sovereigns, First Nations had a right to separate consultation and government-to-government engagement. However, members of the public and locally elected officials wanted to hear First Nation perspectives, learn more about First Nation views, and ensure that First Nation voices were adequately represented. One member of the Sounding Board shared:

The First Nations and everybody else were kept strictly separate. I have no idea how the First Nations felt, but it left us feeling like we only got half the story. It didn't feel fair to me in a way because I feel like we didn't get all of the information. -Sounding Board member

A number of individuals also commented on the exclusion of the Sinixt people from the engagement of First Nations. Since Canada views the Sinixt people as extinct and does not recognize them as a First Nation, they were not included in the First Nation consultation process. Participants generally felt it was wrong to not consult the Sinixt people.

Ability to influence policy and technical issues

With an understanding of how different groups participated in the BC CRT Review, I now discuss how those groups felt about their ability to influence the policy issues and technical studies BC CRT review. I mirror the structure above and talk about the influence of those involved in the public consultation process, technical committees, and First Nation consultation.

Interviewee perspectives about the ability of the public, Sounding Board members and LGC members generally followed two tracks. First, participants felt that they had the ability to shape technical studies because the review team listened to them when developing the BC Provincial Decision. For example, a few participants mentioned how they were able to request an additional scenario (specifically a mid-level Arrow scenario) in the technical studies. Others talked about how they could see their views reflected in the BC Provincial Decision and therefore felt they had the ability to at least influence that level of policy. Several interviewees contrasted their influence in the BC CRT Review process to the lack of influence they had in the original Treaty negotiations. One member of the LGC said:

Coming from a place of 50 years ago where local citizens were not consulted at all, to a place where the Province is actively engaged in the basin and seriously considered the recommendations we've put forward and has and is going to have some impact within the basin ongoing--that is an enormous step forward. -LGC member

However, at the same time many were unsure whether or not the Province, specifically the Provincial Cabinet, and the Federal Government of Canada, would listen to the basin (i.e., would that influence persist beyond the review). Along these lines, one Sounding Board member shared, “I don’t think anyone left the Sounding Board because they were upset, but I do think people left the Sounding Board feeling they were ineffective.”

Members of the two technical committees did not comment on their ability to influence policy issues, but focused on their influence on the technical studies as that was their primary role in the Treaty review. Those participants felt they had some, limited influence in developing the technical studies and noted that their role was primarily to

review the technical work done by the BC CRT review team, BC Hydro, and their consultants. One technical committee member shared:

At the outset we thought we would have more of the role in the shaping of the studies and in the planning of the studies, that our views would be incorporated at that end. The way it ended up, and some of it may have been driven by timelines on the BC side, and also who had resources and who didn't. In the end, we were basically reviewing outcomes and held more of an environmental assessment role of theoretical potential outcomes of different project operations. Providing feedback that way still gives us an opportunity to provide feedback, but it gives us less of a chance to influence at that [later] stage, than in the planning stages.

- Environmental Advisory Committee member

Some wanted greater opportunity to influence the scoping of the technical work completed during the Treaty review process. Other participants were okay with this setup as they trusted those doing the technical work and felt they knew enough of what went into the modeling to know that it was sufficient and accurate. A member of the Fish and Wildlife Technical committee said:

We certainly didn't have enough people on staff to go say, "Hey here is an issue and we are going to do the analysis." We end up saying, "here's an issue". Then in this case the BC Hydro would have hired consultants to do the analysis. So you don't get the same familiarity or intimacy with the issues in the data...But they did a good job of the beginning of their meetings. They would say, "Okay, here is what we did. Here is the outcome and here are the steps along the way." -Fish and Wildlife Technical Committee member

Both First Nation interviewees felt that they did not have the ability to influence policy issues, specifically the BC Provincial Decision language, to the degree they wanted, and felt should be able to, as sovereigns in the basin. Both interviewees expressed frustration that they had little influence over the principles in the BC Provincial Decision sharing that they were only able to get two points about First Nations into the

document. One also expressed disappointment at not being able to incorporate First Nation knowledge of ecosystem processes in the technical studies.

Resources to participate

Interviewees shared experiences where a lack of resources was a barrier to participation and other stories of how resources were available to promote meaningful engagement. One member of the BC CRT Review Team shared that, “We had a budget that government gave us enough latitude where everyone else was scrimping we had a sufficient budget to respond and to hire [firms] to do this kind of work.” Government agencies and stakeholders appreciated the access to funding to bring communities together to talk about the future of the Treaty, enable the BC CRT Review Team to host community meetings and workshops around the basin, and answer technical questions.

Some of the BC CRT Review money was used for the Local Governments Committee (LGC) and Sounding Board. Sounding Board members’ travel expenses were covered by the Province to help cover the cost of their involvement. The LGC used the Provincial funds along with funding from the Columbia Basin Trust (CBT) to cover its involvement and hire an executive director. The allocation of funding by the Province to these efforts is particularly noteworthy because the Province did not have a legal obligation to consult the basin communities (which I will discuss further in the next subsection on context).

Other funding went to conduct the technical analysis and information gathering efforts in the Review. A couple of interviewees talked about how funding from the BC CRT Review allowed them to conduct technical studies to answer longstanding questions from the basin communities. For example, the Village of Valemount and Town of Golden

wanted to investigate constructing a weir or dam in order to generate power and improve recreation. Because funding was available through the review, the Province was able to conduct a high level study on the feasibility of the project proposed by the community.

The Province also paid for travel for the members of the two technical committees (the Fish and Wildlife Committee and Environmental Advisory Committee) to travel to meetings. A couple of interviewees from government agencies (both federal and provincial) noted that they did not have the resources to fully engage in the review. In some cases, they were asked to participate in technical committees in addition to their regular duties and overbooked schedule. As such, they did not have the time to participate in the review at the level they wanted. One member of the Fish and Wildlife Technical Committee shared the following recommendation for future processes:

I think things that are super important [like this] require engagement, so if government agencies are squished to the point of being unable to properly engage, like we were, that needs to be fixed. I don't know how, but I'd say that was, from our point of view, a big flaw. -Fish and Wildlife Technical Committee member

Another group that lacked resources were First Nations. As with the other components of the BC CRT Review, the Province provided some funding to First Nations. However, the First Nations felt this was insufficient to properly assess their claims to title and resources in the basin. The federal government of Canada did not contribute any funding to help First Nations engage in the process, which both First Nations and government interviewees felt was a poor decision.

Fair notice and time for early involvement

Almost all interviewees felt they were given fair notice and the opportunity for early involvement in the BC CRT Review. This was due to a combination of factors.

First, many in the basin were either impacted by the construction of the Treaty dams or impacted by current operations of the dams. Some of these individuals were involved in Treaty-related advocacy for years before the review and pushed for the Province to conduct the BC CRT Review. Second, the CBT embarked on an education campaign to prepare communities for involvement in the BC CRT Review before the Province even developed the program. The Province then used this capacity-building initiative as a springboard for its public consultation. Third, the Province was well aware of the mistake it made in not considering public input 50 years earlier in the development of the Treaty and did not want to make the same mistake. Therefore, the BC CRT Review Team made a concerted effort to engage communities early in the process. Counter to those positive experiences, one First Nation representative felt that his/her Nation was included in the 11th hour when the decision had already been made.

Other aspects of inclusivity

In addition to inductively investigating what interviewees said using the Water GPA process characteristics, I looked for emergent themes related to inclusivity. I saw two themes in the interviews. Both were praise for this process and a request that future processes follow a similar approach. First, participants expressed an appreciation for the ability to shape and structure of the engagement process. Second, a few interviewees (including those who led the process and those who participated in it) talked about the importance of meeting face-to-face. This helped with getting to know the different people they were working with. One of the BC CRT Review Team members shared:

In small rural communities, they come together face-to-face and that is what people wanted. When we asked them how they wanted to be consulted they said, “We want more community, face-to-face meetings where we can talk to each other as community members and work together

to figure it out and then we will tell you guys [what we want]. You can be there as a resource, and if we have a question you can provide us with the information and answer."...It was the personal, face-to-face connection that made it real for people. I would have to say that the cynicism went down and people felt that our whole team was there with honesty and integrity. You don't get that over the internet you get that when you talk to people face-to-face. And that is when the support for the process grew and the belief in the integrity of the process grew. Because individuals saw that we were human beings, not just bureaucrats, we are human beings too, wanting to very honestly and sincerely do the right thing.

-BC CRT Review Team member

5.3.6 Context

Context can be defined as *the various conditions of the basin and socio-ecological system under which the decision is being made*. I did not include measures of context in the survey (I explain why in Chapter 2). To catalogue what aspects of context influenced the BC CRT Review process and the BC Provincial Decision, I asked interviewees to share examples of the ecological/biophysical, legal/political, social/cultural context or other pre-existing conditions or issues that influenced the review. This allowed me to identify place-specific factors that influenced the BC CRT Review. I coded the interview transcripts (both the responses to that interview question as well as the whole transcript as interviewees often brought up context at a variety of points during the interview) with the secondary code ecological/biophysical, legal/political, social/cultural, and other using the Water GPA framework. For the “legal/political” and “other” codes, I then inductively coded a tertiary level within each of those secondary codes (Table 53).

Table 53. Important aspects of the basin context for the BC CRT Review

Code	Example(s)
<i>Ecological/biophysical</i>	Dam and reservoir impacts (e.g. dust storms), proximity to the reservoir, recovery of Okanagan salmon, size of basin
<i>Legal/political</i>	
Federal and Provincial laws	Canadian Constitution, BC-Canada Agreement of 1963, Indian Act, Species at Risk Act, International Rivers Improvements Act, Water Sustainability Act, Migratory Bird Convention Act
First Nation Relations	Rights and Title process, Tsilhqot'in Decision, efforts to reach reconciliation, declaration that Sinixt are "extinct"
Historic grievances	Exclusion from original Treaty negotiations, lack of compensation
Previous processes	Water Use Planning in basin, prior First Nation consultation efforts
Prior relationships	Professional relationships from working in basin
<i>Social/cultural</i>	Importance of salmon, strong environmental ethic in Interior BC, amicability/deference
<i>Other</i>	
Columbia Basin Trust	Treaty education campaign, social, environmental, and economic funding for communities affected by the Treaty; funding and support for LGC
Institutional culture	BC Ministry of Energy and Mines is a ministry that extracts natural resources
Training	Social media and other engagement training for the lead agency

Table 53 summarizes the different aspect of the basin context interviewees shared as important to the development and implementation of the BC CRT Review.

Almost all interviewees mentioned the Columbia Basin Trust (CBT) as something they believed impacted the review process. The Columbia Basin Trust is a Crown corporation formed in 1995 to support the social, economic, and environmental well-being in the BC portion of the Columbia River Basin impacted by the CRT. CBT supports a number of programs in the basin and is a very prominent organization in the BC portion of the basin. CBT impacted the process in a number of ways. Some participants talked about CBT's initial outreach effort to educate the public about the Treaty and prepare them for the upcoming review. Some participants felt better prepared to participate in the BC CRT Review as a result of this outreach effort. Other participants

noted the benefit of having the CBT, trusted by many in the community, introduce the BC CRT Review team. The CBT also helped start and fund the Local Government Committee so it could actively participate in the BC CRT Review.

Finally, early in the review public consultation process the BC CRT Review team asked community members how they wanted to be engaged during the review. The communities shared a number of requests including some of what CBT had already started (i.e., the LGC and community meetings). A member of the LGC said:

I think the fact that we started the process earlier than the Province did, very great because it was truly grassroots community led. Then the Province said this is great, we have been planning to do something, and since this structure is happening we will work with you. - LGC member

Interviewees talked about a few different ecological aspects of the basin that influenced the BC CRT Review process. A couple of individuals also mentioned how the restoration of salmon in the Okanagan Basin gave hope for reintroduction of salmon past Grand Coulee (in the US) and back into Canada. Another physical aspect of the context that impacted the BC CRT Review was the fact that the BC portion of the basin is fairly small in size and, therefore, it was much easier to provide local opportunities for different communities to participate. This is not to say that the BC Ministry of Energy and Mines did not have a lot of work to do, but it is more feasible to engage around eight different communities within an area of 102,400 km² than dozens of communities in an area that is five times larger (such as the US portion of the basin). The most commonly discussed issue was the impacts of dam and reservoir management on life in the BC portion of the basin. Individuals often cited the negative impacts of dam and reservoir operations, such as dust storms, environmental degradation, and impaired access to recreation, as reasons

why they felt that the Province needed to consult with local communities. A community leader in BC said “It was the citizens of the basin that directed this. There was an insistence.” Interviewees also mentioned these impacts as reasons why they personally needed to get involved in the review. One member of the LGC said:

People say, "Well, why don't they get over it? That was so many years ago." But we're living with it every day. We're living with it every day, and that's what we wanted the government to understand. Maybe you feel that things happened in the 60's and everybody should be over it, and it should be fine. But it's not, because we're constantly dealing with it every day. - LGC member

As referenced in that quote, participants also talked about historical grievances as something that motivated them to participate in the review process as well as a reason why the Province conducted a public consultation process when one was not legally required. There was some cynicism that the review needed to overcome as the result of past processes, including but not limited to the original Treaty negotiations. All three interviewees primarily involved in the First Nations consultation process discussed how past experiences with consultation (or lack of consultation) made First Nations wary of the Treaty review process. The fact that Canada declared the Sinixt people “extinct” meant that BC did not engage the Sinixt in the First Nation consultation process, even though Sinixt people still live in the basin.

Other legal and political aspects of the context that influenced the BC CRT Review process were various environmental laws and the respective jurisdictions of the Province versus the federal government of Canada. For example, several interviewees mentioned the BC-Canada Agreement of 1963 as the reason why the Province, and more specifically the BC Ministry of Energy and Mines, as opposed to the federal government

of Canada led the review. Individuals also referenced the fact that salmon fall under the jurisdiction of the federal government of Canada as the explanation why the BC Provincial Decision did not recommend pursuing reintroduction of salmon. Participants noted the legal requirements for First Nations consultation as the reason why the First Nations were consulted separately in a government-to-government process.

5.3.7 Other Aspects of the Process

Only one other aspect of the process emerged in my deductive coding of the interview transcriptions. It is related to what I previously discussed in the subsection “Other emergent subthemes of accountability” when I wrote about the influence of the Executive Director of the BC CRT Review Team. A few participants referenced the role of individual people and their personalities as having a positive influence on the process and decision. In addition to the Executive Director, participants talked about a couple of others whose personalities were such that they were unifying forces that were able to bring people into the review or help educate others in the basin.

5.3.8 Decision (BC Provincial Decision)

With an understanding of what about the process worked well and what could have been improved, I next talk about participant’s views of the BC Provincial Decision. I start with the survey scores that assess the support for the decision in terms of whether it is viewed as legitimate, reflective of the participants’ and more generally the basin’s views, and a decision that will be effective (i.e., adopted as Canada’s policy position). Then I document the various themes participants shared as their reasons for having positive or negative views of the BC Provincial Decision.

Survey Results

Survey responses on the questions related to the BC Provincial Decision were largely positive (Table 54). A large majority of survey participants (14 out of 16) agreed that the BC Provincial Decision adequately addressed the central task of determining whether the CRT should be continued, modified, or terminated. Three-quarters of respondents also felt the BC Provincial Decision was legitimate (13 out of 17). However, only half or slightly more than half felt that the BC Provincial Decision reflected their views (8 of 14), reflected the views of the BC portion of the basin (9 of 15), and that the decision would be adopted by Canada (8 of 16).

Table 54. BC CRT Review decision scores

Category	Mean	Distribution of Responses			Total
		Disagree	Neutral	Agree	
The recommendation adequately addressed the review's central task (i.e., determine if the Treaty should be continued, modified, or terminated)	4.09	2	0	14	16
The recommendation is legitimate	4.00	2	2	13	17
The recommendation will be effective (i.e., the terms of recommendation will be accepted by Canada)	3.50	3	3	8	14
The recommendation reflects the views of the region (BC portion of basin)	3.59	3	3	9	15
The recommendation reflects your (or your organization's) views	3.38	4	4	8	16

Table 84 presents the mean scores and response counts for ALL survey participants in the BC CRT Review on the BC Provincial Decision. Survey participants marked whether they strongly disagreed (assigned value = 1), disagreed (assigned value = 2), were neutral (assigned value = 3), agreed (assigned value = 4), or strongly agreed (assigned value = 5) with each statement. I averaged the responses to calculate a mean score. A higher mean score indicates higher overall agreement with the statement. I compiled the "strongly disagreed" and "disagreed" as well as the "strongly agreed" and "agreed" counts instead of reporting them in separate columns.

I separated out sovereign (government official or representative) scores from stakeholder scores to explore if there were differences in those groups' views of the Provincial Decision. Sovereigns engaged in the BC CRT Review through technical committees, the BC CRT Review Team, and Local Governments Committee. Since no

First Nation representatives elected to complete a survey, these respondents are all affiliated with a local, provincial, or federal government in Canada and BC. Stakeholders participated in the public consultation process and/or Sounding Board. Looking at the government representative responses, those participants either agreed or were neutral on all measurements of the BC Provincial Decision (Table 55). Stakeholder views on the other hand were much more mixed (Table 56). While a majority of stakeholders agreed that the BC Provincial Decision addressed the central task at hand (6 of 8), half or nearly half disagreed that the BC Provincial Decision was legitimate (5 of 9), reflected their views (4 of 8), reflected the views of the BC portion of the basin (3 of 7), and that the decision would be adopted by Canada (3 of 7) (Table 56). I asked participants to share why they felt the way they did about the BC Provincial Decision in the interview following the survey. I report those views next.

Table 55. BC CRT Review sovereign decision scores

Category	Mean	Distribution of Responses			Total
		Disagree	Neutral	Agree	
The recommendation adequately addressed the review's central task (i.e., determine if the Treaty should be continued, modified, or terminated)	4.75	0	0	8	8
The recommendation is legitimate	4.75	0	0	8	8
The recommendation will be effective (i.e., the terms of recommendation will be accepted by Canada)	4.14	0	2	5	7
The recommendation reflects the views of the region (BC portion of basin)	4.38	0	0	8	8
The recommendation reflects your (or your organization's) views	4.25	0	2	6	8

Table 85 presents the mean scores and response counts for sovereign survey participants in the BC CRT Review on the BC Provincial Decision. Survey participants marked whether they strongly disagreed (assigned value = 1), disagreed (assigned value = 2), were neutral (assigned value = 3), agreed (assigned value = 4), or strongly agreed (assigned value = 5) with each statement. I averaged the responses to calculate a mean score. A higher mean score indicates higher overall agreement with the statement. I compiled the "strongly disagreed" and "disagreed" as well as the "strongly agreed" and "agreed" counts instead of reporting them in separate columns.

Table 56. BC CRT Review stakeholder decision scores

Category	Mean	Distribution of Responses			Total
		Disagree	Neutral	Agree	
The recommendation adequately addressed the review's central task (i.e., determine if the Treaty should be continued, modified, or terminated)	3.50	2	0	6	8
The recommendation is legitimate	3.33	2	2	5	9
The recommendation will be effective (i.e., the terms of recommendation will be accepted by Canada)	2.86	3	1	3	7
The recommendation reflects the views of the region (BC portion of basin)	2.81	3	3	1	7
The recommendation reflects your (or your organization's) views	2.61	4	2	2	8

Table 86 presents the mean scores and response counts for sovereign survey participants in the BC CRT Review on the BC Provincial Decision. Survey participants marked whether they strongly disagreed (assigned value = 1), disagreed (assigned value = 2), were neutral (assigned value = 3), agreed (assigned value = 4), or strongly agreed (assigned value = 5) with each statement. I averaged the responses to calculate a mean score. A higher mean score indicates higher overall agreement with the statement. I compiled the "strongly disagreed" and "disagreed" as well as the "strongly agreed" and "agreed" counts instead of reporting them in separate columns.

Interview results

During the semi-structured interviews, I gave participants the opportunity to share their thoughts about the BC Provincial Decision. In terms of positive reflections, three themes I observed were that participants: 1) felt the document mostly reflected the views of the basin and more, 2) appreciated that it recognized past and present impacts to the basin and some environmental values, 3) believed it set the stage for negotiations with the US and put BC in a good negotiating position. The most commonly cited aspect of the BC Provincial Decision that participants disagreed with was the exclusion of a recommendation to bring salmon back into Canada. However, a few participants also shared that they understood that the matter is a federal decision because salmon, as an anadromous species, fall under federal jurisdiction. Others were still disappointed that the reintroduction of salmon was not included in the Provincial Decision. First Nations

representatives had strong negative views of the Provincial Decision. Not addressing salmon was part of that disappointment, but the representatives also expressed frustration that: 1) they did not have a stronger voice in the document, and that 2) it did not recognize their rights as sovereigns in the basin. Several interviewees were also very unsure if the BC Provincial Decision would be accepted and acted upon by Canada. More specifically, some had fears that BC and Canada's future action on the CRT would be dictated by whatever political party was in power--not the views of the basin. Many of these positive, negative, and neutral views of the document are reflected in a quote by a LGC member who shared:

I think it reflects our views for the most part. I was a bit neutral because, there were a couple of things, for example, the salmon restoration and the benefits coming back to the basin that we are a bit unsure of yet. The Province has not discounted anything we have said in our recommendations. The Minister, Bill Bennett, actually said that he saw no huge red flags at all. All of the things that you have talked about seem reasonable at this time, but that doesn't mean there is a commitment to continuing to work with us. As this unfolds and as the legacy of the work we've done unfolds and more things are happening, I'll be a little more sure. At this point I'm waiting to see. -LGC member

5.3.9 Byproducts

In the survey, I asked participants to note whether various byproducts emerged, increased, decreased, or experienced no change as a result of the BC CRT Review process. A majority of survey respondents reported an increase in in nearly all byproducts in the list provided (Table 57). All 18 participants indicated that shared information and knowledge increased as a result of the Treaty review process. All but one respondent (out of 18) listed that their own education and awareness increased as a result of the Treaty reviews process. Likewise, all but one person recorded that they had a better understanding of other participant's views and that mutual/shared understanding of the

CRT and related issues also increased. The only byproduct that most participants noted as decreasing was the level of conflict and hostility in the basin, where 13 of 18 survey respondents noted a decrease.

I also asked participants to list up to three byproducts from the process that were most important to them and three byproducts they wished had resulted from the process. The responses demonstrated that what participant's felt was most important and what they most wanted varied (Table 58). When asked to indicate which byproducts were most important to them, participants most frequently cited relational byproducts, including communication, mutual/shared understanding, and quality of relationships (Table 58). Four to five participants indicated these as the byproducts most important to them. Four participants also listed changes in water management as one of the byproducts most important to them (Table 58).

The two byproducts mentioned the most by participants as something they wished resulted from the process were collaboration with other groups and more technical models (Table 58). In terms of collaboration, a number of people wanted greater collaboration with First Nations groups in order to improve their understanding of First Nations' views (though they understood and respected First Nations' rights to engage the government separately in a government-to-government process). Other participants listed changes in water management, new programs or initiatives, economic opportunities, understanding of ecological/biophysical system, co-produced science, and trust in the lead agency as what they wished had resulted from the BC CRT Review Process.

Table 57. BC CRT Review byproduct counts

	Byproduct	Emerged and/or Increased	Decreased	No change or don't know	No response
RELATIONAL	Mutual/shared understanding	17	0	1	0
	Understanding of other's views, positions, etc.	17	0	1	0
	Communication	16	0	2	0
	Quality of relationships	15	0	2	1
	Coalitions	14	0	3	1
	Trust in others involved	11	0	5	2
	Trust in the lead agency	11	1	5	1
	Level of conflict and hostility	2	13	2	1
KNOWLEDGE-BASED	Shared knowledge and information	18	0	0	0
	Your own education/awareness	17	0	1	0
	Understanding of ecological/biophysical system	16	0	1	1
	Your organization's education/awareness	15	0	2	1
	Co-produced science	14	0	2	2
	Technical models	14	0	3	1
	Public education/awareness	12	0	5	1
	Understanding of the social system	12	0	5	1
CAPACITY-BUILDING	Human capital	17	0	1	0
	Social capital	15	0	3	0
	Innovation	14	0	4	0
	Ability to resolve future disputes	11	0	6	1
	Community capacity for decision making	11	0	7	0
	Institutional capacity	10	0	8	0
TANGIBLES	Programs or initiatives	12	0	6	0
	Changes in water management	11	0	5	2
	Economic opportunities	7	1	10	0
	Economic costs	4	1	12	1
OTHER	Youth engagement	1	0	0	17
	Social media communication	1	0	0	17
	Understanding of climate change	1	0	0	17
	Strength of transboundary relations	0	1	1	17

Table 57 presents the number of survey respondents who noted a decrease, emergence/increase, or no change in different byproducts that can be influenced by a process. Please note: totals may equal more than 18 (the number of survey participants) as some respondents noted that a byproduct both emerged and increased (or increased and decreased).

Table 58. Most important byproducts of the BC CRT Review

	Byproduct	Most important byproduct from review	Byproducts they wished resulted from review
RELATIONAL	Communication	5	0
	Mutual/shared understanding	4	0
	Quality of relationships	4	0
	Trust in others involved	2	0
	Coalitions	1	0
	Understanding of other's views, positions, etc.	1	0
	Level of conflict and hostility	0	0
	Trust in the lead agency	0	1
KNOWLEDGE-BASED	Public education/awareness	3	0
	Understanding of ecological/biophysical system	2	1
	Co-produced science	1	2
	Technical models	1	3
	Your organization's education/awareness	1	0
	Shared knowledge and information	0	0
	Understanding of the social system	0	0
	Your own education/awareness	0	0
CAPACITY-BUILDING	Ability to resolve future disputes	1	0
	Community capacity for environmental/policy decision making	1	1
	Human capital	1	0
	Innovation	1	0
	Institutional capacity	0	0
	Social capital	0	0
TANGIBLES	Changes in water management	4	2
	Economic costs	0	0
	Economic opportunities	0	2
	Programs or initiatives (outside of the decision)	0	2
OTHER	Other (total)	1	6
	Other - Collaboration with others	0	3
	No response	1	7

Table 58 displays what survey respondents reported as the most important byproducts from the BC CRT Review and which byproducts they wished had resulted from the review process.

The semi-structured interviews provided an opportunity to share examples of the various byproducts of the process (Table 59Table 91) and talk in greater detail about why different byproducts were important. The most frequently mentioned byproduct was the Columbia Basin Regional Advisory Committee (CBRAC). Modeled after the Sounding Board and fitting into the new BC Water Sustainability Act, this committee consists of community members, First Nations, local representatives, and provincial representatives. It merges the different engagement tracks of the BC CRT Review into one body that will work to address some of the domestic matters identified during the BC CRT Review (such as hydropower operations) as well as continue discussions about the future of the CRT. CBRAC and the LGC also serve as conduits through which BC Hydro can increase and improve its communication with communities impacted by its dams. They also are viewed as means to improve institutional capacity and community capacity for decision making in the basin. Interviewees also talked about how they learned more about the Treaty and basin during the review through the various community and committee meetings. Participating in the meetings also allowed them to work with basin residents, government ministries, local elected officials from their communities as well as different geographic areas in the basin and different parts of government. This led to a better understanding of different views.

Several participants shared a concern about how long lasting different byproducts might be. For example, participants felt that the BC CRT Review process increased trust, understanding, institutional capacity, and community capacity for decision making. However, they worried that without a continuation of the process or continued engagement, those benefits of the process will decrease over time. Participants hoped that

initiatives, such as the LGC and CBRAC, would provide venues to continue the work and progress made by the BC CRT Review.

Table 59. Example byproducts of the BC CRT Review

Byproduct	Examples
Understanding of other's views	"I felt like every time I came away from one of those sessions, I felt, okay I've got another perspective...I now understand a lot better why he is taking the position he is. That is very important to me in this whole process. Not getting a single common view but understanding the wide range of the views." - BC citizen
Communication	More and improved BC Hydro presentations to communities; new communication between BC Hydro and LGC
Quality of relationships	Province-BC Hydro relationship, LGC-BC Hydro relationship, other personal relationships
Coalitions	CRT Roundtable
Shared knowledge and information	"As people identified that they needed new information it was gathered and we are gathering new information around this new operation we are looking at." -BC CRT Review Team member
Your own education/ awareness	"I've learned a tremendous amount about what life was like before the dams went in and what it is like now." - LGC member
Understanding of ecological system	Impacts of operating a mid-Arrow elevation scenario
Co-produced science	Fish studies (e.g., white sturgeon and rainbow trout)
Technical models	Have capacity to model US system now
Public education/awareness	Grade 6 CRT educational material
Human capital	"Their temporary assignments came to an end and they were all offered or achieved significant promotions in government for what they accomplished in the Treaty review. It was a great mentoring and growth opportunity." -BC CRT Review Team member
Innovation	Use of social media, having anthropological and historic researchers attend meetings with First Nations to discuss the strength of First Nations claims
Ability to resolve disputes	Through LGC and Columbia Basin Regional Advisory Committee
Community capacity	Columbia Basin Regional Advisory Committee
Institutional capacity	"I think here institutional capacity for the basin to adapt to change that really to me would be embodied in the Local Governments Committee" - Sounding Board member
Programs or initiatives	Columbia Basin Regional Advisory Committee, pilot First Nation government-to-government engagement process (MOU), Kootenay Fish and Wildlife Compensation Program; federal working group meetings on cross cutting issues like the CRT
Economic opportunities	Potential for geothermal plant
Understanding of climate change relevance	"Understanding how climate change will affect the timing and availability of water in the basin and how the Treaty can address that. Can it help mitigate? Is it going to be impacted? What is the value of the Treaty to both parties in a climate change scenario?" - Technical committee member

Table 59 lists example byproducts shared by participants in their interviews and surveys.

5.4 Case Study Discussion

In the section above I presented the results of my analysis of the BC CRT Review using the Water GPA. In this section I will discuss what those results mean in terms of what were the barriers and building blocks of good water governance in the BC CRT Review decision making process and what are the lessons learned from that process? I first briefly summarize the findings of my application of the Water GPA framework to identify barriers and building blocks of good water governance. Then I present lessons learned along with interviewee recommendations for future processes in the basin. I end this section with a discussion of the caveats and limitations of this case study before concluding the chapter.

5.4.1 Discussion of Water GPA 'score'

The results of the Water GPA analysis reveal a number of areas where the BC CRT Review reflected good process practices and others where the process needed improvements. It reveals which characteristics of the process (i.e., accountability, inclusivity, and information) promoted or impeded good water governance in the BC Treaty review (Table 60). Therefore, it helps answer my third research question: What are lessons learned for good water governance from the Canadian and American reviews of the CRT?

Table 60. Summary of BC CRT Review Water GPA accountability, information, and inclusivity results

	What worked well	What had mixed results	What needed improvement
Accountability	<ul style="list-style-type: none"> • Transparency with public engagement • Approach to scoping process • Responsiveness of BC CRT Review Team 	<ul style="list-style-type: none"> • Clarity of path forward • Support for choice of process lead • First Nation consultation 	<ul style="list-style-type: none"> • Lack of clear decision criteria • Confusion about how public input would be included in decision • First Nation input into the decision
Inclusivity	<ul style="list-style-type: none"> • Representation of public, local officials, and various stakeholders in process • Participant involvement in design of engagement process • Technical committees make-up • Multiple face-to-face meetings 	<ul style="list-style-type: none"> • Ability of groups to influence policy issues and technical studies • Resources availability 	<ul style="list-style-type: none"> • Representation of First Nations • Degree of involvement of select ministries on technical committees
Information	<ul style="list-style-type: none"> • Information collected from and shared with affected communities • Extent of information sharing in public consultation and technical committees 	<ul style="list-style-type: none"> • Extent of technical studies • Use of Water Use Planning information • Whether information shared was audience appropriate 	<ul style="list-style-type: none"> • Information sharing with First Nations
Other factors	<ul style="list-style-type: none"> • Personal leadership of different individuals 		

Table 60 summarizes what worked well (i.e., was a building block of good water governance) and what did not (i.e., was a barrier to good water governance) in the BC CRT Review.

Accountability

Three aspects of accountability contributed to the BC CRT Review (specifically the public consultation component) being a good water governance process. First, the high degree of transparency reduced cynicism and built trust in the public engagement process. Likewise, the Treaty review approach to not treat anything as out-of-scope (but rather work with communities to determine what issues were best addressed via the Treaty and which could be addressed by other means) helped participants view those choices as legitimate. It also acknowledged participant views and concerns, something they had been waiting for. Finally, in general the BC CRT Review was very responsive to

requests made by the public during the review. The Review Team was willing to do the work necessary to fulfill a community's request or honestly explain why they could not, or would not, do so. As a member of the BC CRT Review Team shared:

We did not withhold any information when answering questions. We answered them directly, to the point that when people asked us to investigate different options or issues that were important to them and come back with an answer. Sometimes the answer was no. I have to say that there are people in government that will say, "Well maybe you should answer it this way or that way." And I say no, you know, explain no and why no. And people really respected that. We provided all the information in an objective way, a nonpolitical way even knowing that some of our responses were responses that frankly they didn't want to hear or weren't happy hearing. But for us the integrity part was paramount. As soon as you lose that then everything else falls into pieces. - BC CRT Review Team member

There were also a few areas where the process both succeeded in some ways and needed improvement in other ways. Consultation of one First Nation through a trilateral, government-to-government process was a positive development in First Nation relations for one nation. However, another First Nation did not feel they were engaged as a sovereign. Some interviewees did not think the right ministry was chosen to lead the process, suggesting the review should have been done at the federal level or by a ministry that was not biased towards continuation of the Treaty. Finally, participants were unsure of what would happen after the release of the BC Provincial Decision. While happy with that document and the BC CRT Review, they expressed skepticism about whether the Province or federal Canada would accept the BC Provincial Decision and act on it.

Three areas of accountability needed improvement and acted as barriers to good water governance. First, participants were unsure how the Province would make its decision. Likewise, participants were unsure of how their input would factor into the

decision. While it is the Provincial Cabinet's prerogative to negotiate and make its decision behind closed doors, the process could have been improved by providing at least a general framework for what it would consider as it made its decision. A third area in need of improvement was how First Nation's views as sovereigns would be considered in the decision and how to respect and/or incorporate their decision authority into the process and decision.

Inclusivity

Most participants involved in the public consultation process liked the approach and felt it was generally good process. Specifically, the ability of the communities to help shape the structure and content of the engagement process helped ensure that it facilitated what they thought was meaningful engagement. Several of those who engaged in the public consultation process and technical committees in particular felt the face-to-face meetings were a building block to good water governance in this process. Technical committee members also felt the right people had a seat on the technical committees.

Participant observations and perceptions of whether different groups had the ability to influence the review technical studies and policy issues varied. First Nations did not feel they had the ability to influence policy or the technical studies. Those involved in the public consultation process felt they influenced some aspects of the technical work and saw their voices in the BC Provincial Decision as evidence of their influence on policy. However, many were unsure whether their influence would extend beyond the Treaty review and translate into provincial or federal action on the Treaty. Technical committee members felt they had a more limited ability to influence the scoping of the technical work than they hoped, and instead felt their influence was mostly in reviewing

technical work completed by the BC CRT Review Team, BC Hydro, and their consultants.

Sufficient resources for the BC CRT Review enabled participants to engage in different aspects of the process, such as the LGC and Sounding Board. It also allowed the Review Team to meet with communities multiple times and respond to their information requests. Likewise, funds allowed technical committees to meet in person and do their work. But not all groups had enough resources to participate. Resource availability was a reason some agencies were less involved in technical committees than they or others wanted.

Another area that needed improvement was the representation of First Nations in the process. Non-indigenous interviewees expressed a concern that they were not able to hear First Nation perspectives. The First Nation participants I interviewed also wanted a better process for their involvement on both the technical or policy side of things. The critical path process set up for one First Nation was seen as an important first step in that direction.

Information

Aspects of the Treaty review's information-related components that worked well included the extent and quality of the information collected from and shared with basin communities affected by the Treaty. In general information sharing for both the public consultation process and technical committees was a strength of the water governance process. First Nations participants, however, felt information sharing in the First Nation consultation process was poor and needed improvement.

Participants had differing views as to whether other components of the BC Ministry of Energy and Mines' collection and use of information contributed to or prevented good water governance. Overly technical presentations were initially a barrier to good water governance. The Treaty review addressed this problem in part by making public presentations less technical and offering a technical conference to those interested in the technical details. Using the Water Use Planning information and technical studies was seen to some as a good thing because it utilized existing information instead of having to recollect information and redo technical studies. Asking community members if that information still reflected the communities' views demonstrated that the Review Team did their research and knew something about community concerns related to dam and reservoir management in the basin. However, the use of some of the technical information from the Water Use Plans may have not been appropriate when examining the impacts of a Treaty terminates scenario since the data included assumptions based on current Treaty operations. Those studies may not accurately portray the social, environmental, and economic impacts of the different Treaty scenarios examined in the BC CRT Review because of incorrect assumptions. Some participants also felt the review should have conducted additional technical studies, while others thought they were sufficient. Therefore, depending on the participant's view, the technical information used and the limited technical studies were barriers to good water governance.

Other factors

The personalities and leadership qualities of the BC CRT Review Team Executive Director and others were strong assets in the BC CRT Review. Several interviewees

shared that these individuals were critical to the success of the process and improved the water governance decision making process.

Context

In the Water GPA, I advocate that water managers and those developing a decision making process, take an inventory of the context and then identify what about the context are barriers or leverage points for good governance (Table 61). I will now examine how well the BC Ministry of Energy and Mines worked to overcome the challenges and capitalize opportunities presented by the context.

Table 61. Water GPA examination of BC CRT Review context

	Potential Barrier	Potential Leverage Point
Inclusivity	<ul style="list-style-type: none"> • Declaration that Sinixt are extinct • Past 'drive-by' First Nation consultation experiences • Distrust of government due to original Treaty negotiations 	<ul style="list-style-type: none"> • CBT CRT information sessions • LGC • BC CRT Review Team training
Information	<ul style="list-style-type: none"> • Limited time to complete studies 	<ul style="list-style-type: none"> • Water Use Plans
Accountability	<ul style="list-style-type: none"> • Jurisdiction disconnect (specifically related First Nation consultation and salmon) • Declaration that Sinixt are extinct (barrier to procedural justice) 	<ul style="list-style-type: none"> • Executive Director's history with basin • Minister of Energy and Mines is from basin

Table 61 lists different aspects of the US CRT 2014/2024 context and how they might pose a challenge or barrier to or leverage point for good water governance in each of the three other process categories (inclusivity, information, and accountability).

The BC CRT Review Team capitalized on a number of leverage points. For example, it utilized and then built upon the technical studies and stakeholder engagement completed for the Water Use Plans in the region. The Review also tapped into the capacity building initiatives started by the Columbia Basin Trust, namely the CBT's CRT information sessions and the LGC. A third example of the BC Ministry of Energy and Mines utilizing the resources available to it, include employing social media engagement strategies recently learned by one team member through a government training. The

process also benefited from the Minister of Energy and Mines being from the basin. The Minister knew about the past wrongs against the basin communities and wanted better governance this time around. One interviewee shared, “[The Minister] said, ‘People weren't consulted the first time--do it right this time.’” Likewise, participants appreciated that the BC CRT Review Team Executive Director lived in the region for 10 years and felt that s/he was better able to lead because s/he knew the basin.

The BC CRT Review Team worked to overcome some of the existing barriers in the basin and ignored others. The BC Ministry of Energy and Mines actively worked to address the cynicism and mistrust felt by many communities due to past experiences with the original CRT negotiations. These efforts included conducting an extensive public consultation process even though one was not legally required, allowing process participants to help determine the structure of engagement and what was within the scope of the review, referring participants with concerns that fell out-of-scope to other venues and resources rather than just ignoring them, and releasing a draft version of the Provincial Decision for community review (which is typically not done). In many cases these efforts were successful. One interviewee shared

I remember one Councilor and how at the first meeting he was yelling at me from the back of the room and "You're not serious," "You won't even listen to us" and "this is just a paper exercise" and "You'll just go back to Victoria." And at the end [of the process], he said "You know this was an opportunity for communities, the first time ever, for communities to come together and to talk about what happened. And to share amongst themselves how it [the Treaty] affected them, what their hopes were for the future, and to talk about the Treaty." And he said it was quite cathartic for his community. - BC CRT Team member

I heard conflicting narratives as to whether the Province tried to address distrust of the government by First Nations resulting from prior negative experiences with

previous consultation processes (or lack of consultation). The government officials I interviewed felt they met their legal duty to consult. However, the First Nations representatives shared a different story. One First Nation representative felt like its nation was treated as a stakeholder and not as a sovereign. The other shared that its nation had to push for a more meaningful engagement process after receiving an invitation to participate in what s/he thought was an unacceptable process.

A challenge that the Province addressed and ignored in part was somewhat of a jurisdictional disconnect. Where they attempted to address it was in First Nation consultation. The First Nations prefer to consult on a nation-to-nation basis with federal Canada and not with the Province. However, the Province was the one leading the BC CRT Review. To attend to this issue, the federal government participated in First Nation consultation in an observer role. This did not completely address First Nation concerns but was a step in the right direction. The other jurisdictional disconnect in the review was the issue of reintroduction of salmon back into Canada. That issue, popular among many basin residents and First Nations, falls under federal jurisdiction. Therefore, the Province did not feel it could recommend salmon reintroduction as many participants wanted⁹. While that may be the case, the Province could have worked with the Department of Fisheries and Oceans to consider including a provision for salmon restoration.

Another barrier to inclusivity, as well as procedural justice, was the legal designation of the Sinixt as extinct. The BC CRT Review took the position that since the nation is not recognized by Canada, it did not have a duty to consult the Sinixt. Participants were critical of the Province's decision to not address this issue.

⁹ This could also be an attempt to better position itself for negotiations with the US.

5.4.2 Lessons Learned

Based on what the participants identified as working well as well as what needed improvement in the US CRT 2014/2024 Review process, I identified several lessons learned for future decision making processes in this basin or similar basins facing similar challenges (Table 62). This addresses part of my research question: what lessons in water governance can be learned from the two reviews of the CRT? These lessons are most applicable to the BC portion of the Columbia River Basin, but may also have applicability in similar basins. I discuss the lessons in no particular order.

Table 62. BC CRT Review lessons learned for future water governance processes

Recommendations and Lessons Learned
Allow participants to help structure engagement
Take Tsilhqot'in decision to heart and work with First Nations to determine what it means for future processes
Invest in or capitalize on capacity building efforts
Develop criteria for what would be a successful decision
Clearly specify how process participant input will be used
Choose the right leader
Understand that trust may not necessarily scale up
Invest wisely because resources make a difference
Don't just close the loop, share what you know about the future

Table 62 lists the lessons learned during the BC CRT Review for future water governance decision making processes in the basin or in similar basins.

One positive lesson learned and recommendation for future processes is to **allow participants to help structure engagement**. As seen in how the basin communities helped structure the BC CRT Review public engagement process and how one First Nation negotiated trilateral, critical path process, considering participant input in the development of the process can contribute to more meaningful engagement. With this approach, participants can identify what is most important to them and the process lead

can use that knowledge to inform their efforts. As one member of the BC CRT Review

Team shared:

We basically tailored the process to the communities. I've been involved in other processes before for community consultation, where this is box and this is how we do it and you come and we give you a PowerPoint and you ask questions, we answer, and we go away. That's it. But here, the value, the real learning for us is that we say here are some options, what works for you? It's not the one size fits all and each community may want to be engaged in slightly different ways with different tools. Government needs to be able to adapt to that. - BC CRT Review Team member

This approach may also reduce skepticism and cynicism of the process. A representative of a First Nation said:

We're pleased that we were, I think we were the only ones in Canada that rewrote the terms of engagement and we're very cynical about engaging in other venues that the province had set up, which were predetermined, designed to have a predetermined outcome. -First Nations representative

With this in mind a corollary recommendation is to **take Tsilhqot'in decision to heart and work with First Nations to determine what it means for future processes.**

At this point in time, a year after the Tsilhqot'in decision, the First Nations I interviewed do not feel much has changed. A representative of one First Nation commented:

The Tsilhqot'in decision changes the nature of how we now engage with the Crown, although the Crown hasn't caught up to the decision. The Crown is still in denial of the decision but say, "Oh yeah, yeah. We understand it's there, but we're trying to figure it out, it's going to take a while." Meanwhile they are going to try to still shove down the status quo.
- First Nation representative

The Crown (both provincial and federal) must adhere to the precedent set by the court decision. The question is how they will move in that direction. As one agency representative commented:

The Crown, the governments, always have a choice. A simple choice, between begrudgingly doing the minimum required to get this issue to go away or to do much more than the legal minimum required in order to

pursue that higher objective of reconciliation. That to me is fulfilling the honor of the Crown. Being narrow and defensive, and making your decisions where the primary objective is to avoid a nuisance, is completely wrong. It isn't going to solve anything. - Agency representative

A third lesson is to **invest in or capitalize on capacity building efforts**. Two capacity building initiatives better prepared the BC portion of the basin for the BC CRT Review, the CBT CRT information sessions and the creation of the LGC. Better educated about the Treaty and its impacts, communities had a stronger voice than they would have otherwise. The BC CRT Review Team was also smart to capitalize on the work already done in the basin, by having a trusted organization introduce them to the basin as well as by continuing to engage the LGC. One member of the LGC said:

So I think the first round of [community] meetings and even the second was sponsored by CBT and then the government took over from there. It was a good way to do it, because people have a lot more trust in the Columbia Basin Trust, and then it was a good way for the Review Team to be introduced and for people to start to see that they [the Review Team] were open. - LGC member

Another lesson for this case study is to **invest wisely because resources make a difference**. The CBT hosted information sessions on the CRT because it had the resources for them and believe they were a wise investment. The LGC could operate and hire an executive director because CBT and the LGC provided the funds for it to do so. Technical committees and the Sounding Board could meet in person because of access to travel funds and per diems. On the flip side, a lack of staff resources meant a couple of agencies could not be as active in the review. If process leads and those who appropriate funding want meaningful engagement they need to be willing to allocate resources for those efforts.

Another recommendation is to **develop criteria for what would be a successful decision**. This provides a roadmap for process to participants and helps them understand where the process is heading. Along the same lines, it is also important to **clearly specify how process participant input will be used**. This will combat cynicism and assures participants that the process lead genuinely wants their input.

A seventh lesson from this process is to **not only close the loop, share what you know about the future**. The BC CRT Review released a draft Provincial Decision, an atypical act because normally such a decision would be considered advice to the Provincial Cabinet (and therefore confidential). Participants liked this and the BC CRT Review Team thought it was an important way to go back to communities and communicate that they listened to participants. In addition to closing the loop on a process, it is also important to describe the path forward. For the BC CRT Review that included the formation of the Columbia Regional Advisory Committee, which will continue the work of the Sounding Board but focused on both domestic and Treaty-related issues. However, participants wanted more clarity on the path forward after the BC Provincial Decision (and greater assurance that Canada will act on it). At the same time, knowing the content of the BC Provincial Decision and hearing the federal government of Canada say it had no objections to the decision assuaged some of these concerns.

Another recommendation and lesson from the BC CRT Review is to **choose the right leader and team**. Those interviewees that spoke about the BC CRT Review Executive Director often commented on how s/he was personally well-suited for the job and did a good job because s/he knew the basin and possessed strong social and

leadership skills. Some participants also spoke highly of the BC CRT Review Team and their professionalism.

Unfortunately, the BC CRT Review case study indicates that **trust may not necessarily scale up**. Even when a process builds trust that trust may not translate to the agency or government as a whole. Participants indicated that their trust in others, including other process participants and the BC CRT Review Team increased, but they remained skeptical about whether the Province and federal Canada would follow through on the BC Provincial Decision.

In order to follow through on these recommendations and/or apply the lessons learned in future processes, a process lead may encounter a number of challenges (Table 63). In addition to recommendation-specific challenges, there are also cross-cutting challenges like resource availability in terms of funding, staff and time that may make it difficult to adopt these recommendations.

Table 63. Potential challenges to following recommendations and lessons learned

Lesson Learned/ Recommendation	Challenges
Allow participants to help structure engagement	<ul style="list-style-type: none"> • Participants might want something that is not possible • Requires process lead to be flexible and to give up control
Invest in or capitalize on capacity building efforts	<ul style="list-style-type: none"> • May be resource intensive • Requires forward planning rather than reactive funding • Requires strategic planning to predict what capacity for potentially unknown future processes
Develop an understanding of criteria for a successful decision	<ul style="list-style-type: none"> • Can take a lot of time • Once developed it is easy to forget them and not loop back and make sure the decision is in line with the established criteria
Take Tsilhqot'in decision to heart and work with First Nations to determine what it means for future processes	<ul style="list-style-type: none"> • The Crown may have to give up some of the authority it has been operating with
Choose the right leader	<ul style="list-style-type: none"> • There may be limited options • There is no way to know exactly what a process will involve or how it may evolve so there is some uncertainty about what skillsets might be most needed
Clearly specify how process participant input will be used	<ul style="list-style-type: none"> • Requires process lead to determine this early in the process
Understand that trust does not necessarily scale up	<ul style="list-style-type: none"> • Just because a process builds trust that trust may not translate to the agency or government as a whole
Resources make a difference, so invest wisely	<ul style="list-style-type: none"> • The basin or process lead may not have many resources
Don't just close the loop, share what you know about the future	<ul style="list-style-type: none"> • The process lead might not know much about what the future holds (e.g., the CRT future is in part dependent on the US decision)

Table 63 documents some of the potential challenges a process lead may face in incorporating the lessons learned from the BC CRT Review into future water governance decision making processes. I developed this table based on interviewee observations and recommendations as well as my own knowledge of the process and common process challenges.

5.4.3 Caveats and Limitation

My case study analysis includes several caveats and limitations. For instance, the number of people surveyed is a distinct limitation of this research. With only 18 surveys statistical analysis is limited to basic statistics. Also, only one person from a First Nation chose to complete the survey, meaning that group is under-represented in the survey findings. One way to overcome this limitation in future research is to have the process lead distribute the survey to all process participants.

There are two primary limitations to my interview analysis. One limitation is that I was the sole coder of the transcripts. To strengthen my findings, I could have other people also code my interview transcripts, check inter-coder reliability, refine my codes, and update my analysis. A second limitation of my interviews is that while I reached out to each First Nation, I was not able to interview a representative from every First Nation that participated in the BC CRT Review. Since the Province consulted with each nation separately those not interviewed may have experiences and views that are different than what I heard from the two nations I did interview.

Another limitation of this study centers on the fact that I asked participants to self-report their experiences and share their perceptions. While I interviewed most participants within a year of the end of the decision making process, many had moved onto new projects. One participant also advised me to be cautious of a cultural difference between Canadians and Americans. S/he suggested that Canadians have a tendency to focus on the positive or give deference to the government and therefore more frequently report positive, rather than negative experiences, because culturally they are more amicable. Others agreed but felt this was less of an issue in this portion of BC.

In some instances participants shared conflicting narratives of events or explanations of why something happened during the review. In some ways a variation in views is to be expected as participants engaged in the review in different ways and therefore had different vantage points in the process. To address this issue, I identified a participant's affiliation or their involvement in the Treaty review so that the reader could understand where that participant's view might be coming from (without specifically identifying whose view I reported and thereby breaking confidentiality). I also used

multiple sources in my case studies to draw my conclusions. To verify, or ground-truth, different narratives, I decided needed three sources to confirm the narrative. For example, I might use observations from two different people and a document (from a different sources than those two people) to verify what happened during the review. When I used less than three sources, I specifically identified that fact saying things like “one participant shared” or “A couple of interviewees noted.”

5.5 Chapter Conclusion

In this chapter, I presented the first of two case study applications of the Water Governance Process Assessment (Water GPA). Through this case study, of Phase 2 of the BC CRT Review, I sought to answer two of my research questions, namely: 1) How can the characteristics identified in the Water GPA be used to evaluate a water governance process (research question 2), and 2) What are lessons learned for good water governance from the Canadian and American reviews of the CRT (research question 3)?

I began the chapter with a description of the Canadian review of the Treaty, which I called the BC CRT Review. I described how the BC Ministry of Energy and Mines, through its BC CRT Review Team, led a process with three major components: a public engagement (community meetings, the LGC, and Sounding Board), technical committees, and First Nation consultation. After describing the review, I provided a narrative description of how the BC CRT Review Team drafted and revised the BC Provincial Decision, which it released in March 2014.

I then evaluated the BC CRT Review using the Water Governance Process Assessment (Water GPA) as my framework for analysis, in order to answer my research question “How can the characteristics identified in the Water GPA be used to evaluate a

water governance process?” I collected data via surveys and semi-structured interviews of process participants as well as via document analysis of the BC Provincial Decision. From this analysis, I identified a number of barriers and building blocks to good water governance in this decision making process (Table 60 and Table 61) as well as lessons learned (Table 62). Lessons learned and recommendations for future processes in this and similar basins are: 1) allow participants to help structure engagement, 2) take Tsilhqot'in decision to heart and work with First Nations to determine what it means for future processes, 3) invest in or capitalize on capacity building efforts, 4) invest wisely because resources can make a difference, 5) develop criteria for what would be a successful decision, 6) clearly specify how process participant input will be used, 7) don't just close the loop, share what you know about the future, 8) choose the right leader and team, understand that trust may not necessarily scale up, and 9).

6 Case Study: US Columbia River Treaty 2014/2024 Review

In this chapter, I present the second of two case study applications of the Water Governance Process Assessment (Water GPA). I seek to answer the research questions: ‘How can the characteristics identified in the Water GPA be used to evaluate a water governance process?’, and ‘What lessons in water governance can be learned from the two reviews of the CRT?’ I begin the chapter with a description of the US review of the Treaty before sharing and discussing the results of my analysis.

6.1 Overview of the US CRT 2014/2024 Review Process

The US Army Corps of Engineers (the Corps) and Bonneville Power Authority (BPA) led the US Columbia River Treaty 2014/2024 Review (US CRT 2014/2024 Review). The review process set out to evaluate the upcoming changes to the CRT and to provide a recommendation to the US Department of State on whether or not to give notice to terminate the Treaty. While the US has not shared its final decision about the Treaty, the US CRT 2014/2024 Treaty Review was a decision making process that developed the recommendation to the US Department of State. Thus this process and its resulting US Regional Recommendation, serve as the focus of this evaluation. This case study focuses on the US CRT 2014/2024 Review from the completion of the joint Phase 1 studies with the Canadian Entity (in July 2010) to the delivery of the US Regional Recommendation in December 2013. I refer to this period as “Phase 2” of the US CRT 2014/2024 (Phase 3 is the ongoing review by the Department of State, National Security Agency, and Inter-Agency Policy Committee). Phase 2 consisted of two tracks: sovereign consultation and stakeholder engagement, which I describe in the following sub-sections (Figure 12).

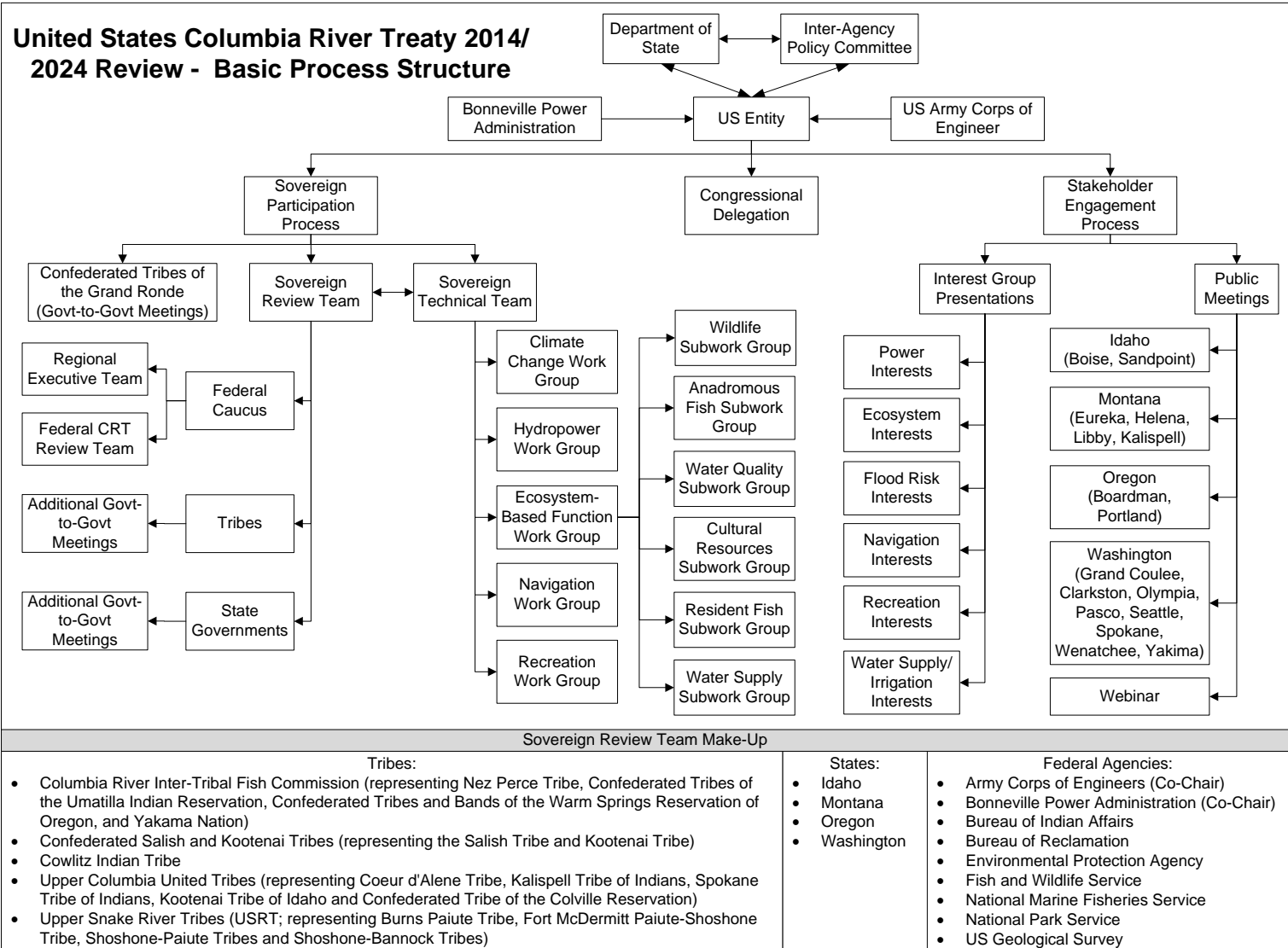


Figure 12. Institutional map of US CRT 2014/2024 Review structure

6.1.1 Sovereign Participation Process

The Corps and BPA worked with a number of sovereign entities during the US Review through the Sovereign Participation Process, which consisted of three parts, 1) government-to-government meetings, 2) the Sovereign Review Team (SRT), and 3) the Sovereign Technical Team (STT). Various sovereigns in the basin involved with the SRT designed the Sovereign Participation Process over a six month period and finalized the process approach in July 2011 with the adoption the “Columbia River Treaty 2014/2024 Review Sovereign Participation Process” document.

Government-to-government meetings took different forms with different types of governments. The federal agencies (or “federal family”) met at two levels: the Regional Executive Team (upper management) and Federal CRT Review Team (staff level). Meetings with states were between the US Entity, its agencies, and the governor’s offices of each state. The US Entity agencies also met with legislators at forums like the Legislative Council on River Governance. Government-to-government meetings with the Tribes were between the US Entity and tribal leadership. One tribe, the Confederated Tribes of the Grand Ronde (CTGR), did not participate on the SRT or STT and engaged with the US Entity via government-to-government meetings at the leadership and staff levels. It requested to join the SRT and STT but that request was denied. My conversations with US CRT 2014/2024 Review participants provided two different reasons why that request was denied. Some attributed it to tension and conflict between the CTRG and other tribes on the SRT/STT. Others said that the CTRG did not have management authorities and responsibilities affected by the CRT and, therefore, should

not have the same seat at the table as the other tribes. I describe these participant views of this issue later in this chapter.

The purpose of the SRT was to “help identify and study policy and technical matters associated with the Treaty Review process” (United States Entity, 2013a, p. 1). While the US Entity developed and delivered the US Regional Recommendation, the SRT contributed to the language of the document as part of an effort to develop regional consensus for the Recommendation. The SRT met from October 2010 through December 2013. The Treaty Coordinators chaired the SRT on behalf of the US Entity and also represented the Corps, BPA, and their associated interests. The SRT also included representatives from nine additional federal agency, five tribal representatives for 15 of the Tribal Nations in the basin, and state representatives from Idaho, Montana, Oregon, and Washington.¹⁰

The sovereigns represented on the SRT were also given the opportunity to participate on the STT. The STT was tasked with developing the “study scope, alternatives, alternative evaluation methodologies, alternative impact assessments, and documentation of results” (United States Entity, 2013b, p. 1). These extensive technical assessments examined changes in water flow under scenarios determined by the SRT and STT. They also investigated how those modified flows would impact flood risk management, hydropower, and ecosystem function as primary functions of river management, along with other operating purposes for dams/reservoirs on the Columbia River and its tributaries, such as navigation, irrigation, and recreation, (United States

¹⁰ While Utah, Wyoming, and Nevada technically have land that falls within the CRB the land and waters are both very small and not impacted by CRT operations. Therefore they were not included in the US CRT 2014/2024 Review.

Entity, 2012). The STT met from February 2011 through October 2013. Within the STT were several work groups and sub-work groups: 1) Climate Change Work Group, 2) Cultural Resources Work Group, 3) Ecosystem-based Function Work Group, which included the a) Anadromous Fish Sub-Work Group, b) Estuary Sub-Work Group, c) Resident Fish Sub-Work Group, d) Water Quality Sub-Work Group, and e) Wildlife Sub-Work Group, 4) Navigation Work Group, 5) Recreation Work Group, and 6) Water Supply Work Group. The Corps and BPA also worked on other technical studies on hydro-regulation modeling, hydropower, flood risk management, economic impacts, and environmental compliance.

In addition to these three tracks, the US Entity provided updates to the US Department of State (DOS), the Pacific Northwest (PNW) Congressional Delegation, and Inter-Agency Policy Committee throughout the US CRT 2014/2024 Review. These updates included quarterly reports and meetings with various agency and congressional staff. Towards the end of the Treaty review the US Entity also traveled to Washington DC to meet with members of the PNW Congressional Delegation.

6.1.2 Stakeholder Engagement

While working with the SRT and STT, the US Review also engaged stakeholders to help guide their technical studies and develop the US Regional Recommendation. Stakeholders included the general public, hydropower interests, irrigation interests, environmental groups, navigation interests, as well as some cities and industries. The US Entity consulted with some experts from organizations such as the Mid-Columbia Public Utility Districts (Chelan County PUD, Grant County PUD, and Douglas County PUD), Idaho Power Company, Oregon State University, University of Washington, and the

Lower Columbia Estuary Partnership on technical studies. Outside of these select organizations, most stakeholder interests engaged in the review through listening sessions and open houses hosted by the US Entity at locations across the US portion of the basin (Table 64) (United States Entity, 2012). Listening sessions were meetings where participants gave input on what the technical studies should consider. Open houses were meetings where the US Entity primarily reported study findings (United States Entity, 2013d, 2014b).

In addition to these efforts, the Corps and BPA gave presentations to over 60 groups to keep them updates on the technical studies and development of the US Regional Recommendation. At some of these meetings, the two federal agencies also solicited feedback on the studies and Recommendation. There were also two public comment periods on draft versions of the US Regional Recommendation in the summer of 2013. The US Entity delivered its recommendation to the Department of State in December 2013. In the next section I describe the development and evolution of that document.

Table 64. US CRT 2014/2024 Review Public Meetings

Meeting Type	Date	Purpose	Location																
			Boise, ID	Sandpoint, ID	Eureka, MT	Helena, MT	Kalispell, MT	Libby, MT	Missoula, MT	Boardman, OR	Portland, OR	City of Grand Coulee, WA	Clarkston, WA	Olympia, WA	Pasco, WA	Seattle, WA	Spokane, WA	Wenatchee, WA	Yakima, WA
Listening Sessions	2011	Solicit input from region	X								X (2)					X			X
SRT Sponsored Panel Discussions	2011	Provide SRT to meet with and hear from various stakeholder interests and county commissioners									X					X			
Listening Sessions	2012	Give "Treaty 101" presentation, share results from Iteration 1 studies, and solicit input for Iteration 2	X				X				X					X			X
Open Houses	Spring 2013	Give "Treaty 101" presentation, share results from Iteration 2 studies, and solicit input for Iteration 3	X	X	X		X	X	X	X	X	X		X	X	X	X	X	X
Open Houses	Summer 2013	Explain Working Draft Regional Recommendation									X								X
Roundtable Discussions	Fall 2013	Explain Draft Regional Recommendation	X			X					X			X		X			X
Topical Public Meetings	2011-2013	Host flood risk management, navigation, and recreation open houses as well as climate change, ecosystem-based function, and water quality technical workshops			X				X		X (6)	X	X						X

Table 64 provides a list of the various public meetings hosted by the US Entity during its Treaty review and the locations for those meetings.

6.2 Development of the US Regional Recommendation

The US Entity released the Working Draft of the US Regional Recommendation in late June 2013 with public comments due in August 2013. The US Entity released a second draft, called the Draft US Regional Recommendation in late September to collect additional feedback by late October. The US Entity, in consensus with the region, delivered the Final US Regional Recommendation to the US Department of State on December 13, 2013. The Final US Regional Recommendation consists of an introduction, nine general principles, recommendation details (on the topics of hydropower, flood risk management, ecosystem-based function, water supply, navigation, recreation, and climate change), a recommended timeframe, and recommendations on seven domestic matters.

In the following subsections of my dissertation, I provide a narrative description of the drafting and revising of the US Regional Recommendation. The public comments submitted on the two drafts of the US Regional Recommendation, my interviews with Review participants, publically available documents from the Review, my observations at public meetings during the Review, and an analysis of the language included in the various drafts of the Recommendations and serve as the basis of this narrative. In my analysis of the Regional Recommendation language, I reviewed the documents for: 1) the inclusion of new language, and 2) changes in language that give the document new meaning (i.e., assert or clarify a view or position as opposed to improve the grammar of the document). This analysis simply documents the changes. I provide an explanation of why those changes were made in the “Case Study Discussion” section of this chapter.

6.2.1 Putting Pen to Paper: the Working Draft US Regional Recommendation

Development of the Regional Recommendation began in the fall of 2012. At that time some members of the SRT started composing “perspectives” papers which laid out their thoughts on what the Regional Recommendation should include. They shared these perspectives papers with the rest of the SRT. Then in January 2013, the US Entity solicited comments from stakeholders on hydropower, flood risk, ecosystem (fish and wildlife and the environment), water supply (including irrigation and consumptive uses), recreation, navigation, water quality, and climate change. The US Entity requested comments by February 8, 2013 and that in their submissions stakeholders indicate the relative importance of each topic they discuss in their comments. Twenty four groups submitted comments.

With the sovereign perspectives papers and stakeholder comments, along with the technical work completed by that time, the US Entity developed a draft outline of the Regional Recommendation and presented it to the SRT in the spring of 2013. The SRT then spent time revising the document prior to its public release as the Working Draft of the US Regional Recommendation on June 27, 2013. While the SRT revised the US Regional Recommendation in the spring of 2013, the US Entity hosted open houses around the basin to present technical study results and collect additional stakeholder input. After the release of the Working Draft, the US Entity hosted two webinars to explain the document and to allow stakeholders the chance to comment verbally, in addition to submitting written comments via the formal public comment process. However, it did not accept formal comments during the webinar; rather it requested that

individuals and organizations submit all comments in writing. The comment period on the Working Draft closed on August 16, 2013.

6.2.2 Recalibrating: the Draft US Regional Recommendation

As the public comment period on the Working Draft drew to a close, the US Entity received two important sets of directions from the US Department of State (DOS). One was that DOS only wanted a five page high level policy recommendation. The US Entity (and therefore the sovereigns and stakeholders it was engaging) was operating under a plan to deliver a five page high level policy recommendation, a 50 page explanation of those policy recommendations, and 500 pages of technical appendices with supporting information. as the US CRE 2014/2024 Review called this the “5-50-500 model.”

The second set of directions was to not release any more technical results to the sovereigns and stakeholders involved in the Review. The reasoning was that once shared outside of the US Entity, information was no longer protected and anyone could request the information under the Freedom of Information Act (FOIA). The concern was that Canada could gain access to the information, which would reduce the United States’ bargaining power, if the two countries entered negotiations. The US Entity requested that it be able to share the summary results of the third iteration of technical studies to those involved in the review and agreed to not release any of the finalized technical studies. DOS agreed to this request.

With this new set of directions, the summary results of the technical studies, and the public comments on the Working Draft, the US Entity worked with the SRT to revise the language of the Regional Recommendation. During this time, the Deputy Assistant

Secretary for Western Hemisphere Affairs visited the US Pacific Northwest and met with sovereigns and stakeholders. The US Department of State held separate meetings with the tribes, power interests, ecosystem interests, and navigation, recreation and flood management interests. Through these meetings the sovereigns and stakeholders shared their concerns and asked questions. The meetings also provided an opportunity for DOS to share its expectations and offer advice. DOS reminded the region that it wanted a high level document as it would better enable DOS to negotiate if the US decided to negotiate with Canada. DOS also recommended the region work towards developing a consensus document as that would offer a better chance that the document would be accepted and acted upon in Washington DC.

The US Entity released the Draft version of the Regional Recommendation on September 20, 2013 for public comment through October 25, 2013. Based on the public comments and SRT meetings, the US Entity revised the Regional Recommendation in a number of ways (Table 65).

Table 65. Summary of Changes from Working Draft To Draft US Regional Recommendation

Section	Changes
Introduction	<ul style="list-style-type: none"> • Insertion of language recognizing the region’s dependence on the Columbia River and the need to “modernize” the Treaty to continue meeting various needs • Expands upon explanation of sovereign and stakeholder engagement conducted to develop the Regional Recommendation drafts
Regional Goals	<ul style="list-style-type: none"> • Provides additional context and justification for goals through new language that, 1) acknowledges benefits of the Treaty in terms of flood risk management and hydropower generation, 2) documents the evolution of river management since ratification of the Treaty, 3) recognizes efforts taken to improve the health of ecosystem and notes that more work through the Treaty is needed, 4) highlights how there is an “imbalance” in the “equitable sharing of the downstream power benefits” that needs to be addressed, and 5) notes that with the shift to Called Upon, flood risk management procedures need to be resilient • Qualifies the recommendation to add ecosystem-based function as a third primary purpose of the Treaty, noting that the recommendation “respects the importance, complexity, and trade-offs of each of these many uses” • Summarizes the regional goals at the end of the section

Section	Changes
General Principles	<ul style="list-style-type: none"> • Adds three new principles, 1) “the health of the Columbia River ecosystem should be a shared benefit” of both countries, 2) new costs and benefits resulting from a modernized Treaty should be aligned with the appropriate party (includes example that flood risk payments should be consistent with national policies), and 3) inclusion of ecosystem-based function should not hinder the objective of lowering US power costs and funding for ecosystem-based function efforts should come from “a rebalancing of the power benefits between the two countries or from other sources” • Notes that a modernized Treaty should allow for the “integration of the best available science” as opposed to “new scientific” • Acknowledges that non-federal projects “will continue to meet their responsibilities pursuant to their Federal Energy Regulatory Commission license plans” in the discussion of how US projects/reservoirs will follow the appropriate laws and legislation • Specifies that the strategy for adapting to climate changes should not only be resilient, adaptable, and flexible, but also “timely as conditions warrant”
Ecosystem-based Function	<ul style="list-style-type: none"> • Specifies that stream flows from Canada contribute to ecosystem improvement efforts • Clarifies that adverse impacts to Tribal and First Nation cultural resources should be addressed via the Federal Columbia River Power System (FCRPS) Cultural Resources Program • Strengthens language around recommendation that together the US and Canada should pursue “restored fish passage and reintroduction of anadromous fish on the main stem Columbia to Canadian spawning grounds” and specifies that the joint program would “proceed on an incremental basis beginning with a reconnaissance-level investigation” • Notes that operations under a modernized Treaty should not interfere with reintroduction of anadromous fish in other blocked areas (in addition to fish passage, as mentioned in the Working Draft)
Hydropower	<ul style="list-style-type: none"> • Clarifies what is meant be “rebalancing” of power benefits by stating that the US should “only provide benefits to Canada equivalent to one-half of the actual US downstream power benefits received from coordinated operations as compared to a non-coordinated operation” • Adds “shifts in streamflow quantity and timing due to climate change” to the list of things that should be considered in order to maintain an economical and reliable power supply
Flood Risk Management	<ul style="list-style-type: none"> • Revises the assertion that an acceptable level of flood risk is similar to the current level to one that maintains that assertion unless a domestic flood review process modifies the risk level • Shifts from recommending the US determine Canada’s interest in joint exploration of options for post-2024 flood risk management, including “the possibility of using planned or assured Canadian storage” to simply recommending the US pursue joint assessment of alternatives • Changes recommendation of when Called Upon should be considered by removing language about what should guide Canadian operations and adding language that Called Upon should also be considered “when needed during refill season to modify planned Canadian releases”

Section	Changes
Water Supply	<ul style="list-style-type: none"> Notes that technical “studies indicate the potential” for “additional storage of water in Canada during the fall and winter, and release in the spring and summer” Clarifies and allocation through a future domestic process should “be consistent with water rights, including tribal reserved rights and ecosystem-based function”
Navigation	<ul style="list-style-type: none"> Adds that a modernized Treaty should also provide minimum flows to support navigation (not just maximum flows)
Recreation	<ul style="list-style-type: none"> No substantive changes
Climate Change	<ul style="list-style-type: none"> Adds language recommending the Treaty be modernized to not only consider impacts of climate change but “allow for adaptive management” in order “to better mitigate” those impacts
Additional Matters of Discussion/ Recommendation Timeframe	<ul style="list-style-type: none"> Removes language recommending that the US evaluate other options such as “starting from a clean slate” (i.e., termination) if the two countries are unable to reach an agreement on key principles by the summer of 2014 Provides greater specificity recommending that a decision to negotiate should be made by mid-2014 and negotiations completed no later than 2015 as opposed to asserting the need to “establish the period of negotiation”
Domestic Matters	<ul style="list-style-type: none"> Flood risk review - calls for review to consider if changes in flood risk could “enhance spring and summer flow” as opposed to “provided greater ecosystem flows” Water supply allocation - Clarifies that any additional spring and summer flows be allocated and managed for “in-stream and out-of-stream purposes” Assessment of Canadian Entitlement - No substantive changes Plan for post-2024 Treaty implementation - No substantive changes Flood plain reconnection - Recognizes that flood plain reconnection could be explored in other processes outside of the two listed processes Domestic advisory mechanism - Adds that DOS not only form but also fund an advisory mechanism as well as involved a “broad cross-section of regional parties” Composition of the US Entity - Reorders recommendation from 6th to 7th in list; moves away from recommending the US Entity add a federal agency to represent ecosystem towards a more general statement that membership of the US Entity should be reviewed to see what would be best for implementing the Treaty post-2024

Table 65 summarizes the changes in language from the Working Draft to Draft version of the US Regional recommendation. I created this table based on a comparison of the Working Draft and Draft versions of the US Regional Recommendation. It includes a summary of changes in different components in the document.

6.2.3 Working Towards Consensus: the Final US Regional Recommendation

The public comment period on the Draft Regional Recommendation closed on October, 25, 2013. Table 66 contains a summary of comment themes provided on the Draft US Regional Recommendation. Most comments involve stakeholder groups advocating for clarification and/or strengthening of the language around their particular

interests. For example, environmental interests advocate for strengthening the US Regional Recommendation position on incorporating ecosystem-based function and fish passage into the document. Likewise hydropower interests petition that reducing the Canadian Entitlement should be the primary priority for a modernized Treaty. Other comments argue for the removal or decreased emphasis on certain aspects of the document. For instance, irrigation interests advocated for removing language about adding ecosystem-based function as a third primary operating purpose under the Treaty. The US Entity considered these comments as it revised the document with the SRT.

Table 66. Public comment themes on Draft US Regional Recommendation

Environmental Interests
<ul style="list-style-type: none"> • <i>Strengthen ecosystem-based function and fish passage restoration language</i> - Support recommendations regarding incorporating ecosystem-based function as primary purpose of the Treaty, exploring the potential for restoration of fish passage, and considering climate change in future river operations. Request to strengthen that language. • <i>Change references to “hydropower” to “power production”</i> - Change reference to “hydropower” to “power production” to incorporate the availability of alternative power sources throughout the Columbia River basin. • <i>Do not link Canadian Entitlement and ecosystem-based function</i> - Caution against linking a reduction in the Canadian Entitlement to ecosystem-based function.
Flood Risk Management Interests
<ul style="list-style-type: none"> • <i>Consider the impacts to infrastructure & levee accreditation</i> - Consider the cost and implications of higher flows on the ability to manage flood risks and the infrastructure flood risk management interests must protect, particularly in the context of reviewing flood risk level policy in the basin.
Irrigation Interest Themes
<ul style="list-style-type: none"> • <i>Remove ecosystem-based function as third primary purpose</i> - Do not add ecosystem-based function as a third primary purpose of the Treaty or allow pursuit of it to adversely impact any other authorized purposes in the basin. • <i>Explicitly include irrigation in the Regional Recommendation</i> - Explicitly include irrigation in the Regional Recommendation either as a separate section from Water Supply or with more detailed references within the Water Supply section. • <i>Acknowledge importance of irrigation</i> - Add language acknowledging the current and future economic significance of irrigation in the basin to Recommendation. • <i>Recognize state authority in water law</i> - Recognize that states have authority to allocate and manage water pursuant to State law. • <i>Ensure representation of all water rights interests</i> - Ensure that all water rights interests are represented in any future water allocation decisions and processes. • <i>Assert U.S. definitions of effective use</i> - Explicitly state that “effective use” only applies to the eight reservoirs authorized for system flood control.

Local Governments

- *Address lack of local government consultation* - Address lack of federally-obligated consultation of local (county) governments. Make up of SRT is not appropriate.
- *Strengthen call for increased water supply* - Strengthen calls for increased water supply and recognize irrigation explicitly within the Recommendation.
- *Do not address domestic issues in the Treaty* - Do not address domestic issues such as ecosystem-based function in the Treaty.

Navigation Interests

- *Include navigation safety, efficiency, and federal navigation project concerns* - Include discussion of navigation and river flows in terms safety and efficiency as well as potential impacts to federal navigation projects.
- *Acknowledge importance of navigation* - Add language acknowledging the current and future economic significance of navigation on the Columbia and Snake Rivers.
- *Consider various impacts of potential CRB Flood Risk Policy Review* - Add reference to the need to consider the potential impacts to navigation, infrastructure, and other river uses in the discussion of a potential review of Columbia River Basin flood risk level policy.

Power Interests

- *Prioritize reduction in Canadian Entitlement* - Make reduction of the Canadian Entitlement the primary priority and change the order of presentation to hydropower, flood risk, then ecosystem.
- *Satisfy General Principles collectively* - Note in Recommendation that the General Principles should be taken as a group and collectively satisfied.
- *Account for existing ecosystem-based function programs* - Account for existing programs benefiting ecosystem-based functions (rather than just acknowledge).
- *Use best available science and cost-benefit assessments in ecosystem pursuits* - Base any changes for ecosystem-based function on best available science and a cost/benefit assessment, particularly any increase in spring and summer flows.
- *Clarify General Principle #8* - Use of “funding” in General Principle #8 should be applied only to “other sources” and not suggest savings be used for ecosystem measures.
- *Remove fish passage reconnaissance study recommendation* - Delete recommendation for reconnaissance study of fish passage from as it is a domestic issue requiring Congressional authorization/appropriation.
- *Re-insert language on timeline for negotiations* - Re-insert language on timeline for negotiations with Canada and consideration of alternative options.
- *Follow federal flood risk management payment policies* - Note that payment for flood risk management should be consistent with national flood risk funding policy.
- *Do not impact existing water rights* - Add language stating that any flow changes should not impact existing water rights.
- *Address transmission issues related to Canadian Entitlement delivery* - Add consideration of transmission issues of Canadian Entitlement delivery through the Puget Sound area.
- *Maintain current levels of flood risk* - Maintain current levels of flood risk.

This table contains a summary of themes I compiled in my reading of the public comments submitted for the Draft US Regional Recommendation. The original comments are available at: <http://www.bpa.gov/applications/publiccomments/CommentList.aspx?ID=207>

As the US Entity and SRT revised the document, the US Entity also continued meeting with stakeholder groups, particularly the hydropower interests, to determine

what language they would accept. The US Entity held similar conversations with SRT members at SRT meetings. This was done in an attempt to obtain regional consensus on the Regional Recommendation as advised by DOS. Various parties in the region understood that it was in their best interest to present DOS with a consensus document supported by all interests in the Pacific Northwest. Without consensus, it was unlikely DOS and the Administration would be willing to touch what one US CRT 2014/2024 Review participant referred to as a political “hot potato.”

In November 2013, some sovereigns and stakeholders requested additional time to further refine the document and work on strengthening consensus in the region. However, the US Entity made the decision to deliver the Final Regional Recommendation by the end of 2013. A reason mentioned multiple times during my interviews, was that hydropower interests pressured the US Entity to release the draft by the end of 2013 in order to give DOS enough time to make a decision before September 16, 2014--the earliest date the country could give notice of termination.

While finalizing the US Regional Recommendation, Congress held two hearings on the CRT. The Senate Committee on Energy and Natural Resources hosted one hearing in Washington DC on November 7, 2013. The House Natural Resources Committee held another in Pasco, Washington on December 9, 2013. At these hearings, the US Entity, Tribes, and various stakeholder groups commented on the CRT and answered Senators’ and Representatives’ questions.

With a tenuous consensus holding the region together in support of the document, the US Entity delivered the Final US Regional Recommendation to DOS on December 13, 2013. Some aspects of the document, such as the sections on climate change,

recreation, and some domestic matters did not change much if at all (Table 67). Other sections included a number of revisions. One major change from the draft to the final version was the re-ordering of the “Recommendation Details” subsections. Ecosystem-based function moved from first to third position after hydropower and flood risk management (the two original authorized purposes of the Treaty). Other highlights of the changes include: 1) a new general principle that “all operations should be based on the best available science, and, to the extent practicable, measurable outcomes” (p. 3), 2) instructions that all principles are to be taken together, 3) language recognizing the importance of irrigation, water supply, and navigation to the region, 4) a note that a modernized Treaty should avoid operations that would result in lower system flexibility, 5) an explicit definition of water supply, and 6) and reintroduction of Working Draft language that implies the US should consider alternatives to modernizing the Treaty (i.e., termination) if the US and Canada cannot agree on certain provisions by 2015. I provide a full analysis of the changes between the Draft and Final versions of the US Regional Recommendation in Table 67.

The delivery of the US Regional Recommendation on December 13, 2013 meant the end of the SRT and STT process as well as the end of Phase 2 of the Treaty Review. The US Entity continued to finalize its technical studies as the US CRT 2014/2024 Review shifted to new a phase. Sovereign participation also continued through government-to-government meetings.

Table 67. Summary of changes from Draft to Final US Regional Recommendation

Section	Changes
Introduction	<ul style="list-style-type: none"> • Condenses explanation of development of Regional Recommendation to one sentence about the collaboration and consultation with sovereigns and stakeholders
Regional Goal	<ul style="list-style-type: none"> • Adds language specifically calling out that the Treaty does not identify ecosystem considerations despite the fact that the importance of ecosystem has “long been recognized and valued” • Includes a new example of Treaty flood risk management benefits to both the US and Canada • Clarifies what water supply entails (irrigation, municipal, and industrial use) • Acknowledges the need to recognize and implement other authorized purposes in the basin outside of hydropower generation, ecosystem-based function, and flood risk management
General Principles	<ul style="list-style-type: none"> • Adds direction that the “General Principles are to be taken together with the intent that all of the interests addressed herein be improved” • Introduces a new principle (to increase total number to 9 principles) that “all operations should be based on the best available science, and, to the extent practicable, measurable outcomes” • Notes that the health of the ecosystem should be a shared cost, in addition to a shared benefit for both countries • Removes example of flood risk management previously included to demonstrate the alignment of Treaty costs to the appropriate party • Revises final principle to more directly state that “implementation of ecosystem-based function to be compatible with rebalancing the entitlement and reducing US power costs” as well as removes specifications on how that should be done
Ecosystem-based Function	<ul style="list-style-type: none"> • Moved to be third section in “Recommendation details” • Merges points one and three from the Draft version and changes “expand upon existing Treaty flow augmentation operations” to “continue existing...” • Adds that after conducting a joint reconnaissance level investigation of fish passage and reintroduction of anadromous fish the program should “continue with implementation actions” • Incorporates provision that “All such federal actions at the Chief Joseph and Grand Coulee projects are subject to congressional authorization and approval”
Hydropower	<ul style="list-style-type: none"> • Moved to be first section in “Recommendation details” • Adds that a modernized Treaty should avoid operations that would result in lower system flexibility (in addition to system reliability) • Includes a footnote explaining what flexibility is and its role in integrating variable renewable energy sources like wind and solar
Flood Risk Management	<ul style="list-style-type: none"> • Moved to be second section in “Recommendation details” • Provides an example of what ecosystem-based function might mean in a modified storage reservation diagram (“dry year operating strategies”) • Resurrects Working Draft language about how any payments for flood risk management should be consistent with national policy
Water Supply	<ul style="list-style-type: none"> • Defines out-of-stream uses of water as “irrigation and municipal/industrial uses • Explains the past, present, and future importance of irrigation in the basin and asserts that operation under a modernized Treaty should recognized irrigation as an important authorized purpose in the basin
Navigation	<ul style="list-style-type: none"> • Notes the “national economic significance” of navigation • Asserts that operation under a modernized Treaty should recognized

Section	Changes
	<p>navigation as an important authorized purpose in the basin</p> <ul style="list-style-type: none"> Revises the statements on minimum and maximum flows to recommend that flows “do not undermine safe navigation, efficient cargo movement, or the ability of navigation infrastructure to be maintained”
Recreation	<ul style="list-style-type: none"> No substantive changes
Climate Change	<ul style="list-style-type: none"> No substantive changes
Recommendation Timeframe	<ul style="list-style-type: none"> Reintroduces the Working Draft statement that “other options to create a modernized post-2024 Treaty should be evaluated” if the US and Canada “are unable to achieve agreement on key aspects of a modernized Treaty by 2015”
Domestic Matters	<ul style="list-style-type: none"> Flood risk review - Note that if the US undertakes a flood risk review, “Potential impacts to other river uses and infrastructure such as navigation, bridges and other transportation features, hydropower, irrigation, recreation, fish and wildlife, and cultural resources also will be evaluated and addressed” Water supply allocation - Defines out-of-stream uses of water as “irrigation and municipal/industrial uses; notes that all water rights interests should be represented any water allocation process; recognizes that “the states have authority to allocate and manage water pursuant to state law and consistent with other applicable law” Assessment of Canadian Entitlement - No substantive changes Plan for post-2024 Treaty implementation - No substantive changes Flood plain reconnection - No substantive changes Domestic advisory mechanism - No substantive changes Composition of the US Entity - No substantive changes

I created this table based on a comparison of the Draft and Final versions of the US Regional Recommendation. It includes a summary of changes in different portions of the document.

6.3 Next steps

After delivering the US Regional Recommendation, the US moved into a new phase of the review of the Treaty. The National Security Agency convened the Inter-Agency Policy Committee (IPC) to conduct the Circular 175 process to make a “determination of national interest” and subsequent decision on whether to terminate, modify, or continue with the Treaty. While the review moved to this next phase, the US Entity agencies, BPA and the Corps, worked to finalize the various US CRT 2014/2024 Review technical studies.

The US review of the Treaty currently sits at this stage. Various interests and sovereigns in the basin have petitioned the Administration for action in writing (such as

letters signed by the Pacific Northwest Congressional Delegation) as well as via meetings with officials in Washington DC. At present (at the time of publishing) there is no timeline for a final decision or action by the US Department of State. Most recently, the PNW Congressional Delegation sent a letter to President Obama and the US Department of State in April 2015 to push for action. The US Department of State responded to Senator Pat Murray of Washington on May 20, 2015. In that letter, the Department of State, speaking on behalf of the President, acknowledged the US Regional Recommendation and noted that the Department has continued to consult with interests in the US portion of the basin. The letter also alluded to meetings between the Department of State, US Council on Environmental Quality (CEQ), and staff of the PNW Congressional Delegation in February and May 2015, in which the Department of State briefed the Congressional Delegation on its deliberations. Based on the Regional Recommendation and its internal review, the Department of State said in the letter, “We have decided to include flood risk mitigation, ecosystem-based function, and hydropower generation interests in the draft US negotiation position. We hope to approach Canada soon to begin discussions on modernizations of the Treaty.” (p. 1). Thus, the letter implies a decision, though it does not offer when the US might officially notify Canada of its decision or act on that decision.

6.4 Water GPA Results

With an understanding of the US CRT 2014/2024 Review and the evolution of the text of the US Regional Recommendation, I next apply Water Governance Process Assessment (Water GPA) to the review process. First, I summarize who participated in the study and my methods for data collection. Second, I report the results of my survey

and interviews. The survey results highlight the scores participants gave the categories of the process (accountability, information, and inclusivity), the scores for the US Regional Recommendation itself, and the list of byproducts the study participants identified as having emerged, increased, or decreased as a result of the process. I also describe the findings from analysis of the semi-structured interviews focusing on: 1) analysis of context (as that was not included in the survey), 2) additional depth and nuance on the other three categories, and 3) specific examples of byproducts from the process. I further discuss the Water GPA results and their implications (such as lessons learned), from the surveys and interviews, in the following section titled, “Discussion.”

6.4.1 Study Participants

I interviewed twenty-two participants of the US CRT 2014/2024 Review, of whom twenty completed the survey evaluation portion of the study (Table 68). How the interviewees participated in the US CRT 2014/2024 Review varied. Following my stratified, quota sampling approach, I made sure to survey and interview participants from every major aspect of the review process, in order to capture a complete picture of the process (Table 69). Twenty-eight participants completed the survey. Different participants joined the review at various points in the process (Table 70). All those who completed the survey were involved with the US CRT 2014/2024 Review when the US Entity delivered the US Regional Recommendation to the Department of State in 2013 and many still engage in Treaty-related discussions today.

Table 68. Sampling approach for the US 2014/2024 CRT Review case study

	Affiliations	Number of Interviewees	Number of Surveys
Federal Government	<ul style="list-style-type: none"> • Bonneville Power Administration (Lead Agency) • US Army Corps of Engineers (Lead Agency) • US Environmental Protection Agency • US Forest Service • US Fish and Wildlife Service • US Geological Survey • US Bureau of Indian Affairs • US National Marine Fisheries Service • US National Park Service • US Bureau of Reclamation • US Department of the Interior 	6	8
Native American Tribes	<ul style="list-style-type: none"> • Cowlitz Tribe • Columbia River Inter-Tribal Fish Commission (Yakama, Warm Springs, Umatilla, and Nez Perce tribes) • Confederated Salish & Kootenai Tribes (Bitterroot Salish, the Pend d'Oreille and the Kootenai tribes) • Upper Columbia United Tribes (Coeur d'Alene Tribe, Kalispel Tribe of Indians, Kootenai Tribe of Idaho and the Spokane Tribe of Indians with the Confederated Tribes of the Colville Reservation) • Upper Snake River Tribes (Burns Paiute Tribe, Fort McDermitt Paiute-Shoshone Tribe, Shoshone-Bannock Tribes of the Fort Hall Reservation, and Shoshone-Paiute Tribes of the Duck Valley Reservation) • Confederated Tribes of the Grand Ronde 	3	4
State Government	<ul style="list-style-type: none"> • Idaho • Montana • Oregon • Washington 	3	3
Stakeholders	<ul style="list-style-type: none"> • Power interests • Irrigation interests • Navigation interests • Environmental interests • Flood risk management interests 	10	13
	Total	22	28

In this table I list out the organizations and agencies who participated in the US CRT 2014/2024 Review and how many in each category I interviewed and surveyed for my analysis. Sources for identifying potential participants include SRT and STT Rosters, public comments on the Working Draft and Draft versions of the Regional Recommendations, public comments received at other points during the US CRT Review.

Table 69. Type of Participant Involvement in the US CRT 2014/2024 Review

Type of Involvement	Number of Participants (Interviews)	Number of Participants (Surveys)
Lead agency	2	3
Tribal government-to-government consultation	3	4
Sovereign Review Team	11	12
Sovereign Technical Team	2	3
Federal Caucus	6	8
Stakeholder engagement	10	13

In this table I indicate the number of my study participants who participated in different components of the US CRT 2014/2024 Review in order to demonstrate how my surveys and interviews represent a wide range of views. Please note that a study participant can fall into multiple categories. For example, participants for example the lead agency participants are also part of the federal caucus.

Table 70. When Participants Joined US CRT 2014/2024 Review

When Participant Joined Review	Number of Participants (Interviews)	Number of Participants (Surveys)
Pre-Phase 2	4	5
Start of Phase 2 (Summer/Fall 2010)	8	12
2011	2	3
2012	6*	6
2013	2*	2
Total	22	28

This table indicates when study participants joined the US CRT 2014/2024 Review

*In each of these categories one individual joined the Review late, but his/her organization was involved from the start of Phase 2.

6.4.2 Methodology Overview

The semi-structured interviews lasted between 20 minutes and 2 hours, depending on participant availability. The average length of interviews was just under an hour. As part of the interviews, I asked participants to explain or provide examples for select survey responses in order to compile a richer assessment of the process categories and outcomes. I also asked in what ways did each of the process categories impact the content of the decision or their view of it, as well as if there were any other factors that they believed influenced the outcomes of the decision making process. I recorded the interviews using a digital voice recorder then transcribed them into a text document for analysis. I coded and analyzed the transcribed interviews qualitatively, both deductively

using the Water Governance Process Assessment categories and inductively identifying emergent themes. I used the QSR NVivo software to manually code my transcripts.

In the survey, I asked participants to score the degree to which they agreed or disagreed with statements for various aspects of the process characteristics: accountability, information, and inclusivity. Participants scored the statements on a Likert scale of one (strongly disagree) to five (strongly agree). Each statement represents one aspect or category of the three process characteristics identified by the Water Governance Process Assessment (Water GPA). Likewise participants also scored the degree to which they agreed or disagreed with statements about the review decision, in this case the US Regional Recommendation. I compiled the paper surveys completed by the participants into an electronic spreadsheet for analysis. I provide a more detailed explanation of my methods in Chapter 3. Below I present the mean scores for all 28 survey respondents as well as counts of the positive (agree and strongly agree), negative (disagree and strongly disagree) and neutral scores to show the distribution of the scores. If apparent, I point out trends in the responses. Following my presentation of the survey results, I share the results of my qualitative analysis of the interviews for each category. For example, I present survey scores for accountability and then my analysis of what the interviewees said about accountability.

6.4.3 Accountability

In the Water GPA, I define accountability as “*the organization and atmosphere of the process designed to produce a legitimate decision.*” Accountability includes concepts such as transparency, fairness, rule of law, leadership, responsiveness, the scope of the decision making process, who holds decision authority, etc. On this portion of the survey,

views on the accountability items varied widely (Table 71). A majority of respondents felt that the review followed the appropriate laws (23 out of 27). Around two-thirds of participants felt that the representatives participating in the review represented their constituents' interests (16 of 27) and that the review fulfilled its legal obligations (18 of 27).

Table 71. US CRT 2014/2024 Review accountability scores

Category	Mean	Distribution of Responses			Total
		Disagree	Neutral	Agree	
The review was sufficiently transparent	2.87	12	5	9	26
The review tasks/objectives were clearly specified	3.30	7	8	12	27
Criteria used for how decisions would be made were clearly specified	2.67	14	8	5	27
The degree to which decision authority would be shared was clear	3.15	12	3	12	27
To the best of your knowledge, the review followed the appropriate laws	3.93	3	1	23	27
To the best of your knowledge, the review fulfilled its legal obligations	3.63	3	6	18	27
The review was procedurally fair/just	2.77	11	8	7	26
Representatives of the public and interest groups represented their constituents' interests appropriately	3.44	5	6	16	27
The lead agency of the Treaty review was responsive to review participants	3.30	5	7	13	25

This table presents the mean scores and response counts for the different survey questions related aspects of accountability in the US CRT 2014/2024 Review. Survey participants marked whether they strongly disagreed (assigned value = 1), disagreed (assigned value = 2), were neutral (assigned value = 3), agreed (assigned value = 4), or strongly agreed (assigned value = 5) with each statement. A higher mean score indicates higher overall agreement with the statement. I compiled the "strongly disagreed" and "disagreed" as well as the "strongly agreed" and "agreed" counts.

For several aspects of accountability, the survey results show that there is not agreement among respondents on the quality of accountability in the decision making process. For example, half of the respondents disagreed that the criteria used for how decisions would be made were clearly specified in the review (12 of 25) and responded that the lead agency (the US Entity) was responsive to review participants (13 of 25).

There is an even split in number of responses that disagreed (12 participants of 27) or agreed (12 of 27) that the degree to which decision authority would be shared was clear. Likewise responses as to whether the review was procedurally fair/just are somewhat evenly distributed between those who disagreed (11 of 26), agreed (8 of 26), or were neutral (7 of 26).

To investigate this variation in responses, I separated the responses into two groups, sovereigns and stakeholders (Table 72 and Table 73). I use the US Entity delineation of who is considered a sovereign or stakeholder. Sovereigns are federal agencies, state governments, and Tribes. Stakeholders include everyone else, such as interest groups, hydropower utilities, and universities. Fifteen participants affiliated with sovereigns and 13 stakeholders completed the survey. I chose to split the surveys into these two categories because this divide between sovereigns and stakeholders was a salient theme in both the survey open response questions and interviews. I also hypothesized that because stakeholders and sovereigns participated in different components of the decision making process they might have different experiences and thus different views.

Examining the responses this way helps account for some of the variation in scores. A majority of stakeholders (8 of 12) disagreed that the review was sufficiently transparent. Likewise, the majority of stakeholders also did not view the review process as fair or just (7 of 12) (Table 72). In fact, no stakeholder thought the process was fair or just (5 of 12 stakeholders were neutral on the issue). Half of sovereigns (7 of 14) agreed that the process was sufficiently transparent and procedurally fair/just while the other half disagreed (4 of 14) or was neutral (3 of 14). Most sovereigns felt that the lead agency (US

Entity) was responsive to review participants (9 of 14) and that the representatives of the public and interest groups fairly represented their constituents interests (11 of 15) (Table 73). Stakeholder views were much more mixed on those two factors with no clear majority view (Table 72).

Table 72. Stakeholder accountability scores for the US CRT 2014/2024 Review

Category	Mean	Distribution of Responses			Total
		Disagree	Neutral	Agree	
The review was sufficiently transparent	2.50	8	2	2	12
The review tasks/objectives were clearly specified	3.00	3	6	3	12
Criteria used for how decisions would be made were clearly specified	2.67	6	4	2	12
The degree to which decision authority would be shared was clear	3.25	4	2	6	12
To the best of your knowledge, the review followed the appropriate laws	4.08	0	1	11	12
To the best of your knowledge, the review fulfilled its legal obligations	3.75	0	4	8	12
The review was procedurally fair/just	2.33	7	5	0	12
Representatives of the public and interest groups represented their constituents' interests appropriately	3.08	4	3	5	12
The lead agency of the Treaty review was responsive to review participants	3.04	3	4	4	11

This table presents the mean scores and response counts for STAKEHOLDER participants in the US CRT 2014/2024 Review on the topic of accountability. Survey participants marked whether they strongly disagreed (assigned value = 1), disagreed (assigned value = 2), were neutral (assigned value = 3), agreed (assigned value = 4), or strongly agreed (assigned value = 5) with each statement. A higher mean score indicates higher overall agreement with the statement. I compiled the "strongly disagreed" and "disagreed" as well as the "strongly agreed" and "agreed" counts.

Table 73. Sovereign accountability scores for the US CRT 2014/2024 Review

Category	Mean	Distribution of Responses			Total
		Disagree	Neutral	Agree	
The review was sufficiently transparent	3.17	4	3	7	14
The review tasks/objectives were clearly specified	3.53	4	2	9	15
Criteria used for how decisions would be made were clearly specified	2.67	8	4	3	15
The degree to which decision authority would be shared was clear	3.07	8	1	6	15
To the best of your knowledge, the review followed the appropriate laws	3.80	3	0	12	15
To the best of your knowledge, the review fulfilled its legal obligations	3.53	3	2	10	15
The review was procedurally fair/just	3.14	4	3	7	14
Representatives of the public and interest groups represented their constituents' interests appropriately	3.73	1	3	11	15
The lead agency of the Treaty review was responsive to review participants	3.50	2	3	9	14

This table presents the mean scores and response counts for SOVEREIGN participants in the US CRT 2014/2024 Review on the topic of accountability. Survey participants marked whether they strongly disagreed (assigned value = 1), disagreed (assigned value = 2), were neutral (assigned value = 3), agreed (assigned value = 4), or strongly agreed (assigned value = 5) with each statement. A higher mean score indicates higher overall agreement with the statement. I combined the “strongly disagreed” and “disagreed” as well as the “strongly agreed” and “agreed” counts.

The survey accountability scores reveal some weaknesses of the US CRT 2014/2024 Review. A majority of respondents either disagreed or were neutral that the review tasks/objectives, criteria used for making decisions, as well as if/how decision authority would be shared were clearly specified during the process (Table 71). The participant’s statements during the interviews shed some light on what happened and why s/he disagreed or were uncertain in these areas.

Transparency

One accountability component, or metric, of the Water GPA is transparency. I asked interviewees if they felt the review was sufficiently transparent and why or why not. My interviews revealed two barriers to transparency in the US CRT 2014/2024

Review. First, the structure of the review, specifically the difference between stakeholder and sovereign engagement, led to the lack of transparency. Stakeholders expressed disappointment and frustration over not being able to participate and/or observe in SRT and STT meetings. A second barrier often mentioned by the interviewees was the request by the US Department of State for the US Entity to not release any more technical information, including the final technical reports which were originally intended to be appendices to the US Regional Recommendation.

Not all comments regarding transparency were negative. Several interviewees sympathized with the fact that the US Department of State instructed the US Entity to not release the finalized technical studies in order to improve its potential negotiating position. Some participants were frustrated that they could not access this information, but at the same time understanding of the situation. Most of those involved with the SRT also voiced an appreciation for the transparency of the Sovereign Participation Process and the ability to work together in developing the technical studies and US Regional Recommendation. Looking forward, those individuals who discussed Phase 3 of the Treaty review process and potential future negotiations voiced concern that transparency has and will likely continue to decrease as the US Department of State and National Security Council contemplate their decision.

Scope

The central decision of the US CRT 2014/2024 Review was whether or not to recommend the US terminate, modify, or continue with the Treaty post-2024. However, two challenges emerged in terms of defining the scope of the Treaty review: 1) what did the Department of State want? and 2) what is Treaty-related versus a domestic matter?

In regards to the first challenge, it was not clear what the Department of State wanted in the Regional Recommendation until mid-2013, three years into Phase 2 of the Treaty review. Without a vision of what the Department of State wanted, it was difficult to direct the Treaty review efforts towards a more tangible goal. To address this issue the US Entity worked with the sovereigns in late 2010 and early 2011 to develop the Sovereign Participation Process document to guide sovereign engagement and pursued the “5-50-500 model” as the deliverable. However, they abandoned the 5-50-500 model when the Department of State advised that it only wanted a five-page high level policy recommendation. SRT members and the lead agency participants voiced appreciation for the times when the US Department of State offered guidance about what it was looking for in a recommendation in 2013. However, a parallel theme of those comments was a desire that the Department of State offer input sooner in the process. One SRT member shared the following recommendation for future basin decision making processes:

Be clear about what you want to produce, so you don't go down all these rabbit trails. Just be really clear on what the product is. Actually, we wrote the Regional Recommendation, that was written in four weeks or something like that--after three and a half years of talking and stuff. - SRT member

The second challenge related to the scope of the US CRT 2014/2024 Review centered on the question “what is a Treaty-related issue and what is a domestic matter outside the purview of the US CRT 2014/2024 Review?” In other words determine what is linked to Treaty operations and what is something the US (or Canada) could and/or should address within its own borders. Different participants of the Treaty review had different views of what is a Treaty-related or domestic matter. For example, the Tribes, environmental interests, and some federal agencies view salmon restoration efforts, such

as fish passage and reintroduction (aspects of ecosystem-based function), as a Treaty-related issue. The power and irrigation interests do not. The power interests in particular view the CRT as an agreement on how to manage transboundary flows for two purposes, hydropower generation and flood risk management, and therefore felt that those are the two Treaty-related issues the Regional Recommendation should focus on. Another area of disagreement was whether a reassessment of flood risk in the basin fell within the purview of the US CRT 2014/2024 Review. The Corps stated that it did not have the authority to conduct that assessment as part of the Treaty review, while the tribes argued that it did. The US Entity and US Regional Recommendation attempted to address this issue by including domestic issues as a separate section within the document. This provided an opportunity for the region to comment on issues outside of the terminate/modify/continue decision but draws some distinction between domestic and Treaty-related issues. Thus, groups were happy that an official document recognized those positions, though depending on how different interviewees interpreted the document, those domestic matters may or may not have the same level of commitment on follow through as the Treaty-related points.

Decision criteria

Related to transparency and scope is defining the criteria upon which the decision will be made. Mirroring the survey results, the predominant theme was a lack of understanding of how the region would make a recommendation on the future of the Treaty. Both stakeholders and sovereigns were unsure of what the criteria for the decision were. One stakeholder said:

I don't think there was ever a time where the decision making process was revealed to the region, rather it was, 'Here's the list of who was on the

Sovereign Review Team. These people are meeting. They will be developing the Regional Recommendation after receiving public input and having all of their private closed door meetings.’ There were no metrics revealed. There were no decision making structures revealed. These folks got into a closed room and had their conversations and then all would be revealed to the region later. No there were no criteria ever revealed.
- US CRT 2014/2024 stakeholder participant (navigation interest)

In mid-2013, a new criterion for the decision emerged: the need for a consensus document. The criterion for a successful Regional Recommendation was that the document be one that all parties in the region could support. Without the support of the entire region, it was unlikely that the US Department of State would consider taking action on the Treaty. The hope was that since everyone wanted something from the Treaty review and resulting Regional Recommendation, they were less likely to lobby against the US Regional Recommendation as that would diminish their chances of achieving their own goals. To develop a consensus document the region had to: 1) keep the language at a high policy level and not include much detail, and 2) compromise on various recommendations.

Sharing of decision authority

How much decision authority the US Entity intended to share was also unclear to many participants. The Sovereign Participation Process document developed by the SRT to structure sovereign engagement includes a principle that states that the US Entity “retains [the] authority to make a recommendation to the US Department of State. In the event of non-consensus, each sovereign party may exercise their own authorities to make recommendations of their own” (p. 1). There was an understanding that the US Entity would write the US Regional Recommendation based on input from the Sovereign Participation Process and stakeholder engagement process. However, it was not clear

how much influence the input would have. As one SRT member noted, “It wasn't quite a vote, it wasn't a democracy. It wasn't everybody vote on us. It was okay we [the US Entity] listened now we're going to do what we're going to do.” At some stages of the process, stakeholders were also under the perception that the Regional Recommendation was an SRT document, not an US Entity document. The primary recommendation from interviewees on this topic for future processes was to increase the decision authority shared for a true collaborative process.

Procedurally fair/just

Interviewees did not have much to say about whether the process was fair and/or just. Some commented that the lack of transparency in the process made it seem superficial, and therefore less fair. A few interviewees also commented on the exclusion of the Confederated Tribes of the Grand Ronde from the SRT/STT and how that was an unjust and unfair aspect of the process.

Leadership

In my examination of the interview transcripts, I initially focused on how responsive the review lead (the US Entity in this case study) was to participants. However, as I coded the text, I discovered that equally, if not more important to participants, was who led the review. Both stakeholders and sovereigns were unhappy that the US Entity was the process lead. Their frustration centered on the fact that the US Entity wore “two hats” in the US Treaty Review. The Corps and BPA tried to act as both the “neutral” convener of the process as well as the federal agency representing flood risk management and hydropower in the various Treaty review conversations. Stakeholders

did not like this structure because they felt that as the process leads, the US Entity agencies could not represent their constituencies' interests well. One stakeholder shared:

They should have been representing their own customers' interests...at the very beginning they said, "We're in charge of this outreach activity, and we can't be proponents of anything." They are proponents of things, they have customers and they have to protect their customers' interests."

-Hydropower interest

On the flip side, this setup frustrated sovereigns who felt the US Entity was overly biased in favor of hydropower and flood risk management interests. Even the two lead agencies themselves found this balancing act difficult and not in their best interest. A representative from a US Entity agency shared:

We had a very hard time representing both our own view, because we didn't think anyone else was on the SRT representing it as strongly, and yet, we also felt the obligation to be representing the entire region and to be neutral. In that sense, from our organization's perspective, it was tough to be accountable to our stakeholders and be regionally neutral. - US Entity agency representative (process lead)

When interviewees mentioned this problem, I asked if they had a suggestion of who might be better process lead or convener for future decision making processes. Most did not have an answer, though some offered that in this specific case the Department of State could be a neutral process lead. However, some were concerned that the Department of State lacked the technical capabilities as well as an understanding of the region and basin for this decision making process.

In terms of whether the lead agency, the US Entity, was responsive to review participants, interviewee perceptions ranged from the US Entity not being responsive enough to be too, or overly, responsive in some cases (i.e., too conciliatory to certain groups). Some participants in the US Treaty review made a distinction between their

experiences with each of the two agencies. Some found the Corps much easier to work with and did not have a high opinion of BPA. Others preferred working with BPA and found the Corps unresponsive. The differences in the quality of relationships between the US Entity and various basin sovereigns and stakeholders might be something the US should consider leveraging in future US Entity processes.

Accountability to constituents

Many interviewees felt that members of the SRT/STT and interest groups were accountable to their constituent groups and represented them well. However, some participants perceived the opposite. As mentioned above, the US Entity serving as the process lead posed a challenge to it representing its constituent's interests. There were other concerns about whether the members of the SRT were able to translate information and report it accurately to their partners, constituents, and/or leadership. A third concern was associated with the coalition of Department of the Interior (DOI) agencies. Some interviewees expressed concern that because DOI wanted its agencies and bureaus to present a united front, the different agencies had fewer opportunities to voice a different perspective, one more in line with their traditional constituencies (e.g., the Bureau of Reclamation and irrigators). A fourth issue was the challenge state representatives faced in representing the wide range of and sometimes competing interests and views in their states.

Rule of law

Although most interviewees felt the US Entity followed the appropriate US laws and met its legal obligations, two groups of participants did not feel that the US Entity followed the rule of law. One group was the power utilities. They disagreed with the US

Entity's decision to not recognize public utility districts (PUDs) as sovereigns and as a result not provide them a seat in the Sovereign Participation Process. The other group was the tribes, who shared that they did not believe the US Entity fully met its obligation to consult and collaborate with the tribes as required by Executive Order 13175.

Other emergent subthemes of accountability

A number of themes associated with accountability (but outside my initial metrics in the Water GPA) emerged during the interviews. One theme was the importance of the US Department of State as a source of accountability. As previously mentioned, the US Department of State advised the region that it was in the region's best interest to present a consensus document as opposed to separate letters sharing different positions. The tribes also referenced the value of having the Department of State hold the US Entity accountable in the Tribal consultation efforts.

Another emergent accountability theme was the lack of an idea or commitment about what the subsequent steps of the process would look like. Interviewees expressed frustration with the lack of information about how the Department of State and other federal agencies would make a final decision through the Circular 175 process and how they might engage the region if they initiate negotiations with Canada.

A third emergent theme was the role of the 2013 deadline for the US Regional Recommendation. Several interviewees cited the deadline as the reason why the region could not devote more time to conducting technical studies, work towards a deeper understanding of the parties, and develop a stronger regional consensus and support for the document. A few study participants attributed the 2013 deadline to the hydropower interests. They shared that the hydropower interests wanted a US Regional

Recommendation by the end of 2013 so that the Department of State would have enough time to complete its review of the national interest and issue notification of termination or request negotiations for treaty modification by September 16, 2014--the earliest possible date to issue a unilateral notice of termination. The study participants noted that the hydropower interests pushed for earlier notification in order to potentially reduce the Canadian Entitlement as soon as possible after 2024. Their observations are supported by the hydropower community's push to include the statement "other options to create a modernized post-2024 Treaty should be evaluated" if the US and Canada "are unable to achieve agreement on key aspects of a modernized Treaty by 2015" in the final US Regional Recommendation (p. 7).

6.4.4 Information

Information and knowledge includes *the data, information and knowledge used to make the decision, including all stages of collection, modeling, experiments, and analysis*. The Water GPA looks at four metrics of information: 1) quality (i.e., were the information and/or technical studies appropriate and adequate for the decision being made), 2) audience appropriate and understandable, 3) timely, and 4) information sharing. I present the survey and interviews results for each of those metrics in the following subsections.

Survey Results

Survey respondents rated information in terms of quality (i.e., was the information appropriate and adequate for the decision being made) and access (was the information available and understandable). A majority of respondents (19 out of 27) agreed that the review used the appropriate existing information though only half (13 of 27) believed that

the appropriate technical studies were completed during the process (Table 74). Around two thirds of survey respondents (17 of 17) thought that the information shared was appropriate for the audience.

As with accountability, some of the scores for information varied and there is not clear agreement on some aspects of information in the review. This variance seems to be explained by whether the participant was a sovereign or stakeholder participant in the US CRT 2014/2024 Review (Table 75 and Table 76). For example, when asked whether the Treaty review used the appropriate existing information a majority sovereigns (11 of 15) agreed, while stakeholders were evenly split between agreeing (4 of 12), disagreeing (4 of 12) and being neutral (4 of 12) on the issue. Likewise, when asked if the information shared was appropriate for the intended audience, a majority of sovereigns agreed (8 of 15), while stakeholders were much more evenly split with two disagreeing, six agreeing, and four remaining neutral on the topic. The semi-structured interviews provide further insight into the participants' views of information produced and used in the US CRT 2014/2024 Review and why they shared differing perspectives in the surveys.

Table 74. US CRT 2014/2024 Review information scores

Category	Mean	Distribution of Responses			Total
		Disagree	Neutral	Agree	
The review utilized the appropriate existing information (studies, knowledge, etc.)	3.96	1	7	19	27
The appropriate technical studies were conducted	3.26	8	6	13	27
Information was made available in a timely manner	2.96	7	15	5	27
Information made available was easily understood	3.22	6	9	12	27
Information shared was audience appropriate (e.g., matched the level of technical understanding)	3.52	3	7	17	27
Information produced in the review was adequate (i.e., appropriate for the decision being made)	2.96	8	11	8	27

This table presents the mean scores and response counts for ALL survey participants in the US CRT 2014/2024 Review on the topic of information. Survey participants marked whether they strongly disagreed (assigned value = 1), disagreed (assigned value = 2), were neutral (assigned value = 3), agreed (assigned value = 4), or strongly agreed (assigned value = 5) with each statement. A higher mean score indicates higher overall agreement with the statement. I compiled the “strongly disagreed” and “disagreed” as well as the “strongly agreed” and “agreed” counts instead of reporting them in separate columns.

Table 75. US CRT 2014/2024 Review sovereign information scores

Category	Mean	Distribution of Responses			Total
		Disagree	Neutral	Agree	
The review utilized the appropriate existing information (studies, knowledge, etc.)	4.07	1	3	11	15
The appropriate technical studies were conducted	3.33	4	2	9	15
Information was made available in a timely manner	3.07	4	8	3	15
Information made available was easily understood	3.20	4	4	7	15
Information shared was audience appropriate (e.g., matched the level of technical understanding)	3.67	1	3	11	15
Information produced in the review was adequate (i.e., appropriate for the decision being made)	3.20	2	7	6	15

This table presents the mean scores and response counts for SOVEREIGN survey participants in the US CRT 2014/2024 Review on the topic of information. Survey participants marked whether they strongly disagreed (assigned value = 1), disagreed (assigned value = 2), were neutral (assigned value = 3), agreed (assigned value = 4), or strongly agreed (assigned value = 5) with each statement. A higher mean score indicates higher overall agreement with the statement. I compiled the “strongly disagreed” and “disagreed” as well as the “strongly agreed” and “agreed” counts instead of reporting them in separate columns.

Table 76. US CRT 2014/2024 Review stakeholder information scores

Category	Mean	Distribution of Responses			Total
		Disagree	Neutral	Agree	
The review utilized the appropriate existing information (studies, knowledge, etc.)	3.83	0	4	8	12
The appropriate technical studies were conducted	3.17	4	4	4	12
Information was made available in a timely manner	2.83	3	7	2	12
Information made available was easily understood	3.25	2	5	5	12
Information shared was audience appropriate (e.g., matched the level of technical understanding)	3.33	2	4	6	12
Information produced in the review was adequate (i.e., appropriate for the decision being made)	2.67	6	4	2	12

This table presents the mean scores and response counts for STAKEHOLDER survey participants in the US CRT 2014/2024 Review on the topic of information. Survey participants marked whether they strongly disagreed (assigned value = 1), disagreed (assigned value = 2), were neutral (assigned value = 3), agreed (assigned value = 4), or strongly agreed (assigned value = 5) with each statement. A higher mean score indicates higher overall agreement with the statement. I compiled the “strongly disagreed” and “disagreed” as well as the “strongly agreed” and “agreed” counts instead of reporting them in separate columns.

Information quality

Mirroring the survey results, some interviewees felt that the information gathering efforts and technical studies in the US CRT 2014/2024 Review were adequate for the decision. Some were impressed with the scope of the technical work and how the Treaty review advanced the modeling capabilities in the basin. Others felt more work could have been done. As one might expect, different stakeholder interests wanted additional technical studies on their area of interest. For example, navigation interests wanted additional studies on impacts to navigation and the tribes and environmental groups wanted additional ecosystem studies. However, I also discovered three primary areas where interviewees of various backgrounds wanted additional analysis: flood risk management, climate change, and ecosystem-based function. These participants felt that a better knowledge of flood risk management alternatives and impacts, greater awareness

of future climate change impacts, and an understanding what ecosystem-based function meant in terms of river operations would better inform parties in the region and the US Regional Recommendation.

Another issue associated with information quality was choosing what models to use in the technical studies. Different groups in the basin trust and accept the assumptions of different models. The US Entity addressed this in one instance by conducting analyses with two models, CSS and COMPASS, which look at salmon survival rates. One example of conflict over modeling was in the use of RES-SIM versus the development of the new Corps model HEC-WAT (Hydrologic Engineering Center Watershed Analysis Tool). HEC-WAT is a much more sophisticated model, however, it required a lot of time to develop to a point where it could be used in the Treaty review technical analysis. Some participants felt that instead of developing the HEC-WAT they should have updated and only used RES-SIM in order to start the technical studies sooner.

Audience appropriate and understandable

In their comments about whether they were able to understand the information produced in the US CRT 2014/2024 Review, nearly all participants noted that the information was very technical. At the same time they acknowledged that this complexity was necessary and appropriate due to the nature of the Columbia River Treaty and its impact on dam and reservoir operations. However, most shared that the US Entity and others conducting the technical studies had a hard time translating the findings into something that members of the SRT and STT could understand. One environmental stakeholder shared:

Speaking for myself, I'm a pretty sophisticated member of the public. I work on rivers all the time. This was a hard thing to get a handle on.

-Environmental stakeholder

Several SRT members also commented that as the Treaty review progressed presentations of technical information to the SRT (the policy coordinator level of the review) improved some and were slightly more understandable. A federal agency representative on the SRT shared:

The technical information we presented was a constant issue, because the people providing the information are very technical people...a lot of it went right over our heads. A lot of policy people were just lost. We tried to get them to do a better job, and after a couple of years they got better, but it was still hard. - SRT member

Information sharing

To capture the degree of information sharing, survey respondents answered a question where they selected the category that best described the degree of information sharing between them and the US Entity. Adapted from the construct scale developed by Glen Hearn (2010), the scale ranges from no exchange of information to an extensive, regular exchange of information on a wide variety of topics (Table 77). Each category is defined in terms of the timing, method, and content of information shared. Several respondents found the scale confusing as they did not understand what some of the indicators meant. For example, they asked “what is the difference between a regular or irregular exchange of information?” To clarify I shared brief definitions of the terms verbally (Table 78).

Table 77. US CRT 2014/2024 Review information sharing scores

Scale	Indicators (timing/method/content)	Number of Participants	Number of SRT/STT Participants	Number of Non SRT/STT Participants
1	No exchange of information	0	0	0
2	Irregular release of information; informal exchange (e.g., through release of reports or journal articles)	3	0	3
3	Irregular but formal exchange of information that is limited, disputed or questioned	1	1	0
4	Irregular but formal exchange of limited information, validity accepted	3	0	3
5	Regular formal exchange, only one topic included, validity accepted or disputed	0	0	0
6	Regular exchange, multiple topics related to water included, validity accepted	3	1	2
7	Regular exchange, joint gathering and/or processing, only one topic included	0	0	0
8	Regular exchange, joint gathering and/or processing, multiple water issues included	3	2	1
9	Regular exchange, joint gathering and/or processing, multiple water issues included, such as socio-economic and environmental issues exchanged or discussed	13	9	4
10	Extensive and regular exchange, joint information gathering and/or processing, socio-economic-environmental, policy and planning information	1	1	0
Blank	No response	1	1	0
Total		28	15	13

Table 77 displays how different survey participants reported the degree of information sharing between themselves and the process lead (the US Entity). Generally, but not always, sovereign participants of the US CRT 2014/2024 Review reported higher degrees of information sharing than stakeholder participants.

Table 78. Information sharing construct scale term definitions

Scale term	Definition
Irregular exchange	Information is shared periodically at seemingly random intervals, without any assurance that information will continue to be shared in the future
Regular exchange	Information is shared at agreed upon points of the process (e.g., so many times a year, after each iteration of technical studies, etc.)
Informal exchange	Information is shared through back channels or information is released to the public where the party then accesses it (i.e., indirect access)
Formal exchange	Information is directly shared as part of the official process
Validity disputed or questioned	Information shared is not accepted as accurate or appropriate for answering the question at hand
Validity accepted	Information is accepted as valid (accurate or appropriate for answering the question at hand)

Table 78 shares definitions of different terms used in the information sharing scale. These definitions were shared with survey participants when they asked but were not included in writing on the survey itself.

Of the 15 sovereigns (federal agencies, states, and Tribes) that completed the survey, nine rated the information sharing as a “9” (regular exchange, joint gathering and/or processing, multiple water issues included, such as socio-economic and environmental issues exchanged or discussed), two rated information sharing as an “8,” another two rated information sharing as either a “3” or “6,” and one person did not respond to that question. This clustering makes sense as most of sovereigns participated in either the SRT or STT which met regularly and either conducted or discussed the technical studies conducted as part of the US CRT 2014/2024 Review.

For the most part, stakeholders rated their information sharing with the US Entity lower than the sovereigns, with six participants reporting scores ranging from 2 to 6. However, the three stakeholders from the hydropower industry and another non-governmental organization in the region all scored information sharing as a “9” much like most of the sovereign participants. Several interviewees noted that BPA met with, and collaborated with some hydropower utilities to complete some of the hydropower-related

technical studies. Other stakeholder interests did not have this same access to information.

I asked interviewees if they felt the degree of information sharing was appropriate. A majority wanted some form of increase in information sharing, though at the same time, many talked about “information overload” and how at times there was too much information. A few stakeholders shared that they could not see some of the information presented to the SRT and were frustrated with that. Some sovereigns appreciated the amount of information sharing between them and the US Entity. They also liked how some of the technical work was done jointly, or at least the studies were scoped jointly before the US Entity or its consultants conducted the work. Other sovereigns wanted more collaboration on the technical work.

A unique situation in the US CRT 2014/2024 Review was the sudden shift in information sharing in the spring/summer of 2013. Up until that point the SRT had full access to the various technical studies of the review. Different stakeholders had varying degrees of access. However, upon the request by the Department of State, all technical results were only accessible by the US Entity agencies (including studies different agencies outside the US Entity contributed to). This upset a number of participants. The US Entity tried to mitigate the negative impact of this shift, by requesting person to share the summaries of the “Iteration 3” results with the SRT and at different interest group meetings. Some participants ultimately understood this decision to limit information sharing in order to protect the US negotiating position. Others did not see the value in not releasing the results. They posited that: 1) there are methods to share information while still protecting information from Freedom of Information Act requests and public release

and/or 2) how much does Canada really not already know after jointly operating the Columbia River system with the US for the past 50 years.

Available in timely manner

Outside of the issue of not sharing the technical studies after the summer of 2013, interviewees did not have strong feelings about whether information was made available in a timely manner. The general sentiment was that they would have liked the information sooner than it was provided. However, most also understood that technical analysis takes time and the US Entity and STT did what they could to conduct the various technical studies as quickly as they could.

6.4.5 Inclusivity

In Chapter 2, I define inclusivity as *how interested and effected parties are involved in various stages of the decision making process, both in terms of degree and quality*. In the following subsections, I discuss the survey results and then my analysis of the semi-structured interviews addressing the following aspects of inclusivity: 1) representation, 2) ability to influence, 3) resources to participate, and 4) timing of involvement.

Survey Results

In the survey questions about inclusivity, I asked respondents to share their views of the inclusion of all parties as well as how they or their organization were included in the review process (Table 79). Around half of respondents felt they could influence the policy issues and technical studies in the review (15 out of 28), had enough resources to participate (14 out of 28), and were given fair notice (14 out of 28) and early opportunity (14 out of 27) to be involved in the review. Slightly more than two-thirds of respondents

(20 out of 28) felt that interested and affected parties had a venue for participating in the Treaty review. However, when asked if parties were adequately represented, the number of participants who agreed was cut in half. Eleven (out of 28) participants agreed they were adequately represented in the review and nine disagreed (six were neutral). To investigate this split, I separated the sovereign and stakeholder responses.

Table 79. US CRT 2014/2024 Review inclusivity scores

Category	Mean	Distribution of Responses			Total
		Disagree	Neutral	Agree	
Interested and affected parties had a venue for participating the Treaty review	3.64	5	3	20	28
Interested and affected parties were adequately represented in the Treaty review	3.04	8	11	9	28
You (or your organization) were adequately represented in the Treaty review	3.21	9	6	11	26
You (or your organization) had the ability to influence the Treaty review <i>on policy issues</i>	3.36	7	6	15	28
You (or your organization) had the ability to influence the Treaty review's <i>technical studies</i>	3.25	9	4	15	28
You (or your organization) had the resources needed to participate (e.g., money, personnel)	3.14	10	4	14	28
You (or your organization) were given the opportunity for early involvement	3.18	9	5	14	28
Your (or your organization) were given fair notice and time to be involved in the Treaty review	3.41	7	6	14	27

This table presents the mean scores and response counts for ALL survey participants in the US CRT 2014/2024 Review on the topic of inclusivity. Survey participants marked whether they strongly disagreed (assigned value = 1), disagreed (assigned value = 2), were neutral (assigned value = 3), agreed (assigned value = 4), or strongly agreed (assigned value = 5) with each statement. I averaged the responses to calculate a mean score. A higher mean score indicates higher overall agreement with the statement. I compiled the “strongly disagreed” and “disagreed” as well as the “strongly agreed” and “agreed” counts instead of reporting them separately.

Once again there was a clear dichotomy between sovereign and stakeholder responses (Table 80 and Table 81). An example of the difference in scores is seen in how the mean sovereign score for the statement “You (or your organization) were adequately represented in the Treaty review” (3.77, Table 80) is a full point higher than the stakeholder mean score (2.58, Table 81). Only two stakeholders (out of 12) agreed that

they were adequately represented in the review process (3 were neutral and one did not respond) (Table 81). Views of whether each stakeholder had the ability to influence policy issues and technical issues discussed during the review varied, as did views on whether the stakeholder participants thought they were given fair notice and the opportunity for early involvement in the process (Table 81). The only areas where a majority of sovereigns did not score the review favorably was in terms of having the resources needed to participate in the US CRT 2014/2024 Review and whether they thought interested and affected parties on the whole were adequately represented in the review (Table 80). I next examine the interview comments about inclusivity to further examine what about the process worked well and what could have been improved.

Table 80. US CRT 2014/2024 Review sovereign inclusivity scores

Category	Mean	Distribution of Responses			Total
		Disagree	Neutral	Agree	
Interested and affected parties had a venue for participating the Treaty review	3.53	3	1	11	15
Interested and affected parties were adequately represented in the Treaty review	3.20	4	5	6	15
You (or your organization) were adequately represented in the Treaty review	3.77	3	3	9	15
You (or your organization) had the ability to influence the Treaty review <i>on policy issues</i>	3.60	3	4	9	16
You (or your organization) had the ability to influence the Treaty review's <i>technical studies</i>	3.73	2	4	10	16
You (or your organization) had the resources needed to participate (e.g., money, personnel)	3.13	6	2	7	15
You (or your organization) were given the opportunity for early involvement	3.53	4	2	10	16
Your (or your organization) were given fair notice and time to be involved in the Treaty review	3.79	3	2	10	15

This table presents the mean scores and response counts for SOVEREIGN participants in the US CRT 2014/2024 Review on the topic of inclusivity. Survey participants marked whether they strongly disagreed (assigned value = 1), disagreed (assigned value = 2), were neutral (assigned value = 3), agreed (assigned value = 4), or strongly agreed (assigned value = 5) with each statement. I averaged the responses to calculate a mean score. A higher mean score indicates higher overall agreement with the statement. I compiled the “strongly disagreed” and “disagreed” as well as the “strongly agreed” and “agreed” counts instead of reporting them separately.

Table 81. US CRT 2014/2024 Review stakeholder inclusivity scores

Category	Mean	Distribution of Responses			Total
		Disagree	Neutral	Agree	
Interested and affected parties had a venue for participating the Treaty review	3.77	2	2	9	13
Interested and affected parties were adequately represented in the Treaty review	2.85	4	6	3	13
You (or your organization) were adequately represented in the Treaty review	2.58	7	3	2	12
You (or your organization) had the ability to influence the Treaty review <i>on policy issues</i>	3.08	5	2	6	13
You (or your organization) had the ability to influence the Treaty review's <i>technical studies</i>	2.69	8	0	5	13
You (or your organization) had the resources needed to participate (e.g., money, personnel)	3.15	4	2	7	13
You (or your organization) were given the opportunity for early involvement	2.77	6	3	4	13
Your (or your organization) were given fair notice and time to be involved in the Treaty review	3.00	5	4	4	13

This table presents the mean scores and response counts for STAKEHOLDER survey participants in the US CRT 2014/2024 Review on the topic of inclusivity. Survey participants marked whether they strongly disagreed (assigned value = 1), disagreed (assigned value = 2), were neutral (assigned value = 3), agreed (assigned value = 4), or strongly agreed (assigned value = 5) with each statement. I averaged the responses to calculate a mean score. A higher mean score indicates higher overall agreement with the statement. I compiled the “strongly disagreed” and “disagreed” as well as the “strongly agreed” and “agreed” counts instead of reporting them in separate columns.

Representation in the US CRT 2014/2024 Review

The most criticized aspect of the US CRT 2014/2024 Review was how the US Entity structured the representation of different groups in the process. The comments follow three tracks: 1) the sovereign-stakeholder dichotomy, 2) representation on the SRT by the numbers, and 3) exclusion of the Confederated Tribes of the Grand Ronde from the SRT.

In regards to the first point, you may remember that stakeholder and sovereign engagement occurred on two parallel tracks. Sovereign engagement through the Sovereign Participation Process (government-to-government meetings, the SRT, and the STT) was much more extensive and consistent compared to stakeholder engagement

(public meetings and one-on-one meetings with stakeholder groups). All stakeholders objected to the fact that stakeholders were excluded from the SRT and not allowed to attend/observe the closed door SRT meetings. Some sovereigns shared this criticism and also wished various stakeholder groups had greater access to the US CRT 2014/2024 Review Team process. The tribes liked the separation of the two groups as it recognized their sovereign status. They felt that co-managers of the natural resources in the basin, such as themselves, are not stakeholders and therefore should be afforded different access and influence in the process. A few other sovereigns also agreed with how the representation was set up in the US CRT 2014/2024.

Even though stakeholders and some sovereigns felt there should be greater representation both acknowledged the challenge of including so many people in the room. SRT members talked about how the size of the SRT was already on the verge of being too large and unmanageable. One state SRT member shared:

I agree with what they did which was to set up the SRT just as representatives to sovereigns. Not stakeholders. If we had it to do over again I would do the same thing. Even at that level it was extremely difficult for the US to get to a recommendation. If we had had the other stakeholders in there there's no way that I can possibly see that we would have gotten to a recommendation. It would have never happened. The whole thing would have just imploded, I think. It almost did just with sovereigns. - State SRT Member

Therefore, these interviewees recommended developing a process that included sovereigns and stakeholders together in a way that kept the number of people at the table manageable. However, they did not have any specific ideas of how to accomplish that goal.

Another critique of how representation was structured in the review was in the make-up of the SRT. It consisted of the two US Entity agencies, nine other federal agencies, five tribal representatives for fifteen tribes, and four representatives for the states of Oregon, Washington, Idaho, and Montana. Some felt different groups (e.g., federal agencies and the tribes) were over-represented in terms of numbers of people on the SRT. Others wondered if a single representative from a state could adequately represent all of that state's interests.

The third criticism of representation in the process focuses on the Confederated Tribes of the Grand Ronde (CTGR). The CTRG was not given a seat on the SRT or STT and consulted with the US Entity separately. Starting in 2012 (a year and a half after the start of the Treaty review process) the CTRG had its own series of government-to-government meetings with the US Entity as well as staff level meetings to share technical information. I heard two explanations of why the CTGR was excluded from the SRT. The first narrative is that the fifteen tribes of the Tribal Caucus were part of the SRT because they have management, authorities and responsibilities affected by the implementation of the Columbia River Treaty. Since the CTGR does not it should not (and therefore did not) get the same seat at the table. The second explanation is that the CTRG was excluded because of tribal politics and antagonistic relationships between the CTGR and other tribes. In this narrative the Tribal Caucus said it would walk away from the US CRT 2014/2024 Review if the CTGR was included on the SRT/STT.

In addition to these critiques, interviewees did note some positive aspects of representation. A majority of sovereigns liked the set-up of having the STT as a technical working group to do the work tasked to it by the SRT. Several SRT members noted that

they liked being able to consult with their STT member to gain a better understanding of the technical information in the US CRT 2014/2024 Review. Several people also shared that they thought the two public comment opportunities on the draft versions of the Regional Recommendation were a positive effort.

A final theme related to representation and the US Treaty review was how not having a seat at the SRT/STT did not automatically mean a group lacked influence and was not represented in the final US Regional Recommendation. I talk about influence in the next subsection.

Ability to influence policy and technical issues

All interviewees reported that they had some ability to influence the US Regional Recommendation and technical studies. That influence came at different times and through different means depending on whether they were a sovereign or stakeholder (Table 82). Sovereigns were able to influence the process through their direct access via the Sovereign Review Team and Sovereign Technical Team. Stakeholders influence was related to their political power in the basin and access to the US Entity.

Table 82. Sources of ability to influence policy issues and technical studies

Type of Involvement	Source of ability to influence
Sovereigns	<ul style="list-style-type: none"> • Seat on SRT and STT • Coalitions with SRT
Stakeholders	<ul style="list-style-type: none"> • Political power (e.g., influence via PNW Congressional Delegation) • Access to US Entity

Table 82 reports the different sources of influence on policy issues and technical studies noted by different interview participants about themselves and others involved in the US CRT 2014/2024 Review.

The SPP was designed so that the SRT would provide direction to the STT on what technical studies to conduct. Through this approach, all members of the SRT had some influence over the technical studies. For example, tribes and allies were able to

successfully advocate for the inclusion of additional scenarios that included a more natural hydrograph. The US CRT 2014/2024 also used two different models, COMPASS and CSS, to examine impacts of different flows on salmon because different groups prefer different models. However, as the leader of the review and funding source for the technical work, the US Entity had greater influence in determining what would be studied. SRT members were appreciative of their ability to help shape the technical studies. However, they were also frustrated that the US Entity did not conduct all the studies requested (e.g., the flood risk management studies previously discussed in “information quality”).

Resources to participate

Having the resources to participate in a process is a tricky component of the Water GPA. Resources are critical to ensuring that the appropriate parties can participate in a decision making process. However, it is often something the process lead has little control over. Funding and staff are often dictated by an external group, in this case, by Congress and congressional funding. In addition, interested and affected parties may have limited resources which influences their ability to participate in a decision making process.

Several stakeholders and some sovereigns noted that they did not have the funding, time, or staff to engage the US CRT 2014/2024 Review as much as they would have liked. Some attributed this to the difficulty in conveying the importance of investing the time and money to the US CRT 2014/2024 Review to their funding sources.

A few interviewees, namely the lead agencies and utilities, shared that they did have the resources to participate in the process. They expressed that the access to

resources allowed them to fully engage in the process, exert influence on the US Regional Recommendation, and dramatically improve the technical capabilities in the basin through new models and studies.

Fair notice and time for early involvement

A dichotomy emerged in the timing of different review participant's involvement in the US Treaty review. The US Entity engaged all sovereigns early in the process. Some of those sovereigns remained engaged from the first meeting through the delivery of the Regional Recommendation. However, with stakeholders some participated early while others became aware of the Treaty review much later. Understanding that federal agencies do not have time to stay up to date on who are all the basin stakeholders, one stakeholder offered a suggestion of how to identify stakeholders in a basin as large as the Columbia in order to reach out early and alert those groups about the process. For future processes, including future work on the CRT, s/he recommended federal agencies reach out to the PNW Congressional Delegation as representative's staffs likely know what relevant groups are active in their districts.

6.4.6 Context

I define context as *the various conditions of the basin and socio-ecological system under which the decision is being made*. I did not include measures of context in the survey. I chose to do this because I did not find a framework that offered a standardized set of metrics for evaluating context (as opposed to documenting context). I explain my decision in greater detail in Chapter 2. To catalogue what aspects of context influenced the US CRT 2014/2024 Review process and the US Regional Recommendation, I asked interviewees to share examples of the ecological/biophysical, legal/political,

social/cultural context or other pre-existing conditions or issues that influenced the review. This allowed me to identify place specific factors that influenced the US CRT 2014/2024 Review. I coded the interview transcripts (both the responses to that interview question as well as the whole transcript as interviewees often brought up context at a variety of points during the interview) with the secondary code ecological/biophysical, legal/political, social/cultural, and other using the Water GPA framework. Since there were a larger number of quotes within the “legal/political” and “social/cultural” codes, I then inductively coded a tertiary level within each of them to better identify themes.

Participants cited legal and political factors the most frequently when asked what aspects of the context influenced the review process and the Regional Recommendation (Table 83). They shared how some laws set up the structure of the US CRT 2014/2024, specifically the US Entity as the lead agency and the parallel sovereign and stakeholder engagement processes. Participants also noted that the structures of previous processes, such as the Fish Accords process, as well as the (typically antagonistic) relationships between the various parties also set the stage and tone of the US CRT 2014/2024 Review.

Table 83. Important aspects of the basin context for the US CRT 2014/204 Review

Code	Example(s)
<i>Ecological/biophysical context</i>	Flooding potential in basin, location of federal agencies and review meetings, size of basin
<i>Legal/political context</i>	
Federal laws	Endangered Species Act, Northwest Power Act, Federal Advisory Committee Act, Executive Order 13175 (Coordination and Consultation with Indian Tribal Governments), Executive Order 11177 (sets US Entity), Water Resources Reform and Development Act
US-Tribal Relations	Exclusion of Tribes from original Treaty negotiations
Power dynamics	Political power of power utilities; increased power of Tribes
Previous processes	Fish Accords, Federal Columbia River Power System Biological Opinion, prior Tribal consultation efforts
Prior relationships	Professional relationships from working in basin on processes listed above, relationships between tribes
<i>Social/cultural context</i>	
Beliefs and values	Increase in environmental values since 1960s
Institutional culture	Corps and BPA agency cultures
Economics	Economic importance of cheaper hydropower and flood protection
<i>Problem/Task Type</i>	
Different goals	Difference in views of what is a "Treaty issue," difference in views about what about the Treaty is outdated

Table 83 summarizes the different aspect of the basin context interviewees shared as important to the development and implementation of the US CRT 2014/2024 Review.

In terms of the social and cultural context, interviewees credited a shift in values, namely an increase in environmental values in the region since the ratification of the Treaty in 1964, as the reason for so many conversations about adding ecosystem-based function as a third primary function of the Treaty. An increase in the recognition and political power of the Tribes also promoted the inclusion of environmental values in the review and Regional Recommendation. Some participants also felt that the institutional cultures of the two US Entity agencies influenced the process. They shared that both agencies are accustomed to operating in their respective spheres (hydropower and flood

risk management) and brought those biases to the process. A third theme in this area was the economic importance of hydropower and flood risk management to the region. US Treaty review participants talked about how the Treaty promoted development of the region in terms of building in the floodplain and attracting businesses and people looking for cheap power sources.

Participants noted fewer aspects of the biological/ecological system playing a role in the US Treaty review. However, a few participants talked about how the Vanport flood of 1948 and the continued potential for flooding in the basin was always in the back of several participants' minds. The basin's large geographic area proved to be a challenge for the review in a couple of different ways. It was hard to engage the public and various parties when they were distributed over thousands of square miles. The size of the basin also made it difficult for various SRT and STT members to attend and participate in meetings due to the cost and time associated with travel. The US CRT 2014/2024 Review tried to overcome this problem by rotating the SRT and public meeting locations around the basin. However, with a large concentration of federal agencies in Portland, a larger percentage of the meetings were held there.

6.4.7 Other Aspects of the Process

In addition to evaluating the US CRT 2014/2024 Review process through the Water GPA, I looked for emergent themes in the interviews. I noticed three themes in my inductive coding. First, several interviewees commented on the role of personality in the review. Several participants mentioned two people who were difficult to work with and/or had what the interviewee felt was undue influence on the process. These participants shared that, at times, these personalities made it harder for the region to come

to consensus. For example, some interviewees pointed out comments made by these personalities that they felt were disingenuous, misleading, or full of hubris. Other interviewees noted that decisions made by these individuals prevented parties from coming together to work out their issues and better understand one another.

A second emergent theme focused on the facilitation of the SRT process. Most of the SRT members I interviewed, felt the SRT meetings could have been better facilitated. The concerns with the facilitation focused on two issues, 1) the facilitator's technical and social understanding of the basin and 2) neutrality. A facilitator was brought in from outside of the basin because the US Entity believed it would allow the facilitator to be more of a neutral actor since s/he would not have any pre-conceived notions from some of the previous contentious processes in the basin. However, several SRT members noted that facilitator seemed to favor and defer to the US Entity because the US Entity paid for facilitator. This hurt the facilitator's credibility as a neutral player in the process. Interviewees also noted that the facilitator did not have the technical background to facilitate a process that included a large amount of very complex technical information. SRT members noted that this issue was addressed when the US Entity brought in another facilitator with a technical background and deeper understanding of the basin's history and dynamics to co-facilitate the process.

A final emergent code centered on the relationship with and role of BC in the US process. Some participants were disappointed with the lack of transboundary collaboration with the Canadians and shared a desire to engage the BC portion of the basin. US CRT 2014/2024 Review participants commented that while they understood the reasons for the two countries working separately after the Phase 1 technical studies,

they wanted to know more about Canada's positions and values. Other participants discussed the relative negotiation strength of the US compared to Canada and the potential for future negotiations.

6.4.8 Decision (US Regional Recommendation)

With an understanding of what about the process worked well and what could have been improved, I next talk about participant's views of the Regional Recommendation.

Survey Results

Survey responses on the questions related to the US Regional Recommendation were largely positive (Table 84). A large majority of survey participants (22 out of 26) agreed that the US Regional Recommendation adequately addressed the central task of determining whether the CRT should be continued, modified, or terminated. Three-quarters of respondents also felt the US Recommendation was legitimate and reflected the views of the US Pacific Northwest. However, only half felt that the US Regional Recommendation reflected their views, while three (of 25) disagreed and 9 (of 25) respondents were neutral. Participants' confidence that the terms of the Recommendation will be adopted by the US varied with 11 of 27 agreeing, 5 of 27 disagreeing, or 11 of 27 remaining neutral that the Recommendation will be effective.

Table 84. US CRT 2014/2024 Review decision scores

Category	Mean	Distribution of Responses			Total
		Disagree	Neutral	Agree	
The recommendation adequately addressed the review's central task (i.e., determine if the Treaty should be continued, modified, or terminated)	4.02	0	4	22	26
The recommendation is legitimate	3.96	0	6	20	26
The recommendation will be effective (i.e., the terms of recommendation will be accepted by the US)	3.30	5	11	11	27
The recommendation reflects the views of the region (US Pacific Northwest)	3.74	3	3	19	25
The recommendation reflects your (or your organization's) views	3.33	5	9	13	27

Table 84 presents the mean scores and response counts for ALL survey participants in the US CRT 2014/2024 Review on the US Regional Recommendation. Survey participants marked whether they strongly disagreed (assigned value = 1), disagreed (assigned value = 2), were neutral (assigned value = 3), agreed (assigned value = 4), or strongly agreed (assigned value = 5) with each statement. I averaged the responses to calculate a mean score. A higher mean score indicates higher overall agreement with the statement. I compiled the "strongly disagreed" and "disagreed" as well as the "strongly agreed" and "agreed" counts instead of reporting them in separate columns.

When I split the sovereign scores from the stakeholder scores, I found that most (but not all) of the negative and neutral views were from stakeholders (Table 85 and Table 86). The clearest difference in the two groups of responses is on the topic of whether the US Regional Recommendation reflects the participant's views. Nine of 15 sovereigns agreed (two disagreed and four were neutral) while once again stakeholder responses were evenly split with 4 (of 13) agreeing, 4 disagreeing and five reporting neutral feelings.

Table 85. US CRT 2014/2024 Review sovereign decision scores

Category	Mean	Distribution of Responses			Total
		Disagree	Neutral	Agree	
The recommendation adequately addressed the review's central task (i.e., determine if the Treaty should be continued, modified, or terminated)	4.14	0	1	13	14
The recommendation is legitimate	4.23	0	1	12	13
The recommendation will be effective (i.e., the terms of recommendation will be accepted by the US)	3.43	2	5	7	14
The recommendation reflects the views of the region (US Pacific Northwest)	4.00	2	0	12	14
The recommendation reflects your (or your organization's) views	3.64	2	4	9	15

Table 85 presents the mean scores and response counts for SOVEREIGN survey participants in the US CRT 2014/2024 Review on the US Regional Recommendation. Survey participants marked whether they strongly disagreed (assigned value = 1), disagreed (assigned value = 2), were neutral (assigned value = 3), agreed (assigned value = 4), or strongly agreed (assigned value = 5) with each statement. I averaged the responses to calculate a mean score. A higher mean score indicates higher overall agreement with the statement. I compiled the "strongly disagreed" and "disagreed" as well as the "strongly agreed" and "agreed" counts instead of reporting them in separate columns.

Table 86. US CRT 2014/2024 Review stakeholder decision scores

Category	Mean	Distribution of Responses			Total
		Disagree	Neutral	Agree	
The recommendation adequately addressed the review's central task (i.e., determine if the Treaty should be continued, modified, or terminated)	3.88	0	3	9	12
The recommendation is legitimate	3.69	0	5	8	13
The recommendation will be effective (i.e., the terms of recommendation will be accepted by the US)	3.15	3	6	4	13
The recommendation reflects the views of the region (US Pacific Northwest)	3.46	1	3	7	11
The recommendation reflects your (or your organization's) views	3.00	4	5	4	13

Table 86 presents the mean scores and response counts for STAKEHOLDER survey participants in the US CRT 2014/2024 Review on the US Regional Recommendation. Survey participants marked whether they strongly disagreed (assigned value = 1), disagreed (assigned value = 2), were neutral (assigned value = 3), agreed (assigned value = 4), or strongly agreed (assigned value = 5) with each statement. I averaged the responses to calculate a mean score. A higher mean score indicates higher overall agreement with the statement. I compiled the "strongly disagreed" and "disagreed" as well as the "strongly agreed" and "agreed" counts instead of reporting them in separate columns.

Interview results

What participants shared in their interviews reflected the same patterns as the survey. In their conversations about the US Regional Recommendation sovereigns typically had more positive views of the Regional Recommendation. Stakeholders more frequently expressed frustration that their views were given better attention in the document. A majority of sovereigns and stakeholders felt the US Regional Recommendation did what it needed to do to send the region's views to the US Department of State, though in some ways support for the document is tentative. One hydropower interest said, "We didn't come out and say that we supported the recommendations. We just said that we were not going to oppose the recommendations because of the changes they made [to the document]."

In addition to general comments about the Regional Recommendation reflecting the views of the Pacific Northwest, I found three other themes of why participants were willing to support the Regional Recommendation in the interview transcripts. First, US CRT 2014/2024 Review participants noted that the document reflects the views of the region because it is a document with consensus support. Second, participants felt that they could see some of their views reflected in the document. For example, some participants were appreciative that recommendations for the improvement of ecosystem-based function were included. Finally, a number of participants discussed how the document balances the diverse sets of interests and views in the region and various parts of the text illustrate compromises by competing interests. One sovereign noted:

Everyone including the US Entity, had to compromise a little at the end, and you always wish you didn't have to give this and that away, but, given that, that was what everybody had to do, I think it came out pretty well.
- STT member

In my coding of the US CRT 2014/2024 interviews, I identified negative statements about the US Regional Recommendation. When reviewing these statements, I saw that a number of different interviewees shared the same reasons for not liking parts of the US Regional Recommendation or not feeling it reflected the Pacific Northwest. I categorized these statements into six themes of why participants did not think the Regional Recommendation reflected their views or the views of the Pacific Northwest and why they have mixed feelings about the document (Table 87). The six themes fall into one of three categories: 1) opposition to content, 2) concerns about the level of detail, and 3) apprehension about whether the document presented achievable negotiating goals.

Table 87. Themes of why the US Regional Recommendation does not reflect US CRT 2014/2024 participant or region views

Theme	Description
<i>OPPOSITION TO CONTENT</i>	
Non-Treaty topics included	Did not agree with the inclusion of topics outside of the original Treaty purposes (hydropower generation and flood control).
Overly favors one interest	Some groups' views were overly represented in the document (e.g., hydropower)
Principle 9	Specific objections to Principle 9 of the Recommendation.
<i>CONCERNS ABOUT DETAILS</i>	
Needs more specifics or missing something critical	Hoped for greater detail in the document, particularly on their issue of interest.
Too ambiguous or contradictory	The language of the Regional Recommendation is too ambiguous to know what it really means or the document contradicts itself.
<i>APPREHENSION ABOUT CONTENT</i>	
Skepticism about strength of bargaining positions	All of the "asks" in the Recommendation were not realistic or things that BC would consider accepting in a modernized Treaty.

I found three themes as to why the US Regional Recommendation may not be effective (i.e., accepted by the Department of State as the US negotiating position). First, a few participants noted that there are larger factors at play in the relationship between the US and Canada such as our large trade relationship, allied military actions, and other hot topics such as the Keystone Pipeline. The second theme centers on the fragile nature of the consensus in the region. Different groups felt that others were not supportive of the document or were lobbying for actions that go against the principles of the Regional Recommendation. A third theme was that it is impossible to implement all of what is included in the US Regional Recommendation. One member of the SRT noted:

It is a consensus document in the way that we agreed to all of it. It would be impossible for everything in there to be executed together and for the outcome to be in favor for each of those elements. - SRT member

6.4.9 Byproducts

In the survey, I asked participants to note whether various byproducts emerged, increased, decreased, or experienced no change as a result of the US CRT 2014/2024 Review process (Table 88)¹¹. Two-thirds of survey participants identified several byproducts as new or increased, including communication, coalitions, understanding of other's views and positions, mutual/shared understanding, the quality of relationships, shared information and knowledge, their own and their organization's and the public's education/awareness, an understanding of both the social and ecological systems, human capital, and social capital (Table 88). More than half of the participants also reported that trust in others, technical models, co-produced science, as well as the ability to resolve future disputes either emerged as a result of or increased due to the process. There were

¹¹ In the survey I listed the byproducts alphabetically, but grouped them by general theme in Table 88 to help organize the results.

two byproducts where approximately a third of the participants noted a decrease. Ten participants (out of 27) noted that the level of conflict and hostility in the basin decreased. Ten participants also marked that there was a decrease in the level of trust in the US Entity as a result of the US CRT 2014/2024 Review process. Other byproducts listed by respondents included assurance that action will be taken on the Treaty, a better examination of the economic costs associated with potential Treaty changes, and a recognition of opportunity costs associated with current and future operations under the Treaty.

For three byproducts there was a notable difference in the responses from sovereigns and stakeholders (Table 89). Twelve of fifteen sovereigns noted an increase or emergence of the ability to resolve future disputes compared to three of nine stakeholders. Nine sovereigns noted a decrease in the level of conflict and hostility, whereas only four stakeholders reported a decrease. Fourteen of the fifteen sovereign participants stated that the review process increased their understanding of ecological/biophysical system compared to eight of the thirteen stakeholders.

In the survey, I also asked participants to list up to three byproducts from the process that were most important to them and three byproducts they wished had resulted from the process. The responses demonstrated what participant's felt was most important and what they most wanted varied (Table 90). Relational and knowledge-based byproducts were most frequently cited as the most important byproducts to both stakeholders and sovereigns. The two most mentioned byproducts that participants wished resulted from the process were more transboundary conversations and actions with British Columbia as well as collaboration with other groups.

Table 88. US CRT 2014/2024 Review byproduct counts

	Byproduct	Decreased	No change or don't know	Emerged and/or Increased	No response
RELATIONAL	Communication	0	2	25	1
	Coalitions	0	4	23	1
	Mutual/shared understanding	1	3	23	1
	Understanding of other's views, positions, etc.	0	4	23	1
	Quality of relationships	0	5	22	1
	Trust in others involved	1	9	17	1
	Trust in the lead agency	8	10	8	2
	Level of conflict and hostility	13	10	4	1
KNOWLEDGE-BASED	Shared knowledge and information	1	0	26	1
	Your organization's education/ awareness	0	3	23	2
	Your own education/awareness	0	3	23	2
	Public education/awareness	0	4	22	2
	Understanding of ecological/ biophysical system	0	5	22	1
	Understanding of the social system	0	8	20	0
	Technical models	3	8	17	0
	Co-produced science	2	10	15	1
CAPACITY-BUILDING	Social capital	0	4	23	1
	Human capital	1	6	19	2
	Ability to resolve future disputes	1	11	15	1
	Community capacity for decision making	1	13	13	1
	Innovation	0	16	11	1
	Institutional capacity	1	15	11	1
TANGIBLES	Changes in water management	0	14	13	1
	Programs or initiatives (outside of the decision)	0	14	13	1
	Economic costs	0	17	10	1
	Economic opportunities	0	20	7	1

Table 88 presents the number of survey respondents who noted a decrease, emergence/increase, or no change in different byproducts that can be influenced by a process. Please note: totals may equal more than 28 (the number of survey participants) as some respondents noted that a byproduct both emerged and increased (or increased and decreased)

Table 89. Notable differences in stakeholder and sovereign byproduct responses*

Byproduct	Decreased	No change or don't know	Emerged and/or Increased	No response
<i>Ability to resolve future disputes</i>				
Sovereign	0	2	12	1
Stakeholders	1	9	3	0
<i>Level of conflict and hostility</i>				
Sovereign	9	3	1	1
Stakeholders	4	7	2	0
<i>Understanding of ecological- biophysical system</i>				
Sovereign	0	0	14	1
Stakeholders	0	5	8	0

Table 89 displays the difference in the number of sovereigns and stakeholders who reported changes in three byproducts (ability to resolve future disputes, level of conflict and hostility, and understanding of the ecological-biophysical system). I examined all byproducts for potential differences in reporting; however since different numbers of sovereigns (15 people) and stakeholders (13 people) took the survey, in this table I only note differences that are greater than 4 responses.

The semi-structured interviews provided an opportunity to share examples of the various byproducts of the process (Table 91) and talk in greater detail about why different byproducts were important. While conversations about the process tended to be more critical, interviewees were much more positive in their discussions about byproducts. However, along with his praise for the US CRT 2014/2024, participants also shared suggestions for how to better promote the byproducts. Recommendations included structuring the process differently so that the US Entity agencies only acted as representatives of their constituencies (instead of also having the dual role of process convener), conducting additional studies to improve knowledge, understanding and capacity, and increasing the involvement of stakeholders earlier in the process.

Table 90. Most important byproducts of the US CRT 2014/2024 Review

	Byproduct	Most important byproduct from review	Byproducts they wished resulted from review
RELATIONAL	Coalitions	7	1
	Communication	5	1
	Understanding of other's views, positions, etc.	3	1
	Trust in the lead agency	2	1
	Level of conflict and hostility	1	0
	Trust in others involved	1	3
	Mutual/shared understanding	0	0
	Quality of relationships	0	1
KNOWLEDGE-BASED	Public education/awareness	4	2
	Shared knowledge and information	4	0
	Understanding of the social system	2	3
	Your own education/awareness	2	0
	Understanding of ecological/biophysical system	1	0
	Your organization's education/awareness	1	0
	Co-produced science	0	3
	Technical models	0	0
CAPACITY-BUILDING	Community capacity for environmental/policy decision making	3	2
	Human capital	3	0
	Ability to resolve future disputes	2	1
	Institutional capacity	2	2
	Innovation	1	0
	Social capital	1	0
TANGIBLES	Changes in water management	3	3
	Economic opportunities	3	0
	Economic costs	1	1
	Programs or initiatives (outside of the decision)	0	1
OTHERS	Other (total)	1	10
	Other - Transboundary communication or action	1	4
	Other - Collaboration with others	0	4
	No response	1	3

Table 90 displays what survey respondents reported as the most important byproducts from the U CRT 2014/2024 Review and which byproducts they wished had resulted from the review process.

Table 91. Example byproducts of the US CRT 2014/2024 Review

Byproduct	Example(s)
Communication	Continuing dialogue among tribes
Coalitions	Tribal Caucus, CRT Power Group
Mutual/shared understanding	Tribal Common Views document
Understanding of other's views, positions, etc.	"I gained a deeper understanding of the views and positions of each of the sovereigns and who they represent and what their accountability was."
Quality of relationships	"The STT did a lot to improve relationships"
Shared knowledge & information	Iterations 1, 2 & part of 3 of Treaty review technical studies
Your organization's education/awareness	"We were uneducated. We were ignorant and we no longer are. People in our community, when the Columbia River Treaty is brought up, eyes go up and people know what they're talking about."
Your own education/awareness	"Basically I didn't even know there was treaty."
Public education/awareness	"This process allowed for that education and awareness to occur...they heard [the tribe's message on the CRT] on the radio or read it in an article, so I think it did bring a lot of our message out to the public."
Understanding of ecological/biophysical system	"We really progressed the state of understanding of the Columbia River" and "Everyone is more aware of how the Treaty has operated in water management"
Understanding of the social system	"We came away with a better understanding of what everybody did, what their conditions and objectives were."
Technical models	Hydrologic Engineering Center Watershed Analysis Tool (HEC-WAT)
Co-produced science	Estuary modeling
Ability to resolve future disputes	"I think it increased because it was an educational process. People understand things a little bit more. Also you have this working relationship amongst the parties."
Community capacity for decision making	"it helped decrease our belief that environmental policy is pre-made and that in fact coming together as a community we can help shape a direction"
Innovation	Getting fish above Grand Coulee
Programs or initiatives	UCUT & NPCC fish reintroduction investigation

Table 91 shares examples of different byproducts that survey respondents and interviewees shared in their survey responses and/or interviews. They demonstrate that a number of different outcomes resulted from the US CRT 2014/2024 Review in addition to the US Regional Recommendation.

6.5 Case Study Discussion

In this section, I discuss the results of my analysis of the US CRT 2014/2024 Review process. I first briefly summarize the findings of my application of the Water GPA. Then I present lessons learned and recommendations for future processes and interviewee recommendations. I end this section with a discussion of the caveats and limitations of this case study before concluding the chapter.

6.5.1 Discussion of Water GPA 'score' and implications for governance

The results of the Water GPA analysis reveal a number of areas where the US CRT 2014/2024 reflected good process practices and others where the process needed improvement. It reveals which characteristics of the process (i.e., accountability, inclusivity, and information) promoted or impeded good water governance in the US Treaty review (Table 92). Therefore, it helps address my third research objective: what were barriers and building blocks for good water governance?

Table 92. Summary of Water GPA accountability, information, and inclusivity results

	What worked well	What had mixed results	What needed improvement
Accountability	<ul style="list-style-type: none"> • Transparency within the SPP • DOS as a higher source of accountability 	<ul style="list-style-type: none"> • How well representatives of sovereigns and interest groups represented their constituencies • Guidance from DOS (it was helpful but needed to be offered earlier) 	<ul style="list-style-type: none"> • Defining decision criteria • Transparency with stakeholders • Clearly define sharing of decision authority • Choice of decision process lead • Interpreting and applying laws/regulations such as Executive Order 13175 and what makes a sovereign • Outline of next steps
Inclusivity	<ul style="list-style-type: none"> • Early involvement of sovereigns • Ability to influence policy and technical issues 	<ul style="list-style-type: none"> • Sovereign-stakeholder dichotomy • Resources to participate 	<ul style="list-style-type: none"> • Inclusion of CTGR • Better engagement of stakeholders (both in terms of quality and timing)
Information	<ul style="list-style-type: none"> • Utilizing existing information • Information sharing with sovereigns and select stakeholders (pre-summer 2013) 	<ul style="list-style-type: none"> • Quality and scope of technical work • Sharing audience appropriate information 	<ul style="list-style-type: none"> • Information sharing with sovereigns and stakeholders (post-summer 2013)
Other factors			<ul style="list-style-type: none"> • Facilitation of SRT • Better understanding of Canadian views • Management of strong personalities

Table 92 summarizes what worked well (i.e., was a building block of good water governance) and what did not (i.e., was a barrier to good water governance) in the US CRT 2014/2024 Review.

Accountability

Two themes of what worked well and promoted good water governance were the transparency within the SPP and when the Department of State stepped in and served as a source of accountability for the US Entity as it led the US CRT 2014/2024. They helped direct the development of the US Regional Recommendation as well as keep the region together during the process. However, at the same time the lack of Department of State involvement early in the process meant that the US CRT 2014/2024 Review had to redirect its efforts once DOS finally stepped in.

Another area which both helped and hindered good water governance was how accountable representatives were to their constituents. Some US CRT 2014/2024 Review participants noted that those involved in the review were active liaisons back to their communities. Others noted that they had concerns about whether representatives were accurately representing what happened to their leadership and constituents as well as if representatives for the states could adequately represent the wide array of interests in their states.

The accountability of the process was probably the most heavily criticized characteristic of the US CRT 2014/2024 Review process. Participants were unsure of what the decision criteria were and how much decision authority would ultimately be shared by the US Entity with participants. Without access to the SRT, stakeholders felt they were left in the dark during much of the review and therefore the process was not sufficiently transparent. Some also criticized the decision to not consider public utilities sovereigns. Along similar lines, some tribes felt the US Entity did not fully follow the directives in Executive Order 13175 and fully collaborate with them. While they understood that the US Entity is the expert on the CRT, participants from all groups felt that the US Entity ended up as not being a good choice of process lead. Some were concerned that the US Entity was biased towards hydropower and flood risk management and others felt that the US Entity could not properly represent its constituent interests in its dual role as convener and participant on the SRT and STT. Finally, several participants were frustrated that the Department of State did not outline a clear set of next steps for Phase 3 of the process.

Inclusivity

In terms of inclusivity, the decision to engage sovereigns and stakeholders separately and in different ways was both a strength and weakness of the process. In some ways, the choice was a positive one. For example, it recognized the distinct rights sovereigns have in decision making as compared to sovereigns. It also kept the SRT to a more manageable size. However, the sovereign-stakeholder dichotomy also created a barrier to good water governance. It created an “us vs. them” mentality, where stakeholders felt under-represented and as a result viewed the process and the resulting decision as less legitimate.

Likewise the availability of resources (i.e., money and personnel) was both a barrier to inclusivity and therefore good water governance as well as a building block. Those organizations with access to resources were able to meaningfully engage in the process and produce the technical analysis that helped educate the region and support the US Regional Recommendation. However, not all participants had access to the resources they needed to meaningfully participate in the process.

Other inclusivity-related building blocks for good water governance in the US CRT 2014/2024 Review process include the fact that sovereigns were engaged very early in the process and that various groups were able to influence policy issues and technical studies. Both of these things enabled the US Entity to submit a consensus document to the US Entity.

Commonly cited areas that needed improvement in the US CRT 2014/2024 Review included a better stakeholder engagement process and a better way to include the Confederated Tribes of the Grand Ronde (CTGR). Interviewees were not sure of how to

address these two challenges. In terms of tribal relations and issue of excluding the CTGR from the SPP, the effort the US Entity made to consult separately was a partial solution, though it should have started much earlier than it did. Understanding that sovereigns have special rights and knowing that you need to keep the number of people in a negotiating room to a reasonable number, stakeholder and some sovereign participants mentioned that the US Entity develop a separate stakeholder body (i.e., go through the Federal Advisory Committee Act, or FACA, process¹²) and find a way for the SRT (or analogous body) to interface with the stakeholder body.

Information

The areas where information was a building block of good governance in this decision making process were how the review utilized existing information and the extensive information sharing effort between sovereigns and select stakeholders before the summer of 2013. The most mentioned critique regarding information produced and used in the process was the decision to end information sharing in the summer of 2013 and not release the final technical reports either sovereigns or stakeholders. Participants understood the Department of State and US Entity's justification, but at the same time some wondered if there was some way to share the information and not hurt the US negotiating position. Others wondered how much Canada did not already now.

Participants shared mixed views about the quality and scope of technical work. Some noted that the technical advances and studies completed not only helped prepare the US for negotiations with Canada but also improved the understanding of the CRB and

¹² FACA is a federal statute that outlines how a federal advisory committee should be formed and then operated. FACA guidelines seek to ensure that federal agency decision making is accountable to the public (Bingham, 2009; Cosens, 2010b).

its management. Other participants felt additional or different technical studies should have been completed and thus were not convinced the information produced was as robust as it could or should have been. Interviewees also shared that at times the information shared was overly technical for the audience. That issue decreased over time as presenters got better and communicating with non-technical audiences, participants learned more about the system, and STT members helped SRT members digest the materials.

Context

In the Water GPA, I advocate that water managers and those developing a decision making process, take an inventory of the context and then identify what about the context is a barrier and what may be a leverage point (Table 93). I will now examine how well the US Entity worked to overcome the challenges and capitalize opportunities presented by the context.

Table 93. Water GPA examination of context in US CRT 2014/2024 Review

	Potential Barrier	Potential Leverage Point
Inclusivity	<ul style="list-style-type: none"> • Large geographic extent to cover • Large number of relevant stakeholders • Political relationship among tribes, especially the CTGR • Existing professional relationships • Different goals among interested and affected parties • FACA rules 	<ul style="list-style-type: none"> • Existing coalitions • Existing professional relationships
Information	<ul style="list-style-type: none"> • Concerns about data validity • Disputes over what models to use 	<ul style="list-style-type: none"> • Information collected and studies conducted by various parties • Existing models
Accountability	<ul style="list-style-type: none"> • Limited authority of lead organization and its ability to share that authority • Lack of trust in lead organization • Differences in opinion about problem/task and/or goal definition 	<ul style="list-style-type: none"> • Collective authority of parties involved • Department of State's oversight role

Table 93 lists different aspects of the US CRT 2014/2024 context and how they might pose a challenge or barrier to or leverage point for good water governance in each of the three other process categories (inclusivity, information, and accountability).

The US Entity tried to address a number of the potential barriers to a good process, with varying degrees of success. To address the challenge of a large geographic area, the hosted public meetings around the basin, tried to rotate the SRT meetings, and offered webinar options at all meetings. Their efforts had moderate success as some meetings were held around the basin, but most were in Portland and less accessible to certain groups. The US Entity addressed concerns about data validity by engaging different sovereigns in the scoping and completion of technical studies. The more transparent they were the more different groups accepted the information produced. When groups preferred different models to answer the same question, the US Entity sometimes used both models. A final area where the US Entity had some success in addressing a challenge was tackling the problem of different groups' views of what should be considered in the Treaty review decision. That is not to say they and other groups were in complete agreement. Rather, the US Entity was able to keep the region together through the inclusion of additional domestic issues in the US Regional Recommendation (and with some help from the Department of State in the form of pressure to have regional consensus).

The US Entity was less successful in overcoming other barriers. For example, the US Entity's successfully avoided going through the FACA process to set up an advisory committee with stakeholders; however, this actually ended up being a detriment to the process as stakeholders felt excluded from the process and put up a fight as the US Regional Recommendation was developed. Also unsuccessful, were the US Entity's attempts to contact the Department of State to clarify what product it wanted. The Department of State was not responsive until late in the process.

The US Entity also attempted to leverage other aspects of the context that presented opportunities for good water governance. It utilized existing studies and models in its technical work. It took advantage of the Tribal Caucus in the creation of the SPP and in determining representation on the SRT and STT.

There were also topics that the US Entity did not attempt to address. For example, it did not explore ways to bring the CTGR into the SRT, but rather asked the CTGR to reach out to a tribe in the Tribal Caucus to see if it would be possible. Likewise it did not view its limited authority in the CRT Review as an issue or try to address it. Instead, it referenced those limitations as reasons to limit the scope of its technical studies to the frustration of other groups who wanted additional studies like the flood risk management review. Therefore, depending on your perspective you might see this as an inadequacy of the process or something that simply could not be addressed.

Other factors

Finally, a few factors of the process outside of degree of accountability, quality of inclusivity, and robustness of information also emerged as important in the US CRT 2014/2024 Review. Unfortunately, poor facilitation of the SRT and strong personalities were a barrier to good water governance. Participants also felt that the US Treaty review could also have done a better job in exposing participants to Canadian views of the Treaty and its future in order to promote transboundary understanding.

6.5.2 Lessons Learned

Based on what the participants identified as working well and what needed improvement in the US CRT 2014/2024 Review process, I identified several lessons learned for future decision making processes in this basin or similar basins facing similar

challenges (Table 94). This addresses my third research question: what are lessons learned for good water governance? These lessons are most applicable to the US portion of the Columbia River Basin, but may also have applicability in similar basins. I discuss the lessons in no particular order.

Table 94. US CRT 2014/2024 Review lessons learned for future processes

Recommendations and Lessons Learned
Identify a neutral convener to lead the process
Develop a way for sovereigns and stakeholders to both participate in the process and engage each other, while respecting sovereignty
Sometimes it may be worth the administrative effort to develop a more inclusive process
Consider a tiered approach for engagement in larger scale processes
Clearly specify how decision authority will be shared (ideally a collaborative process)
Develop an understanding of either 1) what you want the end product to look like or 2) criteria for a successful decision and stick with them as much as possible
Find a way to re-evaluate and incorporate new decision criteria if new information comes available
Identify ways to equitably allocate resources

Table 94 lists the lessons learned during the US CRT 2014/2024 Review for future water governance decision making processes in the basin or in similar basins.

The first lesson is to **identify a neutral convener to lead the process**. In general, participants felt that the US Entity may not have been the best choice to lead the US CRT 2014/2024 Review. Different interviewees felt the US Entity was not neutral and others felt it was too neutral and could not advocate on behalf of the interests it normally represents. Many participants recommended identifying a neutral convener to lead future processes, but could not identify who that might be in the CRB on Treaty-related issues. A couple of people suggested the Department of State for this particular issue. Often there is not much choice in who leads a process as that leadership may be decided by that organization has the authority to make the decision. If an agency not considered neutral

must lead the process because it is the agency with the authority to make a particular decision a basin could consider two alternatives. First, consider identifying someone from the agency to act as the neutral lead and someone else to represent the agency's interests (i.e., separate out the convener and participant roles). Alternatively, identify a co-convener to reduce concerns about bias. In some ways having both the Corps and BPA lead the process helped address some concerns (though it also had its challenges).

A second recommendation from process participants is to **develop a way for sovereigns and stakeholders to both participate in the process and engage each other, while respecting sovereignty**. In the US CRT 2014/2024 Review, sovereigns appreciated the recognition of their unique status and rights that differentiate them from stakeholders. Respecting sovereignty is important for good governance. However, stakeholders are also important interested and affected parties that should be meaningfully engaged in a decision making process. Meaningful engagement of stakeholders involves appropriate representation of those groups so they can access information in the decision process, contribute their views to the process, and work with sovereigns in order to work through and address different positions. Two ways to do this are 1) setting up a separate stakeholder body analogous to the SRT (and providing opportunities for the groups to interface) or 2) forming one body consisting of stakeholders and sovereigns and negotiating what sovereign or stakeholder status means for participation and authority in that group. One participant recommended:

I think that if the U.S. Entity is looking for something like an advisory group that can inform it's negotiations with Canada, I think you're going to have to boil it down, you're going to have to get someone from Power, someone from the Tribes, someone from everything else to sort of, if not in the room, at least sitting in the conference room next to the room

providing feedback, and an opportunity to caucus with whoever the U.S. Entity is at that point in time. In some fashion, provide them the type of advice that would allow them to negotiate successfully. - Hydropower interest

Understanding that it is important to engage stakeholders and sovereigns, **sometimes it may be worth the administrative effort to develop a more inclusive process.** Going through administrative processes (e.g., following the FACA to set up an advisory committee, completing background checks and setting up non-disclosure agreements to protect documents from a FOIA request, etc.) is likely to be time consuming early in the process. However, it may end up saving time and energy later in the process as well as avoid the possibility of those who were excluded to derail the process or decision. For the US CRT 2014/2024 Review, finding a way to engage stakeholders may have prevented the push back the US Entity experienced from various stakeholder groups when it released the Working Draft of the US Regional Recommendation.

Fourth, **in larger scale processes consider a tiered approach for engagement.**

For example, empower representatives in groups like the SRT to go out to and engage other parties including their constituencies. One irrigation stakeholder recommended:

Something I think would be helpful would maybe to be sharing a bit of the information sharing aspect with the different state agencies and have them go back to their stakeholders. They would know who they need to talk to and go, "Here's the thing you should really care about. We want your input," and then feed it up instead of being all have to, "Go to the Corps meetings." - Irrigation stakeholder

This approach may have a number of positive benefits. For example, it will likely reduce the burden on the process lead to outreach to all groups. In addition, state and local elected officials and agencies may have a better understanding of who are the interests in

their jurisdiction and therefore are better able to ensure those interests are informed and have an opportunity to give input than a federal agency may be. Finally, by explicitly listing outreach as a duty of different representatives you begin to hold those representatives accountable for what goes on in the room and what decision is made as they are now, in part, responsible for bringing the basin along with the group as they make a decision. This of course requires resources and so the process lead and representatives need to determine how to obtain and allocate resources for the task.

Next, **clearly specify how decision authority will be shared.** In the US CRT 2014/2024 Review some interviewees were not sure who was making the recommendation to the US Department of State. Others knew the US Entity retained the authority to make its recommendation but they did not understand how input from sovereigns and stakeholders would be incorporated into the document. Participants in this review wanted a collaborative process where everyone had a say in the decision.

A related, sixth lesson is to **develop an understanding of either 1) what you want the end product to look like or 2) criteria for a successful decision and stick with them as much as possible.** The US Entity and SRT tried to develop a framework for the end product with their 5-50-500 model. However, the decision criteria were not as clearly defined. In the end, regional consensus served as the de facto criteria for a successful recommendation. In future processes, those with oversight and/or those receiving the end product should clarify what they want or do not want early in the process.

Seventh, **if (or more likely when) new information comes available find a way to re-evaluate and incorporate new decision criteria.** In some ways, the US CRT

2014/2024 navigated the process of adapting to new information fairly well. The US Entity and PNW were able to depart from their original 5-50-500 model as well as come to terms with the fact that the final technical reports would not be released. At the same time, even after the Department of State clarified that it wanted a high-level policy document supported by the entire region and the US Entity redirected its efforts, it was still not clear what regional consensus looked like.

Finally, when possible **find ways to equitably allocate resources**. In water governance decision making process, different groups come to the table with different resources available to them. Access to funding and staff resources will dictate how much they can engage in a process, making resource access an issue of inclusivity (i.e., representation and ability to influence), accountability (i.e., procedural justice), and information (i.e., information sharing). In different situations, resource availability will be an aspect of the context that serves as a barrier or building block to good water governance. In order to explore ways to equitably allocating resources, agencies may need to involve the legislative branch in order to navigate or remove potential restrictions attached to funding. Specific recommendations related to the next phase and potential Treaty negotiations include distributing technical study funding to different topics (e.g., hydropower, flood risk management, ecosystem function, navigation, water supply, etc.) either in equal portions or in a more equitable manner.

I do not mean to suggest that any of these lessons and recommendations are easily accomplished. Each includes its own challenges (Table 95). For example, many are often resource intensive in a time of budget and staff reductions. Several of the recommendations involve making tough or controversial decisions.

Table 95. Potential challenges to following lessons learned

Lesson Learned/Recommendation	Challenges
Identify a neutral convener to lead the process	<ul style="list-style-type: none"> • No neutral entity may exist in the basin • A non-neutral entity is the one with the authority to run the process
Develop a way for sovereigns and stakeholders to both participate in the process and engage each other, while respecting sovereignty	<ul style="list-style-type: none"> • Basins with large numbers of sovereigns and stakeholders make it difficult to form a body with a manageable number of people • Figuring out how to distinguish between sovereign and stakeholder roles could be controversial
Sometimes it may be worth the administrative effort to develop a more inclusive process	<ul style="list-style-type: none"> • Doing this will be time intensive and may delay the start of the process • There may not be enough time
Consider a tiered approach for engagement in larger scale processes	<ul style="list-style-type: none"> • Requires all representatives to commit to this responsibility • Requires process lead to give up some control of outreach • Representatives need resources to actively engage their constituencies
Clearly specify how decision authority will be shared (ideally a collaborative process)	<ul style="list-style-type: none"> • Even if you are clear on how decision authority is shared groups may not agree with that set up
Develop an understanding of either 1) what you want the end product to look like or 2) criteria for a successful decision and stick with them as much as possible	<ul style="list-style-type: none"> • Can take a lot of time • Once developed it is easy to forget them and not loop back and make sure the decision is in line with the established criteria
Find a way to re-evaluate and incorporate new decision criteria if new information comes available	<ul style="list-style-type: none"> • Requires the process pause and take time to re-evaluate, re-affirm, or update decision criteria
Identify ways to equitably allocate resources	<ul style="list-style-type: none"> • Groups may be legally constrained in how they allocate funds • Need to determine what “equitable” allocation means for the specific process at hand

Table 95 documents some of the potential challenges a process lead may face in incorporating the lessons learned from the US CRT 2014/2024 Review into future water governance decision making processes. I developed this table based on interviewee observations and recommendations as well as my own knowledge of the process and common process challenges.

The analysis of the US CRT 2014/2024 Review byproducts also reveals what those in the basin prioritize as important for the next phases of the Treaty review and other water governance processes. Between two and four interviewees mentioned that they wanted to see more transboundary conversations and actions with British Columbia, increased collaboration with other groups, increased trust in others involved and more co-

produced science. Future processes in the CRB, including Phase 3 and potential negotiations with Canada, might consider pursuing these goals.

6.5.3 Caveats and Limitation

My case study analysis and recommendations include several caveats and limitations. For instance, the number of people surveyed is a distinct limitation of this research. With only 28 surveys statistical analysis is limited to basic statistics. One way to overcome this limitation in future research is to distribute the survey to all participants in the process. A limitation of my interview analysis is that I was the sole coder of the transcripts. To strengthen my findings, I could have other people also code my interview transcripts, check inter-coder reliability, refine my codes, and update my analysis.

Another limitation of this study centers on the fact that I asked participants to self-report their experiences and share their perceptions. While I interviewed most participants within a year of the end of the decision making process, many had moved onto new projects and the Treaty issues had already begun to fade from their memory. Some participants even acknowledged that there were some things about the process they could not remember clearly. There also might be a tendency for participants to focus on and therefore more frequently report negative, rather than positive experiences.

In some instances participants shared conflicting narratives of events or explanations of why something happened during the review. In some ways a variation in views is to be expected as participants engaged in the review in different ways and therefore had different vantage points in the process. To address this issue, I identified a participant's affiliation or their involvement in the Treaty review so that the reader could understand where that participant's view might be coming from (without specifically

identifying whose view I reported and thereby breaking confidentiality). I also used multiple sources in my case studies to draw my conclusions. To verify, or ground-truth, different narratives I decided needed three sources to confirm the narrative. For example, I might use observations from two different people and a document (from a different source than those two people) to verify what happened during the review.

6.6 Chapter Conclusion

In this chapter I presented the second of two case study applications of the Water Governance Process Assessment (Water GPA). Through this case study, focused on Phase 2 of the US CRT 2014/2024 Review, I sought to answer two of my research questions, namely: How can the characteristics identified in the Water GPA be used to evaluate a water governance process, and What are lessons learned for good water governance??

I began the chapter with a description of the US review of the Treaty, referred to as the US CRT 2014/2024 Review. I described how the US Entity led a process which had three major components: a sovereign participation process, stakeholder engagement, and technical studies. After describing the review I provided a narrative description of how the US Entity worked with those in the Pacific Northwest region to develop the US Regional Recommendation in order to submit it to the US Department of State in December 2013.

I then evaluated the US CRT 2014/2024 Review using the Water Governance Process Assessment (Water GPA) as my framework for analysis. I collected data via surveys and semi-structured interviews of process participants as well as document analysis of the US Regional Recommendation. From this analysis I identified a number

of barriers and building blocks to good water governance in this decision making process (Table 92 and Table 93). Lessons learned from the US CRT 2014/2024 Review include: 1) identify a neutral convener to lead the process, 2) develop a way for sovereigns and stakeholders to both participate in the process and engage each other, while respecting sovereignty, 3) sometimes it may be worth the administrative effort to develop a more inclusive process, 4) consider a tiered approach for engagement in larger scale processes, 5) clearly specify how decision authority will be shared, 5) develop an understanding of either a) what you want the end product to look like or b) criteria for a successful decision and stick with them as much as possible, 7) find a way to re-evaluate and incorporate new decision criteria if new information comes available, and 8) identify ways to equitably allocate resources (Table 94).

A common theme throughout this analysis was the differences between the experiences and views of stakeholders and sovereigns. While the SPP had many strengths (e.g., recognizing the unique status of sovereigns) the separate stakeholder engagement was insufficient and the US Entity had to embark on a major outreach initiative in order to develop a consensus document that all parties could agree to. Trying to find a way to engage both sovereigns and stakeholders in a way that respects sovereignty and keeps the committees to a manageable size will be difficult, but will likely improve aspects of accountability (e.g., transparency and lead agency responsiveness), information (e.g., information sharing and quality) and inclusivity (e.g., representation and early involvement). That issue may be the lynchpin for future processes and merits further investigation to see exactly how important it may be for other water governance decisions and what possible solutions may be.

7 Investigating the Link between Process and Outcomes

One goal of this study is to investigate the link between the characteristics of a decision making process and its outcomes. In this chapter, I answer the following research question: what characteristics of a water governance process may contribute to water governance outcomes? My goal is to verify whether or not improving a process will improve the decision being made as well as other outcomes (i.e., byproducts). My hope is that with this information, water managers will be able to better leverage and devote resources to those aspects of a process that will improve their decisions.

To answer my research question I use the Water Governance Process Assessment (Water GPA, presented in Chapter 2) as a framework for my analysis. I start out this chapter by briefly describing my methodology before presenting the results of my analysis for two case studies: United States 2014/2024 Columbia River Treaty Review and the British Columbia CRT Review. I conclude with a discussion of my findings including caveats, limitations of my research, and suggestions for future research.

7.1 Methodology

I examine the link between a decision making process and its outcomes via two case studies.¹³ These case studies serve as empirical examinations of what theory and practice propose to be true: that ‘good’ processes lead to ‘good’ outcomes. I collected data for these case studies using semi-structured interviews. I interviewed 22 participants of the United States 2014/2024 Columbia River Treaty (CRT) Review and 16 participants of the British Columbia CRT Review. In my sampling approach, I interviewed review

¹³ In this section, I provide a brief overview of the methods I used in this portion of my analysis. I provide a more extensive explanation of my methods in Chapter 3.

participants with various backgrounds who were involved in the review in a variety of different ways.¹⁴ During the interviews for the two case studies, the United States 2014/2024 Columbia River Treaty Review and the British Columbia CRT Review, I asked participants if the accountability, information, inclusivity, and context of the review process shaped or influenced the outcomes of the decision making process. I also inquired if any other aspects of the review process or outside factors influenced the decision (in my case studies that would be either the US Regional Recommendation or BC Provincial Decision). I also asked the review participants to identify the three byproducts from the process that were most important to them and then up to three byproducts they wished had resulted from the process (or wished increased more than they did). I then asked them to explain what about the process contributed to, worked against, or would have helped promote positive changes in the byproducts.

Using QSR NVivo software, I manually coded the interview transcripts deductively using the Water GPA; that is I identified all statements where a participant talked about some aspect of the process influencing or not influencing the decision or byproducts. I coded these statements for which aspect of the process the participant was referring to (i.e., accountability, inclusivity, context, and information as well as their secondary codes (see Appendix D for list). Statements that did not fit under any of these four primary codes were coded as “Other.” I then inductively coded the statements in the “Other” code to identifying subthemes that may explain what influenced the two review decisions and their byproducts. This inductive coding process is important for identifying potential rival explanations. I then went through all those coded statements a second time

¹⁴ A breakdown of who I interviewed is available in Chapter 3.

to identify the kind of influence or lack of influence the participant discussed. Table 96 lists these codes for statements related to the decision and Table 97 for byproducts.

Table 96. Additional codes for analysis of link between a process and its decision

Code	Explanation
Influenced content	Some aspect of the process influenced the structure or content of the decision
Increased support	Some aspect of the process <i>increased</i> participant support for the decision
Decreased support	Some aspect of the process <i>decreased</i> participant support for the decision
No influence	The process did not influence the decision in terms of content or support
Other	The process had some other impact on the decision

Table 96 displays the codes I used to document potential links between the characteristics of a process and the decision.

Table 97. Additional codes for analysis of link between a process and its byproducts

Code	Explanation
Increased byproduct	Some aspect of the process promoted the emergence or increase of a byproduct
Worked against byproduct	Some aspect of the process impeded the emergence or increase of a byproduct
No influence	The aspect of the process had no impact on the byproduct
Would have helped	Recommendations or statements about how if the process was run or structured differently, it would have contributed to a byproduct

Table 97 displays the codes I used to document potential links between the characteristics of a process and the process byproducts.

7.2 Analysis: The Influence of the Process on the Decision

Both review processes sought to answer the question “should we terminate, continue with, or modify the Columbia River Treaty?” I consider the answer to this question, the “decision” which the review process may or may not have influenced. Both reviews provided their answer to this question to their respective national governments via a written document. In the US CRT 2014/2024 Review this ‘decision’ was actually a recommendation to the US Department of State. The US CRT 2014/2024 Review refers to this document as the “US Regional Recommendation. The BC CRT Review submitted a provincial level recommendation, which it calls the “BC Provincial Decision,” to

Canada’s Department of Foreign, International Affairs, Trade and Development. In the following subsections, I explain what characteristics of each process influenced the two reviews’ decision documents, starting with the BC CRT Review results.

7.2.1 BC CRT 2014/2024 Review Results

Interviewees noted that all four aspects of the Water GPA influenced the BC Provincial Decision to some degree (Table 98). However, some aspects of the process were more influential than others. As in the US CRT 2014/2024 Review, accountability and inclusivity were most commonly reported as having influenced the content of the BC Provincial Decision or increasing support for the document. However, unlike in the other case study, information had a larger impact on the BC Provincial Decision and its support. I did not see any salient themes of other aspects of the process influencing the decision, just a couple of one-off examples. Next, I examine what aspects of each of the four Water GPA Process categories and other aspects of the process played a role in the outcome of the BC CRT Review.

Table 98. Statements on what influenced the BC Provincial Decision

	Number of Coded References				
	Contributed to BC Provincial Decision			No influence	Decreased support
	Increased support	Influenced content	Other influence		
Accountability	13	2	0	1	3
Context	0	0	4	2	3
Inclusivity	11	10	0	5	0
Information	7	5	3	5	2
Other	0	0	0	1	1

Table 98 displays the number of references noting that the Water GPA process characteristics and an ‘other’ category influenced (i.e., increased support, influenced content, decreased support, or other influence) or had no influence on the BC Provincial Decision.

Accountability

The primary component of accountability that increased the support for the BC Provincial Decision was the responsiveness of the lead ministry. By structuring the

community engagement based on the recommendations of the Local Governments Committee (LGC) and community members, responding to requests for additional information, and following through on other commitments, the BC Ministry of Energy and Mines team built trust with community members. That trust helped participants feel more comfortable with the BC Provincial Decision even if they did not agree with every piece of the decision. Likewise, the responsiveness of the lead ministry meant that, in large part, the voices of the BC basin communities are reflected in the document (discussed further in inclusivity below).

Another factor of accountability that influenced the content of the BC Provincial Decision was the advice given to the BC Provincial Review Team on how to craft a document for future use in international negotiations. Crafting a document with 14 high level principles based on that advice did decrease support for the BC Provincial Decision and made them more skeptical that the provincial and federal governments would actually pursue the principles outlined in the document. Some wanted more specificity and detail in the document in order to have a better picture of what BC (and Canada) might pursue in negotiations with the US.

Inclusivity

Ten of the sixteen interviewees commented on how the inclusivity of the BC CRT Review influenced the BC Provincial Decision in some way. In regards to content, a few interviewees felt that environmental and ecosystem considerations would not have been included in the BC Provincial Decision without their or others' insistence that it be part of the recommendations. A member of one of the review technical committees shared:

I'd say in the course of their review process for my agency, it was more on the outcome side, in terms of reviewing, commenting and trying to

shape that way. I'm not saying that was totally ineffective. I think we were able to register comments and our perspectives on our things. I did see some evidence of that in the strategic recommendation that BC ended up making. There was some mention of climate change and the environment and ecosystems issues did seem to come in. -Technical Committee member

Similarly, participants felt that a discussion of the Treaty impacts on BC communities and a need for compensation was included because they loudly voiced their view and the BC CRT Review team listened. A member of the Sounding Board said:

I believe the Provincial Decision is reflective of what I heard in discussion. Again the Columbia River Treaty Review Team always tried to work towards consensus when engaging the Sounding Board. And I did a total turnaround from the beginning of the process to the end of the process. I actually went into it [the process] with the position that the Treaty should be terminated. - Sounding Board Member

Participants cited a few different reasons why they supported the BC Provincial Decision including, seeing their views reflected in the BC Provincial Decision and other Treaty review documentation, feeling listened to by the BC CRT Review team, and being actively engaged through various Treaty review. Making sure participants felt well-represented and heard seemed to be a strategy of the BC Provincial Team. One team member noted:

We put pretty much everything we heard in the draft Consultation Report. And also after each community meeting we put down the comments we received on the sticky [notes]...because we wanted people to see what they said, written [down] and reflected [in the documents]. They could see themselves and their comments in that. So they said they felt they were heard, even those who didn't agree with the final Provincial Decision. The majority said, "We support the general direction you are going in."

The First Nations participants I interviewed noted that their consultation did not have much of an effect, and maybe a slight negative effect, on their view of the BC Provincial Decision because while they had some limited influence on the text, their

views are not fully captured in the document. They also seemed to want to wait and see what actually happens moving forward. One First Nation representative said:

Well, I think first of all, designing a fancier window and façade doesn't make the building any more structurally sound. Having a better and fancier engagement process with us doesn't mean that we've achieved a result... You still need two partners to dance, right? I would say most importantly that both levels of government [federal and provincial] need to understand that they have to get to a place where we are addressing and doing our best to resolve and mitigate and provide restitution for the types of impacts that the Columbia River has had historically. - First Nation representative

Information

Two aspects of information influenced the BC Provincial Decision and its support in the region. First was that the Treaty alternative scenarios revealed the impacts of the different options, allowing participants to choose their preferred option based on what scenario best matched their views. In some cases, this information convinced some participants who initially favored termination of the Treaty to later support keeping and modifying the Treaty instead. A member of the BC Provincial CRT Review Team described the situation as follows:

That support for the decision was a result of clearly and objectively describing the implications of the different potential scenarios for the different Treaty options. People had the opportunity to really compare those alternatives and then we asked them to make their own decision and provide us with advice--as opposed to not giving them that choice. That was risky, because the majority of the population or people we engaged said, "well you should terminate the Treaty." Government felt otherwise, so there was that disconnect. But we were willing to take that risk and go to government and if government makes the decision that was different from what we had heard from consultation then government would have to provide the rationale on why. - BC CRT Review Team member

A second way information influenced the content of the Provincial Decision was that information shared by the communities, regarding the impacts of the Treaty, was included in the document. A member of the Local Governments Committee (LGC) said:

I think the information that the Province got from consultation with the region has influenced the Decision and specifically, I think that some of the detail around impact to communities, sharing benefits, those kinds of things were addressed in the Review. I don't know if they would have necessarily been addressed to the same degree. - LGC member

Two members of the Sounding Board (SB) and a representative of a First Nation noted that some of the information collection efforts and technical studies lowered their view of the BC Provincial Decision or influenced its content. They felt that the BC CRT Review team was biased in what information it used and technical studies it conducted. In their view, this bias meant that the review process did not consider information that likely would have resulted in different principles in the BC Provincial Recommendation. The SB members specifically referred to using the Water Use Planning (WUP) information in the Treaty review technical studies. WUP plans in the basin use the Columbia River Treaty operations in their assumptions, which some of the SB members thought was not appropriate when exploring scenarios where the Treaty is terminated. The representative of the First Nation spoke of the decision to only use a post-Enlightenment scientific methods versus an approach based on Traditional Ecological Knowledge (TEK).

Most, but not all, of the members of the review technical committees noted that the details of technical work done as part of the BC CRT Review did not have a large impact on the BC Provincial Decision because the document was written at such a high level. One Provincial Ministry also shared, "I've worked for the agency for almost 20

years, and sometimes good technical work just doesn't influence things. That's life.”

However, some felt that the results of the technical studies may have a much greater role in any negotiations with the US.

Context

Interviewees did not comment much on how the context of the social-ecological system in Canada influenced the BC Provincial Decision. A closer examination of their comments reveals that while context did not directly impact the BC Provincial Decision, the context did impact the process and indirectly influence the BC Provincial Decision. For example, multiple interviewees noted how the different jurisdictions for the federal and provincial governments and the BC-Canada Agreement of 1963 influenced who led the process and what it entailed. The BC CRT Review team also leveraged existing relationships and the work the done by the Columbia Basin Trust (CBT) and newly formed LGC to build trust in the review team and design the Treaty review process. Both of those impacts of the basin context as discussed above in the “Accountability” and “Inclusivity” subsections above later influenced the BC Provincial Decision. Another theme several interviewees talked about was how the residents of the basin demanded their voice be included in the document because they were not going to allow the provincial government to ignore them like the federal government did in the original Treaty negotiations. One resident of the basin said:

We have to go back to the initial insult, right. What happened in the past dictated what is going on today. There was no way we were not going to have a say in what's going on in our own backyard. - BC basin resident

All three interviewees involved in the First Nations consultation process discussed how past experiences with consultation (or lack of consultation) made them wary of the

Treaty review process. The two First Nations representatives also discussed how they disagreed with the decision for the Province of BC to take the lead on the Treaty review, instead of Federal Canada and the resulting BC Provincial Decision.

7.2.2 US CRT 2014/2024 Review Results

In the US CRT 2014/2024 Review the Water GPA categories of accountability and inclusivity had the most influence on the US Regional Recommendation, both in terms of what is included in the document and increasing support for the document (Table 99). The other two categories had limited influence. Very few aspects of the process outside of these four categories seemed to influence the Regional Recommendation. Next, I provide a more detailed explanation of how each category impacted the Regional Recommendation.

Table 99. Statements on what influenced the US Regional Recommendation

	Number of Coded References				
	Contributed to US Regional Recommendation		Other influence	No influence	Decreased support
	Increased support	Influenced content			
Accountability	10	16	5	3	3
Context	0	6	2	1	2
Inclusivity	15	38	2	7	10
Information	5	5	2	13	1
Other	0	1	0	1	1

Table 99 displays the number of references noting that the Water GPA process characteristics and an 'other' category had one of four types of influence (increased support, influenced content, decreased support, or other influence) or no influence on the US Regional Recommendation.

Accountability

Various aspects of accountability influenced the content of and support for the US Regional Recommendation. Two factors that worked together to influence both the support and content of the US Recommendation were the criterion for the decision (i.e., consensus) and the US Department of State's guidance that the region deliver a high-level recommendation. As one Sovereign Review Team (SRT) described it:

They said, "If this is a mess we are not doing it. If the states are on one side, and the tribes on the other side, the federal agencies are fighting with each other, and you don't come in with a consensus document, we're going to drop this like a hot potato," and the Inter-Agency Policy Committee agreed with them, "Don't bring us a mess. Bring us a consensus recommendation." -SRT member

The various sovereigns and stakeholders worked together to find a compromise that was acceptable to all parties, because different parties wanted the Department of State to initiate negotiations with Canada, and the Department of State said it would only consider doing so if there was regional support for a high level Regional Recommendation.

Leadership also influenced the Regional Recommendation. Treaty review participants discussed how the US Entity was able to exert control over some pieces of the Regional Recommendation because of its leadership position. Other participants noted that various stakeholder interests made it into the document because the US Entity was responsive to those requests, albeit late in the process. For this reason the participants largely support the US Regional Recommendation as a whole even though they disagree with some components of the document.

Two aspects of accountability decreased support for the Regional Recommendation. First, stakeholders mentioned that federal agencies could have better represented their constituencies. Second, some noted that the need for a high-level document meant that many pieces of the Recommendation are open to interpretation and do not clearly identify the region's interests. Some participants are skeptical that the Department of State will accept the Regional Recommendation because the recommendations lack clarity and seem contradictory.

Inclusivity

Inclusivity was the most commonly mentioned component of the process that influenced both the support for and content of the Regional Recommendation. The most cited aspect of inclusivity was representation. More specifically participants shared that being involved in the process enabled groups to insert at least some of what they wanted in the document. Everyone's voice is represented in some way in the Regional Recommendation. If you look at the text of the public comments on the draft versions of the Regional Recommendation and the final version of the document, you see that in several instances language in the Regional Recommendation is identical to the comments.

A few interviewees noted that the US Entity could have written the Regional Recommendation with a very small group of people without the arduous US CRT 2014/2024 Review process and that it would have looked very similar to what the region produced. However, they felt that version of the document would not have been accepted by the region, even if it was identical to what the US Entity actually submitted to the Department of State. Others disagreed with this view and talked about how the involvement of the tribes and Department of the Interior agencies on the SRT greatly influenced the content of the Regional Recommendation in regards to ecosystem-based function. They noted that without those groups, ecosystem-based function would not have been included to the extent that it was. One SRT member said, "We couldn't have gotten ecosystem function if the tribes weren't at the table and very bold."

In some discussions about how representation influenced the US Regional Recommendation, interviewees commented on how different groups were able to influence the content of the Regional Recommendation--but not for the better.

Environmental groups and others thought the hydropower interests had too much influence on the document. The hydropower, irrigation, and navigation interests thought that the views of the tribes and environmental interests were over-represented. For better or worse, depending on your views, the US CRT 2014/2024 Review's approach resulted in a document where a wide range of views are represented in the text because different parties had a voice. With their voice represented, those parties were more willing to recognize the US Regional Recommendation as legitimate.

A theme of what influenced support for the Regional Recommendation was spending time working together and building trust and understanding. Even more specifically SRT members talked about sitting in the same room during meetings. One SRT member shared:

The meetings were incredibly helpful, I think to everyone...It was really the first time there was a more public hearing in the region on a lot of grievance issues and you got to learn where different people stand on the issues. You get to know people and relationships and context. That was extremely helpful. - SRT member

The primary theme in terms of inclusivity decreasing support for the Regional Recommendation is a lack of stakeholder representation in certain components of the Treaty review. This makes sense as how the US Entity structured (i.e., the inclusion of only sovereigns on the SRT) the representation was one of the primary criticisms of the US CRT 2014/2024 Review. Although being excluded from the SRT did make them more skeptical of the process and document, stakeholders were able to eventually support the Regional Recommendation. They shared that the US Entity was able to overcome the lack of stakeholder representation on the SRT and STT through its stakeholder engagement efforts in 2013. Through those outreach efforts and the two public comment

periods stakeholders were able to voice their opinions, and because the region needed consensus, the US Entity needed to include those stakeholder opinions even when they contradicted SRT members' views. One hydropower participant stated:

I think in the end, them doing their extra outreach efforts and taking into consideration what our concerns were and actually having those considerations reflected in the final recommendations that were submitted to the Department of State were good, and in the end, it turned out okay.

- Hydropower participant

Information

Most interviewees reported that the information produced during the US CRT 2014/2024 Review did not influence the US Regional Recommendation. They explained that this was the case for a couple of different reasons. First, while the US Treaty review included extensive technical studies, a high-level policy recommendation did not have room for technical details nor did the Department of State want technical details. Second, since the technical studies were not completed by the submission of the US Regional Recommendation in December 2013, the SRT in particular was not able to identify a specific scenario or Treaty alternative to recommend to the US Department of State.

A couple of individuals did share that some of the information produced in the review was seen in the Regional Recommendation. A navigation stakeholder noted that some of the information they provided was reflected in the document. A hydropower participant also shared that the analysis examining the value of the Canadian Entitlement supported the recommendation to reduce it. Two other participants noted that the approach to the Treaty review's technical studies negatively influenced the content or understanding of the US Regional Recommendation. They felt that if different or additional studies were done, the Regional Recommendation would have been better

informed and the region would have a better understanding of what was meant by the language in the document. A member of the SRT shared:

We could have modeled different approaches of flood risk management as part of this process. That would have meant that we would have had a more informed Regional Recommendation. - Tribal SRT representative

While the content of the studies did not influence the content of the Regional Recommendation very much, a few interviewees noted the information sharing efforts in the US CRT 2014/2024 Review increased their support of the document. A few review participants also noted that the information will be useful if the US and Canada decide to negotiate. So while the information had less influence on the development of the Regional Recommendation it is important for a future phase of the decision making process. This concept is encapsulated in a quote from an STT member:

I think, then in going forward, a lot of the information that we produced-- that is much more specific in detail than what actually went into the recommendation...Although the specifics might not have been quite critical then, going forward for negotiations with Canada that will be extremely important, and that's one reason why the final reports were never released. - STT member

Context

Participants noted that context had some limited influence on the US Regional Recommendation. For example, the risk-averse nature of the Corps and BPA meant the US Regional Recommendation was very conservative on certain topics, such as flood risk management. Some participants also felt the US Regional Recommendation was in part influenced by the desire to right past wrongs against the tribes. Others noted the ability of the hydropower interests to use their political power to rally the PNW Congressional Delegation and more strongly assert their views.

Context influenced the document indirectly as well. For example, an Executive Order was cited as the document that gave the US Entity the authority to lead the US CRT 2014/2024 Review and as the lead agency meant the US Entity had greater influence over the content of the Regional Recommendation. Another indirect factor was the scale of the basin and how with such a large geographic area, the US Regional Recommendation needed to accommodate a wide range of issues and views.

7.3 The Influence of the Process on Byproducts

In addition to the decision(s), processes also produced other outcomes. I call these byproducts because they are not typically the targeted outcome of a decision making process. Rather they are simply consequences or offshoots of the process. They are important to examine because they then become the context for other future processes.

A process can also influence byproducts and in the following subsection of this chapter I explore how the process influenced the various byproducts reported by participants in the two reviews of the Columbia River Treaty. As described above in my methodology overview and more extensively in Chapter 3, I asked the review participants to identify the three byproducts from the process that were most important to them and up to three byproducts they wished had resulted from the process (or wished increased more than they did). I then asked participants to explain what about the process contributed to, worked against, or would have promoted positive changes in the byproducts. Next I present the results of analysis of the links between process and byproducts in the BC CRT Review and then share my results from the US CRT 2014/2024 Review case study.

7.3.1 BC CRT Review Results

In their conversations about byproducts and what influenced them, participants of the BC CRT Review mostly commented on how different aspects of the process contributed to various products in a positive way (Table 100). They identified very few things that either impeded or did not have an influence. The characteristics of the review that contributed most to the Treaty review byproducts were inclusivity and information (Table 100). BC Treaty review participants shared a variety of examples of how the four Water GPA categories and other factors promoted various byproducts (Table 101). I explain the emergent themes from the examples in the following subsections.

Table 100. Statements on what influenced byproducts in the BC CRT Review

	Number of Coded References			
	Contributed to byproduct	Impeded byproduct	No influence	Would have helped
Accountability	15	0	3	0
Context	9	0	0	0
Inclusivity	30	2	1	2
Information	20	0	3	0
Other	7	1	0	0

Table 100 displays the number of coded references noting that the four Water GPA process characteristics and an 'other' category contributed to, impeded, would have helped, or had no influence on byproducts of the BC CRT Review.

Table 101. What influenced BC CRT Review byproducts

	Byproduct	Accountability	Context	Inclusivity	Info	Other
TANGIBLE	Economic opportunities	Weak				
	Programs or initiatives	Weak	Moderate	Moderate	Weak	Weak
RELATIONAL	Coalitions			Weak		Weak
	Communication	Weak		Moderate	Weak	Weak
	Level of conflict and hostility			Weak		
	Mutual-shared understanding		Weak	Weak	Weak	Weak
	Quality of relationships			Strong	Weak	Weak
	Trust in others involved			Weak	Weak	
	Trust in the lead agency	Moderate		Weak		
	Understanding of other's views, positions, etc.			Moderate		
KNOWLEDGE	Co-produced science			Weak	Weak	
	Public education-awareness			Weak	Weak	Weak
	Shared knowledge & information			Weak	Moderate	
	Understanding of ecological system			Weak	Strong	
	Understanding of the social system				Weak	
CAPACITY-BUILDING	Ability to resolve disputes	Moderate	Weak			
	Community capacity		Weak	Weak		
	Human capital				Weak	
	Innovation			Weak		
	Social capital		Weak	Weak	Weak	
	Institutional capacity	Weak		Weak		
OTHER		Moderate	Weak			Moderate

Table 101 displays the strength of the relationship between the process characteristic and byproduct. Less than three examples of influence from the participant interviews indicates a weak influence, $3 \leq x \leq 5$ is a moderate and >5 is a strong influence.

Accountability

Two individuals explained that the responsiveness of the BC CRT Review Team increased their trust in that group. However, they and others noted, that while they trusted

the BC CRT Review Team, the process did not increase the level of trust in the BC Ministry of Energy and Mines or the Provincial Government as a whole.

Inclusivity

For the most part, participants noted that the extensive efforts to include various parties in the BC Treaty review process increased a number of different positive relational byproducts. The two most salient connections were between the inclusivity of the process and an increase in the quality of relationships and an understanding of other views and positions. One citizen participant in the BC CRT Review said:

I felt like every time I came away from one of those sessions, I felt, okay I've got another perspective from [another citizen] who was a forester. I now understand a lot better why he is taking the position he is. That is very, very important to me in this whole process. Not getting a single common view but understanding the wide range of the views. - BC citizen

Another byproduct influenced by the inclusivity of the process was the creation of a new program, the Columbia Basin Regional Advisory Committee (CBRAC). The Sounding Board acted as a pilot program for engaging a stakeholder body in decision making and its success is credited as justification for the CBRAC. After the delivery of the BC Provincial Decision, the Province put out a call for applications for BC basin residents to join CBRAC, which discusses a variety of Treaty and domestic issues in the BC portion of the basin. Related to this, review participants noted that as a result of this process, the Province increased communication with the BC portion of the basin through CBRAC and through other efforts between BC Hydro and basin residents.

Information

Five participants of the BC CRT Review noted that they understood the ecology of the river basin better as a result of the technical studies and information produced and

used in the review process. Others noted an increase in the amount of shared information and knowledge in the basin as a result of the Treaty review process. A Sounding Board member shared the following anecdote:

We had several situations where someone said, "we really want to see" and someone else said, "we did that three years ago" and the Review Team said we will try and put that together. - Sounding Board member

Context

A couple of individuals reported that the context of the process had some influence of on different byproducts, such as community capacity for decision making and institutional capacity. However, only single individuals made those observations and there were no clear trends in how the context influenced the process byproducts. For example, a representative of a First Nation noted how different aspects of the context helped contribute to a new pilot program for First Nation consultation.

Other influences

I did not limit my analysis to the four characteristics of the Water GPA. To make sure I did not exclude other factors that may have influenced the process byproducts I inductively coded the interview transcripts as well. However, I did not find clear evidence of a relationship between the byproducts and other influences in my inductive coding of the text.

7.3.2 US CRT 2014/2024 Review Results

Review participants most frequently shared that aspects of the process related to the production and sharing of information as well as the inclusion of various parties in the US CRT 2014/2024 Review had the greatest influence on the process byproducts (Table 102). Context had some effect, but to a lesser degree. Accountability also influenced

byproducts, but interviewees noted that it more often prevented a byproduct from occurring than contributed to it. In addition to these aspects of the process, other factors also impacted the formation of byproducts.

Table 102. Statements on what influenced byproducts in the US CRT 2014/2024 Review

	Number of Coded References			
	Contributed to byproduct	Impeded byproduct	No influence	Would have helped
Accountability	5	12	2	6
Context	4	3	1	1
Inclusivity	24	5	5	7
Information	26	1	2	2
Other	11	3	2	3

Table 102 displays the number of references noting that the Water GPA process characteristics and an 'other' category contributed to, impeded, would have helped, or had no influence on byproducts of the US CRT 2014/2024 Review.

I also examined what characteristics of the process influenced different byproducts to see if there were any trends in certain characteristics influencing specific types of byproducts. For the US CRT 2014/2024 Review, I found that while a few trends emerged, my data were such that where only one or two participants who shared observations of how a characteristic of the process impacted a byproduct (Table 103). For example, only one participant talked about how information produced during the review increased mutual or shared understanding in the region. This means I only offer findings on a limited number of relationships between a few specific byproducts and the process. For example, over half of the participants cited the information produced and shared during the US CRT 2014/2024 Review as something that increased different knowledge-based byproducts such as technical models, understanding of the ecological/biophysical system, as well as their personal or organization's education and awareness of Treaty related issues (Table 103). In the following subsections, I dive deeper into my analysis and describe what about the process or other factors contributed to, impeded, did not

influence, or would have helped result in specific US CRT 2014/2024 byproducts. I

organize the results using the Water GPA process categories and then address what other factors emerged as important through my inductive coding.

Table 103. What influenced US CRT 2014/2024 Review byproducts

	Byproduct	Accountability	Context	Inclusivity	Info	Other
<i>Tangible</i>	Programs or initiatives	Weak		Weak		
	Coalitions		Moderate	Weak		Moderate
<i>Relational</i>	Communication			Moderate	Weak	Weak
	Level of conflict	Weak				Weak
	Mutual-shared understanding	Weak		Weak	Weak	
	Quality of relationships	Weak		Strong	Weak	Weak
	Trust in others involved		Weak	Weak	Weak	Weak
	Trust in the lead agency	Moderate		Weak	Moderate	Weak
	Understanding of others' views & positions	Weak		Weak	Weak	Weak
	Co-produced science			Weak		
<i>Knowledge-Based</i>	Public education-awareness		Weak	Weak		
	Shared knowledge & information				Weak	
	Technical models			Weak	Moderate	
	Understanding of ecological-biophysical system	Weak	Weak	Moderate	Strong	
	Understanding of the social system			Weak	Moderate	
	Your organization's education-awareness	Weak		Weak	Moderate	Weak
	Your own education-awareness			Weak	Weak	
<i>Capacity</i>	Ability to resolve future disputes			Weak	Weak	Weak
	Community capacity for decision making	Weak		Weak		
	Institutional capacity	Weak				
	Other	Weak		Weak	Weak	Weak

Table 103 displays the strength of the relationship between the process characteristic and byproduct. Less than three examples of influence from the participant interviews indicates a weak influence, $3 \leq x \leq 5$ is a moderate and >5 is a strong influence.

Accountability

Three participants in the US Treaty review cited the structure of the US CRT 2014/2024 Review as decreasing trust in the US Entity. More specifically they mentioned the lack of transparency due to the exclusion of stakeholders from the SRT, the lack of sharing of decision authority, and the tension between the US Entity as a neutral lead agency versus an agency representing its constituencies as aspects of accountability that decreased trust.

Looking forward to the next phase of the Treaty review or future processes in the basin, participants had a couple of suggestions for how to improve accountability and the production of desirable byproducts. One recommendation was to explore ways to address the issue of whether the US Entity is acting as a process lead or advocate. Another suggestion was made to find a way to allow for more equitable funding of various aspects of the process. Instead of the US Entity holding the purse strings, find a way to allow various parties to access the funding available for the process.

Information

Participants in the US Treaty review cited a number of examples of how the information produced and shared during the Treaty review process improved various byproducts related to knowledge. Eight sovereigns shared that the information produced in the review improved their understanding of the ecology of the river basin. Three sovereigns commented on how the review advanced the US technical models and modeling capabilities. A couple of individuals noted that conducting technical studies together was a trust building exercise with the lead agency (the US Entity).

Inclusivity

Six members of the SRT, including representatives from federal agencies, state governments, and tribes felt that working together during the US CRT 2014/2024 Review improved the quality of relationships in the basin. They discussed how working together for such a long period of time allowed them and others to understand each other's perspectives, build trust, and develop stronger relationships. One SRT member from a federal agency said:

I think having a process this long enough to really develop relationships and that you meet frequently enough within that time frame you develop relationships. It gives people the space to have conversations, air points of disagreement, reach more and become more understanding about why there's that disagreement. - Federal agency SRT member

A stakeholder also specifically shared how not being part of the SRT meant there were fewer opportunities to develop relationships and understanding. He said,

Not sitting in the same room, month after month, for a couple years, meant that we didn't have the informal opportunity to talk, whether inside the process or outside the process. So the informal opportunity to build bridges between different representative groups was materially impaired by the process they [the US Entity] chose. - Hydropower interest

The inclusivity or lack of inclusivity also played a role in the knowledge-related byproducts. A couple of sovereigns and a stakeholder noted that the Treaty review provided a venue to access information and learn. A state representative on the SRT said:

It was very rich in that kind of quality of work and having the time of some years to develop what we wanted to analyze and then analyze it and think about what it meant, was an educational process for everyone. I think these processes are more successful when people not just learn but learn together, so we all know some of the same things of what scenarios seemed to work pretty well, which ones didn't, what were the implications of trying certain types of agreements with Canada. I think those were all particularly good. - State SRT member

Context

One specific byproduct the basin context influenced directly was the Tribal Coalition or Caucus, where 15 tribes in the US portion of the basin developed a Common Views document and worked as a united force to advocate for the inclusion of ecosystem-based function and other tribal interests in the US Regional Recommendation and the CRT. Tribal and non-tribal sovereigns frequently commented on how historic and positive the Tribal caucus is. The coalition formed slightly before Phase 2 of the US CRT 2014/2024. Two aspects of the context brought the tribes together. One is that all 15 tribes have management authorities and responsibilities affected by the implementation of the Columbia River Treaty. The CRT is a very important issue for all the tribes and the US CRT 2014/2024 provided a venue to further their interests. Second, the representatives I spoke with from the tribes talked about how in the past the US has used a “divide and conquer” approach to engage tribes in an effort to improve the US negotiation position, which comes at a cost to the tribes. The coalition formed and remained strong because when they worked together, the tribes had greater influence over the Treaty review process and US Regional Recommendation. Creating shared goals through the Common Views document also helped keep the group together. So in short the importance of the Treaty and its upcoming changes, common goals, along with a desire to improve their bargaining power helped instigate the creation of the coalition.

Three individuals commented on the same aspect of the Treaty review context negatively impacting the byproduct “trust in others involved.” They felt that previous negative experiences and existing distrust of different groups, both sovereigns and

stakeholders, as a result of interactions in previous processes served as a barrier for building trust through the US CRT 2014/2024 process. One SRT member said:

It drove the facilitators crazy, because they are used to a situation where you bring people in, you define the problem, you work a little bit on building trust, you build a level of trust, and then you move forward. That never happened. That level of animosity was always there. We never got to the point where we could trust each other, because we knew the history and we know what the future's going to hold. So they were antagonists before the process and they're still going to be antagonists afterwards.

Other Influences

To make sure I did not ignore other factors that may have influenced the process byproducts I did not limit my analysis to the four characteristics of the Water GPA. I inductively coded the interview transcripts as well. I found a few emergent themes of other factors impacting byproducts. Personality was cited a few times as a barrier to relational byproducts like trust. The decision, in this case the US Regional Recommendation, itself had the potential to impact byproducts. In this case, two individuals noted different degrees of influence. One noted that the lack of specificity in the Regional Recommendation decreased their trust in the US Entity. The other said that disagreeing with aspects of the Recommendation and process had no influence on its view of the US Entity. These opposing observations suggest something else at play.

A few individuals reported various other factors in the basin that contributed to better understanding of other's positions and an awareness of the Treaty and its related issues. These include individual's efforts to share what they learned about the Treaty with their organization and informal dialogue across the border through the Universities Consortium on Columbia River Governance and other conferences.

7.4 Discussion

My analysis offers a preliminary examination of what aspects of a process may influence the decision and byproducts of that process and thereby offers a preliminary answer to my research question “What characteristics of a water governance process may contribute to water governance outcomes?” (Research Question 4). Below I synthesize the results from the two case studies to compare how characteristics of the two processes influenced their respective decisions and byproducts. I also examine the interactions between process characteristics and the role they played in the process outcomes.

7.4.1 Decisions

From the results of the two case study analyses, it appears that the characteristics of a process that influence a decision varies and is extremely complex. In both case studies accountability and inclusivity had the greatest impact on the US Regional Recommendation and BC Provincial Decision in terms of the content and support for the documents. When various parties actively engaged in the process and the lead agency responded to those participants, the decision included their voice and views in some way. The opposite was also true; if a party was excluded or the lead agency was less receptive then the views of that party was not as represented in the decision. For example a hydropower interest noted the following about the Regional Recommendation:

It was very SRT-oriented in its early drafts, because that's who the US Entity was talking to, and when they started having to talk to more people, they recognized that that was not going to be an ultimately successful path.
- Hydropower interest

7.4.2 Byproducts

Without more data to verify some of the participant observations, I can draw only a few conclusions from the case studies on the role of characteristics of the process in the

development of byproducts. First, generally, the production and sharing of information with different parties increased various knowledge-based byproducts. More specifically it can increase participants understanding of the issue and the social-ecological system and may improve technical models. A second common theme among the two case studies is that inclusive participation processes improve the quality of relationships among the participants as well as build trust and understanding of each other's positions.

7.4.3 Process and Outcomes: A Complex Relationship

It is difficult to draw clear lines between process characteristics and outcomes in part because the links are not necessarily direct and do not operate in a vacuum. The two case studies also highlight how the relationship between process and outcome is complex. In both case studies, it appears that the interplay between the process characteristics (where two or more characteristics converge) has greater influence over the decision than one specific characteristic (e.g., inclusivity). For example, the interplay between accountability and inclusivity had an intriguing effect on the US CRT 2014/2024 Review and the US Regional Recommendation. In some ways the Department of State held the US Entity accountable in the development of the Regional Recommendation and the Department of State requested a high-level consensus document. This criterion for the decision (an aspect of accountability) interacted with other aspects of the process to influence the Regional Recommendation and its support.

First, this requirement for consensus pushed the US Entity to expand its stakeholder engagement efforts and improve how it included non-sovereign interests so they would support the Regional Recommendation. The stakeholders (as well as the sovereigns) would only support the document if their views were reflected to some

degree in the text. The Sovereign Participation Process structure that only included sovereigns on the SRT and STT limited how inclusive the process was and did not set the region up for consensus. To address this challenge, the US Entity conducted additional stakeholder meetings and two public comment periods to increase engagement of stakeholders. In a sense, the need for consensus compensated for the lack of inclusivity early in the US CRT 2014/2024 Review.

Second the request that the region produce a high-level document that did not overly restrict the Department of State's bargaining position if the US entered into negotiations with Canada altered the role information played in the Regional Recommendation. Aiming to produce a high-level document reduced the immediate need for technical information as there was not space to include it. Likewise, the request to stop sharing technical study results to protect US bargaining power meant results were not available for the SRT and others to digest and consider in the formulation of the US Regional Recommendation. The need for consensus also reduced the role of technical information in the Regional Recommendation as consensus was much easier to achieve in more general language than in detailed recommendations.

In the BC CRT Review we see how context, accountability, and inclusivity interact. Various parties in the basin were not going to allow the provincial government to exclude their views in the Treaty review as the federal government did in the original negotiations of the Treaty. An organization within the basin, the Columbia Basin Trust (CBT) worked to educate and prepare citizens for the Treaty review process and provided recommendations along with the LGC to the BC Ministry of Energy and Mines on how to engage the basin. For the most part, the lead ministry was responsive to the context and

to the interested and affected parties. It was able to recognize the importance of including basin residents and capitalize on leverage points within the basin context to develop a successful engagement strategy that increased trust and the quality of relationships in the basin and Province.

7.4.4 Caveats and Limitations

My research includes a number of different caveats and limitations. One caveat to my results and conclusions is the fact that they are based on only two case studies in the same basin. Both of the case studies are in developed nations and so my findings may or may not translate to decision making processes in developing nations or to other basins.

One methodological limitation of my research is the fact that I was the sole coder of the data. I attempted to mitigate this issue by developing a thorough codebook and also by reviewing all of my coding. One method of improving this work in the future is to have multiple people code the data and check the inter-coder reliability to better ensure consistent coding. I did not pursue this course of action because I lacked the time and resources.

A second limitation of my study is that my data consist of participant perceptions of what happened during the two review processes and what they think resulted from each process. Therefore I relied on the memories of individuals, which are not infallible. In some cases, participants in my two studies shared inconsistent or competing narratives of the same situation. It is possible that only one of, both, or neither narrative accurately represented what happened. I attempted to address that problem in two ways. First, I tried to only report findings based on a minimum of three sources of information in order to verify and triangulate the data. The three sources could be three different individuals, two

individuals and a document from a source other than those two individuals' affiliations, three documents, etc. Second, when I only used observations from one or two of the study participants to draw my conclusions, I was transparent about and I clearly identify what information I used. This allows the reader to assess the strength of a finding and what biases it may have.

7.4.5 Future Research

Future research on decision making processes can build on or verify my research findings in a number of ways. Additional case studies will help disprove or verify my preliminary findings on what characteristics of a decision making process influence its outcomes. These case studies could take one of two approaches. Following my approach, the case studies could collect data after a decision is made by asking participants to reflect on their experiences and share their views. Alternatively, a researcher could gather baseline data prior to or in the early stages of a decision making process and then collect additional data after the decision has been made. This would allow the researcher to better document the existing positions and initial status of byproducts like trust and an understanding of the ecological system and then see how they evolved during the decision making process.

Instead of qualitative case studies future research on this topic, future researchers can adopt a quantitative approach in which they utilize my survey (or some variation of it) to explore correlations between the characteristics of a process and its outcomes. With a larger data set, researchers can use statistical analyses to see if there is a correlation between accountability, information, and inclusivity scores and decision scores. A downside to this approach is that the current survey model does not evaluate context or

byproducts in a quantitative way that is amenable to statistical analysis. In the future, myself and others might consider exploring ways to measure context and byproducts in a quantitative way to allow for quantitative analysis of those factors.

In addition to further studies to vet and verify my results, I recommend research that pays attention to the interactions of the various process categories in order to identify trends of how characteristics of the process interact to either promote or prevent good governance. A starting point for this research would be investigating the inter-dependencies displayed in Figure 6.

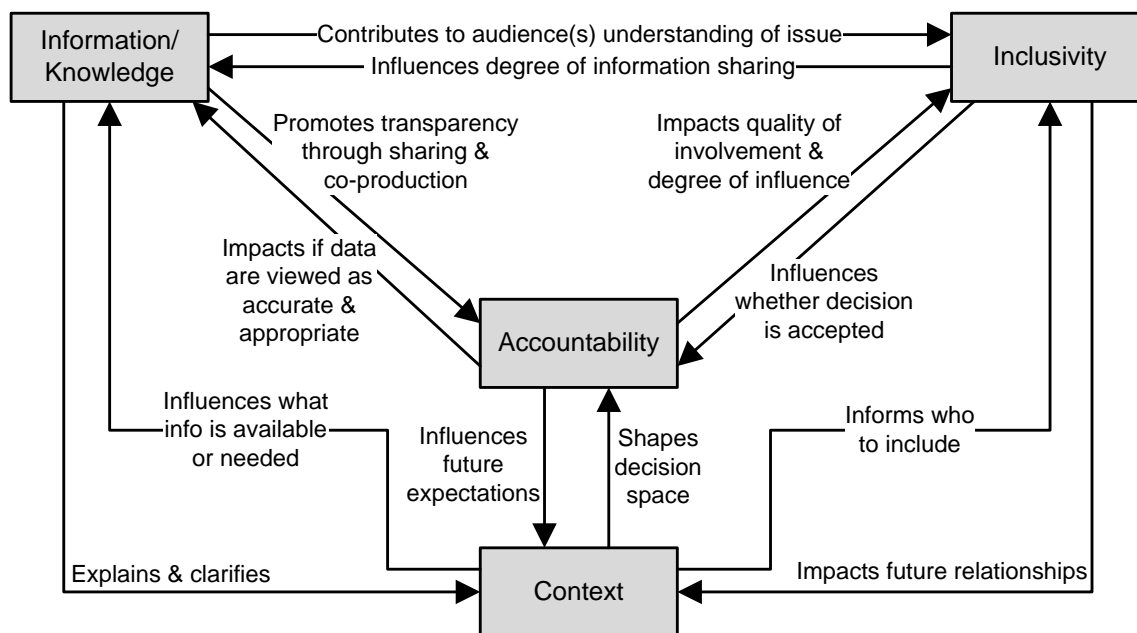


Figure 6. Example inter-dependencies between framework categories

7.5 Chapter conclusion

In this chapter, I used the Water GPA to examine the relationship between characteristics of two decision making process and their outcomes. Which characteristics were most important in the development of the US Regional Recommendation, BC Provincial Decision, and the various byproducts of the two processes? All four

characteristics outlined in the Water Governance Process Assessment (Water GPA), played some role in the content and/or support of the two decision documents. Generally when the characteristic of the process was done well, it improved the legitimacy and acceptance of the decision. At the same time performing poorly in one area did not necessarily torpedo the process. Through measures of accountability the US process was able to address and overcome deficits in inclusivity. Likewise, the majority of those interviewed accepted the BC Provincial Decision as legitimate despite the fact that part of it contradicted their view because of the extensive consultation process and information sharing. Therefore, my observations in these two case studies suggest that the characteristics outlined by the Water GPA are those that influence process outcomes in the Columbia River Basin. However, further work is needed to clearly identify what characteristics of a process are most influential in different situations.

8 Discussion and Conclusion

In this chapter, I summarize my findings from the previous few chapters, discuss what those findings contribute to theory, explain the challenges and limitations of the case study method along with my attempts to address those issues, and outline potential directions for future research.

8.1 Summary and Discussion of Findings

In the preceding chapters, I addressed each of my four research questions objectives (Table 104). Now I will summarize what I discovered as I attempted to answer each question.

Table 104. Summary of research questions, objectives, and findings

Research Questions	Research Objectives	Location in Dissertation
Research Question 1 - What are characteristics of a “good” water governance process?	Objective 1 - Develop an operationalized framework for systematically evaluating water governance processes based on existing frameworks for water governance, public participation, and conflict management.	Chapter 2
Research Question 2 - How can those characteristics be used to evaluate water governance processes?	Objective 2 - Evaluate both the Canadian and American reviews of the CRT the using the framework developed (the Water Governance Process Assessment or Water GPA).	Chapter 3 (methodology) Chapter 4 (background) Chapter 5 (Canadian case study application) Chapter 6 (US case study application)
Research Question 3 - What are lessons learned for good water governance from the Canadian and American reviews of the CRT?	Objective 3 - Identify barriers and building blocks to good water governance from the two programs and glean lessons for future CRT-related efforts and water governance processes.	Chapter 5 (case study application) Chapter 6 (case study application)
Research Question 4 - What characteristics of a water governance process may contribute to water governance outcomes?	Objective 4 - Use the Water GPA and CRT case studies to examine what characteristics of those processes contributed to their respective process outcomes.	Chapter 7

Table 104 provides a summary of and map to my research questions and their corresponding objectives.

8.1.1 Research Question 1

My first research question is **‘what are characteristics of a “good” water governance process?’** I addressed this question in Chapter 2, where I developed an operationalized framework for evaluating water governance processes based on existing frameworks for water governance, public participation, and conflict management. To develop the framework I followed a multi-step approach. I first reviewed the scholarly and grey literature in the areas of water governance, natural resource management, and collaborative processes to identify commonly agreed upon characteristics for good water governance processes. My review of the literature yielded four primary characteristics of good water governance decision making processes: 1) accountability, 2) information, 3) inclusivity, 4) context (Table 8).

After identifying the most critical aspects of a good water governance decision making process, I operationalized the new synthesis framework by utilizing the same literature to determine what to use as an indicator for each characteristic and how best to assess it. Three of the process characteristics (i.e., accountability, information, inclusivity) can be evaluated by rating how well a process addressed or incorporated different subcomponents of those characteristics. However, I did not find a standardized way to assess how context was considered in the development and implementation of a process. Therefore, I proposed process leads/conveners complete an inventory of the basin context in order to identify what aspects may be a barrier to or leverage point for improving water governance in the three other process areas. This can be done before the process in order to identify and overcome the barriers and capitalize on the

leverage points. Alternatively, it can be done mid-way or after a process to evaluate if the process lead attempted to address the context and/or if they were successful in doing so.

Table 8. Summary of Water Governance Process Assessment categories

Category and Definition	Importance	Example Subcomponents
Context - The various conditions of the basin and socio-ecological system under which the decision is being made. Three subcategories of the context are: social system, ecological system, and the problem.	Highlights barriers to overcome and opportunities to capitalize on.	<ul style="list-style-type: none"> • Culture, worldviews & values • Incentives • Resource system & units • Relationships • Social, economic, & political setting
Inclusivity - The degree and quality of inclusion of interested and effected parties at various stages of the process, which may take many forms (e.g., direct participation or representation) to result in meaningful engagement.	Influences the content and acceptance of the decision.	<ul style="list-style-type: none"> • Participation • Power & agency • Representation
Information - The data, information and knowledge used to make the decision, including all stages of collection, modeling, experiments, and analysis.	Often serves as the foundation or justification for a decision.	<ul style="list-style-type: none"> • Comprehensiveness • Integrative • Peer review • Socially robust
Accountability - The organization and atmosphere of the process designed to produce a legitimate decision based on 1) what is the scope of the decision making process, 2) who will make the decision, and 3) how the decision will be made.	Influences legitimacy/ acceptance of the decision.	<ul style="list-style-type: none"> • Transparency • Rule of law • Leadership • Equity • Responsiveness

Table 8 is my summary of the Water GPA process categories, their importance in a decision making process and example components of those categories from my source frameworks.

I named my synthesis framework the Water Governance Process Assessment (Water GPA). I consider the Water GPA to be a framework in its infancy and in need of example applications to examine its usefulness. Therefore, I next applied my framework to explore how to evaluate water governance processes with the four Water GPA characteristics.

8.1.2 Research Question 2

With my framework in hand, I set out to answer my second research question ‘**how can those characteristics [of good water governance processes identified in the Water GPA] be used to evaluate water governance processes?**’ In Chapter 3, I laid

out my methodology for applying the Water GPA in two case studies. I explained that I would demonstrate use of the framework by evaluating both the Canadian and American reviews of the Columbia River Treaty called the BC CRT Review and US CRT 2014/2024 Review, respectively. Then in Chapter 4, I provided background information for both case studies including information about the Columbia River Basin, Columbia River Treaty, and water governance in each country.

To gather the data to evaluate the US CRT 2014/2024 Review and BC CRT Review, I conducted 38 semi-structured interviews with individuals who participated in the two reviews. I interviewed a cross-section of review participants from a variety of affiliations including the federal governments, state/provincial governments, Tribes and First Nations, members of the public, and stakeholder interests. Interviews ranged from 15 minutes to an hour and a half. I transcribed, deductively coded, and analyzed the interviews with the qualitative analysis software QSR NVivo and the Water GPA framework. Thirty-four interviewees and 12 additional review participants filled out a survey to assist in collecting information about the processes, decisions, and byproducts for application of the framework. I transcribed and analyzed the surveys using basic statistics.

I presented the full results of the two case study applications of the framework in Chapter 5 (BC CRT Review) and Chapter 6 (US CRT 2014/2024 Review). Table 60 and Table 61 (reproduced below) summarize the Water GPA results for the BC CRT Review case study. Table 92 and Table 93 (also reproduced below) summarize the Water GPA results for the US CRT 2014/2024 Review case study. The evaluation of each process revealed evidence of good process as well as areas in need of improvement.

Table 60. Summary of BC CRT Review Water GPA accountability, information, and inclusivity results

	What worked well	What had mixed results	What needed improvement
Accountability	<ul style="list-style-type: none"> • Transparency with public engagement • Approach to scoping process • Responsiveness of BC CRT Review Team 	<ul style="list-style-type: none"> • Clarity of path forward • Support for choice of process lead • First Nation consultation 	<ul style="list-style-type: none"> • Lack of clear decision criteria • Confusion about how public input would be included in decision • First Nation input into the decision
Inclusivity	<ul style="list-style-type: none"> • Representation of public, local officials, and various stakeholders in process • Participant involvement in design of engagement process • Technical committees make-up • Multiple face-to-face meetings 	<ul style="list-style-type: none"> • Ability of groups to influence policy issues and technical studies • Resources availability 	<ul style="list-style-type: none"> • Representation of First Nations • Degree of involvement of select ministries on technical committees
Information	<ul style="list-style-type: none"> • Information collected from and shared with affected communities • Extent of information sharing in public consultation and technical committees 	<ul style="list-style-type: none"> • Extent of technical studies • Use of Water Use Planning information • Whether information shared was audience appropriate 	<ul style="list-style-type: none"> • Information sharing with First Nations
Other	<ul style="list-style-type: none"> • Personal leadership of different individuals 		

Table 60 summarizes what worked well (i.e., was a building block of good water governance) and what did not (i.e., was a barrier to good water governance) in the BC CRT Review.

Table 61. Water GPA examination of BC CRT Review context

	Potential Barrier	Potential Leverage Point
Inclusivity	<ul style="list-style-type: none"> • Declaration that Sinixt are extinct • Past 'drive-by' First Nation consultation experiences • Distrust of government due to original Treaty negotiations 	<ul style="list-style-type: none"> • CBT CRT information sessions • LGC • BC CRT Review Team training
Information	<ul style="list-style-type: none"> • Limited time to complete studies 	<ul style="list-style-type: none"> • Water Use Plans
Accountability	<ul style="list-style-type: none"> • Jurisdiction disconnect (specifically related First Nation consultation and salmon) • Declaration that Sinixt are extinct (barrier to procedural justice) 	<ul style="list-style-type: none"> • Executive Director's history with basin • Minister of Energy and Mines is from basin

Table 61 lists different aspects of the US CRT 2014/2024 context and how they might pose a challenge or barrier to or leverage point for good water governance in each of the three other process categories (inclusivity, information, and accountability).

Table 92. Summary of US CRT 2014/2024 Review Water GPA accountability, information, and inclusivity results

	What worked well	What had mixed results	What needed improvement
Accountability	<ul style="list-style-type: none"> • Transparency within the SPP • DOS as a higher source of accountability 	<ul style="list-style-type: none"> • How well representatives of sovereigns and interest groups represented their constituencies • Guidance from DOS (it was helpful but needed to be offered earlier) 	<ul style="list-style-type: none"> • Defining decision criteria • Transparency with stakeholders • Clearly define sharing of decision authority • Choice of decision process lead • Interpretation of laws/regulations such as Executive Order 13175 and what makes a sovereign • Outline of next steps
Inclusivity	<ul style="list-style-type: none"> • Early involvement of sovereigns • Ability to influence policy and technical issues 	<ul style="list-style-type: none"> • Sovereign-stakeholder dichotomy • Resources to participate 	<ul style="list-style-type: none"> • Inclusion of CTGR • Better engagement of stakeholders (both in terms of quality and timing)
Information	<ul style="list-style-type: none"> • Utilizing existing information • Information sharing with sovereigns and select stakeholders (pre-summer 2013) 	<ul style="list-style-type: none"> • Quality and scope of technical work • Sharing audience appropriate information 	<ul style="list-style-type: none"> • Information sharing with sovereigns and stakeholders (post-summer 2013)
Other			<ul style="list-style-type: none"> • Facilitation of SRT • Better understanding of Canadian views • Management of strong personalities

Table 92 summarizes what worked well (i.e., was a building block of good water governance) and what did not (i.e., was a barrier to good water governance) in the US CRT 2014/2024 Review.

Table 93. Water GPA examination of context in US CRT 2014/2024 Review

	Potential Barrier	Potential Leverage Point
Inclusivity	<ul style="list-style-type: none"> • Large geographic extent to cover • Large number of relevant stakeholders • Political relationship among tribes • Existing professional relationships • Different goals among interested and affected parties • FACA rules 	<ul style="list-style-type: none"> • Existing coalitions • Existing professional relationships
Information	<ul style="list-style-type: none"> • Concerns about data validity • Disputes over what models to use 	<ul style="list-style-type: none"> • Information collected and previously conducted studies • Existing models
Accountability	<ul style="list-style-type: none"> • Limited authority of lead organization and its ability to share that authority • Lack of trust in lead organization • Differences in opinion about problem/task and/or goal definition 	<ul style="list-style-type: none"> • Collective authority of parties involved • US Department of State's oversight role

Table 93 lists different aspects of the US CRT 2014/2024 context and how they might pose a challenge to or leverage point for good water governance in each of the three other process categories (inclusivity, information, and accountability).

I developed the Water Governance Process Assessment (Water GPA) for two reasons: 1) to provide water managers with a practical tool for evaluating and improving their water governance decision making processes and 2) investigate the link between process and outcomes. My second research question provides me with the opportunity to reflect on whether I was successful in meeting that first goal (I discuss the second goal in the subsection “Research Question 4”). In my Introduction, I posit that an evaluation framework must be meaningful, comprehensive, streamlined, and operationalized for use by water managers. In some ways the Water GPA meets those criteria, but at the same time it has distinct limitations and areas in need of improvement (Table 105). I discuss what I recommend to address deficiencies in the chapter subsection “Future Research.”

Table 105. Assessment of Water GPA as feasible evaluation framework

Criteria	My Observations
Meaningful - characteristics evaluated should have implications for the outcomes of the process	<ul style="list-style-type: none"> • My analysis of the link between the two Treaty review processes and their outcomes indicate that the four Water GPA process characteristics have some influence on outcomes • However the extent of that influence is not clear or consistent; there is also the added complexity that the intersect of two characteristics may have a stronger influence
Comprehensive - cover the full scope of good governance characteristics	<ul style="list-style-type: none"> • The Water GPA includes four of the five major themes I identified in my review of frameworks for good water governance decision making processes • Effectiveness/efficiency is not included in the framework
Operationalized - explicit on what and how to measure metric(s) for each characteristic	<ul style="list-style-type: none"> • Evaluation of three of the process categories, the decision, and byproducts are operationalized • I present a standardized way to assess context but is it a more nebulous approach • My approach for measurement involves relying on participant perceptions to determine if desired process characteristics are present (as opposed to using more objective measures)
Streamlined - contained within one framework	<ul style="list-style-type: none"> • All process categories are included in one framework • However, application of the Water GPA requires two different approaches to analysis because assessment of context could not be operationalized in the same way as the other categories

Table 105 shares my observations about the feasibility of process evaluation using the Water GPA. These observations are based on my experience applying the framework to two case studies, the BC CRT Review and the US CRT 2014/2024 Review.

8.1.3 Research Question 3

I also addressed my third research question, ‘**what are lessons learned for good water governance from the Canadian and American reviews of the CRT?**’ in Chapters 4 and 5. More specifically, I worked to identify barriers to and building blocks for good water governance via the case study analysis of the two programs and translated them into lessons for future CRT-related efforts and similar water governance processes.

Lessons learned and recommendations from the BC CRT Review are: 1) allow participants to help structure engagement, 2) take Tsilhqot’in decision to heart and work with First Nations to determine what it means for future processes, 3) invest in or capitalize on capacity building efforts, 4) develop criteria for what would be a successful

decision, 5) clearly specify how process participant input will be used, 6) choose the right leader and team, understand that trust may not necessarily scale up, 7) invest wisely because resources can make a difference, and 8) don't just close the loop, share what you know about the future (Table 62). Lessons learned from the US CRT 2014/2024 Review include: 1) identify a neutral convener to lead the process, 2) develop a way for sovereigns and stakeholders to both participate in the process and engage each other, while respecting sovereignty, 3) sometimes it may be worth the administrative effort to develop a more inclusive process, 4) consider a tiered approach for engagement in larger scale processes, 5) clearly specify how decision authority will be shared, 5) develop an understanding of either a) what you want the end product to look like or b) criteria for a successful decision and stick with them as much as possible, 7) find a way to re-evaluate and incorporate new decision criteria if new information comes available, and 8) identify ways to equitably allocate resources (Table 94). While I identified lessons learned separately for each case study, there is some thematic overlap (Table 106). Any future transboundary governance process involving both nations might consider both sets of lessons and recommendations as it develops its process.

Table 106. Summary of lessons learned from both case studies

Theme	BC CRT Review Lessons	US CRT 2014/2024 Review Lessons
Leadership	<ul style="list-style-type: none"> Choose the right leader 	<ul style="list-style-type: none"> Identify a neutral convener to lead the process
Inclusivity and sovereignty issues	<ul style="list-style-type: none"> Allow participants to help structure engagement Take Tsilhqot'in decision to heart and work with First Nations to determine what it means for future processes 	<ul style="list-style-type: none"> Develop a way for sovereigns and stakeholders to both participate in the process and engage each other, while respecting sovereignty Consider a tiered approach for engagement in larger scale processes
Decision criteria	<ul style="list-style-type: none"> Develop criteria for what would be a successful decision 	<ul style="list-style-type: none"> Develop an understanding of either 1) what you want the end product to look like or 2) criteria for a successful decision and stick with them as much as possible Find a way to re-evaluate and incorporate new decision criteria, if new information comes available
Decision authority	<ul style="list-style-type: none"> Clearly specify how process participant input will be used 	<ul style="list-style-type: none"> Clearly specify how decision authority will be shared (ideally a collaborative process)
Resources	<ul style="list-style-type: none"> Invest in or capitalize on capacity building efforts Resources make a difference, so invest wisely 	<ul style="list-style-type: none"> Sometimes it may be worth the administrative effort to develop a more inclusive process Identify ways to equitably allocate resources
Miscellaneous	<ul style="list-style-type: none"> Understand that trust may not necessarily scale up Don't just close the loop, share what you know about the future 	<ul style="list-style-type: none"> None

Table 106 lists out the lessons learned from the two case studies. It also categorizes the lessons along several themes.

8.1.4 Research Question 4

In Chapter 7, I sought to answer my fourth research question, ‘**what characteristics of a water governance process contribute to water governance outcomes?**’ To do this, I used the Water GPA and my CRT case studies to examine what characteristics of those processes contributed to their respective process outcomes (Objective 4). I hypothesized that the four categories of the Water GPA (accountability, information, inclusivity, and context) influenced both the decisions and the byproducts of the US CRT 2014/2024 Review and the BC CRT Review. To test this hypothesis, I asked

my interview participants if the accountability, information, inclusivity, context, and/or other aspects part of and outside of the US CRT 2014/2024 Review and the BC CRT Review processes shaped or influenced the decision (in my case studies that would be either the US Regional Recommendation or BC Provincial Decision). I also asked the review participants to identify the three byproducts from the process that were most important to them and then up to three byproducts they wished had resulted from the process (or wished increased more than they did). I then asked them to explain what about the process contributed to, worked against, or would have helped promote positive changes in the byproducts.

Using QSR NVivo software I manually coded the interview transcripts deductively using the Water GPA; that is I identified all statements where a participant talks about some aspect of the process influencing or not influencing the decision or byproducts. I coded these statements for which aspect of the process the participant was referring to (i.e., accountability, inclusivity, context, and information as well as their secondary codes). Statements that did not fit under any of these four primary codes were coded as “Other” which I inductively coded to identify what else may explain what influenced the two review decisions and their byproducts. I then went through all those coded statements a second time to identify the kind of influence (contributing or detracting) or lack of influence the participant discussed.

All four characteristics outlined in the Water Governance Process Assessment (Water GPA), played some role in the development of the content and/or support of the two decision documents. Generally, when the characteristic of the process was done well, it improved the legitimacy and acceptance of the decision. At the same time performing

poorly in one area did not necessarily torpedo the process or decision. For example, through measures of accountability the US process was able to address and overcome deficits in inclusivity. Likewise, the majority of those interviewed accepted the BC Provincial Decision as legitimate despite the fact that part of it contradicted their view because of the extensive consultation process and information sharing.

In both case studies, it appears that the interplay between the process characteristics (that is where two or more characteristics converge) had a greater influence over the decision. For example, the interplay between accountability and inclusivity had an intriguing effect on the US CRT 2014/2024 Review and the US Regional Recommendation. . The criterion for a high-level consensus document (an aspect of accountability) triggered a change in inclusivity and in turn influenced the Regional Recommendation and its support. In the BC CRT Review a combination of context, accountability, and inclusivity impacted the BC Provincial Decision. Various parties in the basin were not going to allow the provincial government to exclude their views in the Treaty review. An organization within the basin, the Columbia Basin Trust (CBT) worked to educate and prepare citizens for the Treaty review process and provided recommendations along with the LGC to the BC Ministry of Energy and Mines on how to engage the basin. For the most part, the lead ministry was responsive to the context and to the interested and affected parties. It was able to recognize the importance of including basin residents and capitalize on leverage points within the basin context to develop a successful engagement strategy that increased trust and the quality of relationships in the basin and Province.

Therefore, my observations in these two case studies suggest that the characteristics outlined by the Water GPA are those that influence process outcomes in the Columbia River Basin. However, further work is needed to clearly identify what characteristics of a process are most influential in different situations and further explore the interplay between the characteristics. The Water GPA is one useful tool for further investigating that link between process and outcome.

8.2 Implications for Adaptive Governance

Some of my research questions are practical in nature and seek to provide observations and advice to those managing water in the Columbia River Basin. However, two of my research questions (Research Questions 1 and 4) include implications for theory. In Section 8.1.4 (“Research Question 4) I discussed the implications of my results for our understanding of the link between process and outcome.

One way my research contributes to the adaptive governance literature is that it provides a tool and examples of how to evaluate two forms of capacity, a characteristic needed for resilience and for adaptive governance, in decision making processes. In adaptive governance there are two forms of capacity, adaptive and participatory (Cosens et al., 2014). Adaptive capacity includes possessing the resources and authority to adapt to change and learn (D. Armitage & Plummer, 2010; Cosens et al., 2014; Engle, 2011). Participatory capacity is the ability of local stakeholders to participate in decision making (Cosens et al., 2014). In the Water GPA, the ‘accountability’ category incorporates and assesses adaptive capacity in a decision making process through its subcomponents on authority. Likewise, the Water GPA process characteristic ‘inclusivity’ is analogous to and incorporates the concept of participatory capacity into the framework. This is not

surprising since I included adaptive governance and adaptive management frameworks in my development of the synthesis framework.

Cosens et al. (2014) note in the application of adaptive management elements of governance are often overlooked. Yet to implement adaptive management in a complex, multi-jurisdictional system adaptive governance must be addressed. To achieve adaptive governance, process must be addressed. Several of the frameworks included in the creation of my process evaluation framework come from the adaptive management and adaptive governance literature (Table 5). Concepts central to resilience are embedded in the Water GPA and accompanied by principles of good water governance from other frameworks in that area of study. Therefore, the Water GPA provides a means by which to consider and use process in the pursuit of adaptive governance.

In chapter 7, I found that accountability, inclusivity, information, and context contribute to outcomes scholars believe are necessary for adaptive governance. For example, knowledge and learning is viewed as critical for adaptive governance (Folke et al., 2005; Huitema et al., 2009; Pahl-Wostl, 2008; Pahl-Wostl, Sendzimir, et al., 2007; Plummer & Armitage, 2007; Plummer & FitzGibbon, 2004). In both my case studies, information efforts in the two Treaty reviews contributed to improved knowledge and understanding of the ecological system. Likewise, scholars believe trust is important for resilience and contributes to the formation of adaptive governance (Lebel et al., 2006; Walker et al., 2004). My findings suggest that inclusivity can increase trust, shared understanding and legitimacy, as seen in the BC CRT Review and with the sovereigns in the US CRT 2014/2024 Review. Therefore, one can consider using decision making processes to help a basin improve its resilience or transition into adaptive.

Another way my research contributes to theory is providing a tool to examine the relationship between adaptive and good water governance. Scholars question the viability of adaptive governance without good governance or call for an investigation of the relationship between adaptive governance and principles of good governance (Chaffin et al., 2014; Cosens et al., 2014; Dietz et al., 2003; Fennell, Plummer, & Marschke, 2008; Folke et al., 2005; Lockwood, 2010; Termeer, Dewulf, & Lieshout, 2010; Uhlendahl et al., 2011). The framework I developed incorporates concepts of adaptive governance as well as principles of good water governance. In future evaluations of a decision making process, one could examine the importance of the subcomponents of the four primary process categories to see if there are any discernible trends about the relative importance or relationship between the subcomponents from the adaptive governance literature and the good governance literature (Figure 13).



Figure 13. Water GPA accountability subcomponents

The Water GPA process category 'accountability' includes subcomponents more frequently discussed in the adaptive governance literature (e.g., authority), others from the 'good' governance literature (e.g., transparency), still others found in both fields (e.g., responsiveness).

8.3 Challenges and Limitations of Case Study Research

Case study research, like all methods, has its challenges. In this section, I describe several of these challenges and how I address them in my research. Yin (2014) identifies four challenges in case study research: construct validity, internal validity, generalizability (external validity), and reliability. Table 107 provides a summary of how I address each of these challenges in my research. In each subsection below, I describe the challenge and provide greater detail on my tactics for improving the quality of my research. I explain how I structured and organized my research in order to conduct a rigorous study in the subsections below. Those measures also serve to help limit my potential research biases.

Table 107. Challenges in case study research and my strategies to address them

Challenge	My Strategies
Construct validity	<ul style="list-style-type: none"> Used multiple sources of information (i.e., interviews and surveys of individuals as well as documents from the two reviews)
Generalizability (External validity)	<ul style="list-style-type: none"> Used resilience and adaptive governance theories in my research design Applied a replication logic in the two case studies
Internal validity	<ul style="list-style-type: none"> Employed a pattern matching approach to verify theory with empirical findings Addressed rival explanations in my data analysis
Reliability	<ul style="list-style-type: none"> Employed a case study protocol in my research design

Table 107 lists the four challenges of case study research and my strategy for addressing each challenge in my research.

8.3.1 Construct Validity

Bhattacharjee (2012) defines construct validity as “how well a given measurement scale is at measuring the theoretical construct that it is expected to measure” (2012, 36).

Yin explains it as “identifying correct operational measures for the concepts being studied” (2014, 46). To help increase construct validity a researcher can use multiple

sources of evidence in order to triangulate findings, establish a chain of evidence in data collection, and allow participants to review draft findings (Yin, 2014).

In my case studies, I address construct validity by using multiple sources of evidence. These sources include interviews and surveys of participants in the two CRT reviews, documentation from the reviews, and some direct observation. My intent for using multiple sources of evidence is to provide multiple ways to measure the same construct or phenomenon (Yin, 2014). Then in my analysis I identify converging lines of inquiry, allowing for triangulation and greater confidence in my findings.

8.3.2 Internal Validity

Internal validity, or causality, means there is actually a causal relationship between independent and dependent variables and that the relationship or change cannot be attributed to other variables. Bhattacharjee (2012) notes that internal validity requires that there is covariation of cause and effect, the cause occurs before the effect, and there is no plausible alternative explanation. I try to ensure internal validity by using two analytic tactics. First, I use pattern matching see if my empirical findings support the relationships between process and outcomes posited by the theories of resilience, adaptive governance, and good governance. Second, I address rival explanations in my data analysis. To identify rival explanations, I inductively coded the interview transcripts using emergent themes that may explain outcomes of the two reviews.

8.3.3 Generalizability

Traditionally, case studies are promoted as a methodology that is better at exploring complexity as opposed to generality (Ragin, 1987, 2008). Whether or not it is possible to generalize from case study research is a highly contested topic in academia.

Some argue that it is not appropriate to generalize findings from case studies. They define generalizations as “assertions of enduring value that are context free” (Lincoln & Guba, 2000, p. 27) or that generalization applies to things that are universally applicable (Kaplan, 1964). These critiques are not limited to case studies but also apply to other qualitative methods for which statistical significance is not testable (Mayring, 2007).

Others argue that in certain situations one can generalize from case studies. Gomm et al. (2000) posit that general conclusions from case studies may be drawn via theoretical inference and empirical generalization. Stake (2000) argues that naturalistic generalization (i.e., “recognizing the similarities of objects and issues in and out of context and by sensing the natural covariations of happenings,” p. 22) is an appropriate approach for case study analysis. This viewpoint emphasizes transferability over generalization. Along similar lines, Yin (2014) posits that while statistical generalization (i.e., where results from the sample apply to the larger world as determined by statistical inference) is not relevant for case studies, analytic generalizations are (i.e., findings are generalizable to theoretical propositions).

In my case studies, generalizability or external validity becomes an issue as I explore how generalizable my findings actually are regarding the link between decision making processes and outcomes. In Chapter 8, I make analytical generalizations about what my case studies say about adaptive water governance and identify aspects of my case studies that are consistent with that theory. I also approach generalization from the naturalistic generalization slant. That is I do not plan to claim universal applicability of lessons learned--that is not appropriate. Rather I suggest that lessons learned may be transferable to other similar scenarios. For example, both the US and Canada will

continue to make decisions about Columbia River governance. Therefore in my case study conclusions in Chapters 5 and 6, I offered advice on how they might approach those future decision making processes. Mayring (2007) identifies this as the weakest form of generalizability, but it avoids drawing unfounded conclusions.

8.3.4 Reliability

Reliability is “the degree to which the measure of a construct is consistent or dependable” (Bhattacharjee, 2012, p. 56). That is, reliability is concerned with whether the methods and tactics used in a study are repeatable and will reproduce the same results. Reliability is important in research as it seeks to minimize the effect of biases in research and avoid errors. In case study research, a case study protocol can improve reliability in the data collection phase. A case study protocol includes: 1) an overview of the case study (with research goals, questions, and theoretical framework used), 2) procedures for data collection, 3) questions used in the actual data collection, and 4) a guide for the case study report (Yin, 2014). A second method for improving reliability at that stage is developing a case study database (Yin, 2014). In data analysis, “check-coding,” where two researchers independently code text and then compare results via a formula (where the number of agreements are divided by the sum of the total number of agreements and disagreements), can improve reliability of coding (Miles & Huberman, 1994). Check-coding is also called inter-coder or inter-rater reliability.

To improve the reliability of my case studies I used a case study protocol in data collection. In data analysis, I reviewed all coding at least twice to confirm I coded in a consistent manner. Check-coding or inter-coder reliability would have further improved

reliability; however, I did not have the time or resources to pursue that path. Thus, that issue remains a limitation of the case studies and my findings.

8.4 Future Research

As discussed in the 'Future Research' section of Chapter 7, further research in decision making processes can build on or verify my research findings in a number of ways. Additional case studies will help disprove or verify my preliminary findings on what characteristics of a decision making process influence its outcomes. These case studies could take one of two approaches. Following my approach, the case studies could collect data after a decision is made by asking participants to reflect on their experiences and share their views. Alternatively, a researcher could gather baseline data prior to or in the early stages of a decision making process and then collect additional data after the decision has been made. This would allow the researcher to better document the existing positions and initial status of byproducts like trust and an understanding of the ecological system and then see how they evolved during the decision making process.

Instead of qualitative case studies, future researchers can also adopt a quantitative approach in which they utilize my survey (or some variation of it) to explore correlations between the characteristics of a process and its outcomes. With a larger data set, researchers can use statistical analyses to see if there is a correlation between accountability, information, and inclusivity scores and decision scores. A downside to this approach is that the current survey model does not evaluate context or byproducts in a quantitative way that is amenable to statistical analysis. In the future, myself and others might consider exploring ways to measure context and byproducts in a quantitative way to allow for quantitative analysis of those factors.

In addition to further studies to vet and verify my results, I recommend two topical areas further investigate. First, I recommend that researcher direct their attention to the interactions of the various process categories in order to identify trends related to how characteristics of the process interact to either promote or prevent good governance. My initial findings indicate that the intersection of two or more process characteristics may have greater influence on a decision or byproduct. One example of this in the adaptive governance literature is participatory capacity, which is a combination of accountability and inclusivity (Bankes & Cosens, 2014; Chaffin et al., 2014; Cosens et al., 2014).

A second topical area for future research in decision making process is how best to assess context and move beyond simple documentation of it in a description of the context. Because no two places are identical, we will never identify an accurate prescription for every context. However, a standardized approach to documenting context and evaluating how context is considered in a decision making process will allow us to better identify when a lesson may be transferrable to a different basin. Geography, and its long history of examining the importance of place, is a particularly well-suited discipline to this endeavor (Brunckhorst, 2010; Lebel, Garden, & Imamura, 2005). Likewise, the work by Elinor Ostrom and her colleagues on her SES framework as well as the work done by Resilience Alliance in their workbook on resilience assessments are logical launching points for examining the role of context in governance (Ostrom, 2007, 2009).

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10 Appendix A - Case Study Survey

Columbia River Treaty Review Assessment

Instructions: Review the verbal consent guide and the diagram below to understand the study and your role in it. If you have any questions please discuss them with the student researcher.

1. The study you are participating in seeks to evaluate the formal US and Canadian reviews of the Columbia River Treaty. The overall goal of the study is to learn how to improve decision making processes. A **decision making process** is a formal procedure employed by an organization or individual to make a decision. In this case, the process you are evaluating is one of the formal reviews of the Treaty either the:

Province of BC's Columbia River Treaty Review led by the BC Ministry of Energy, Mines, and Natural Gas

2014/2024 Columbia River Treaty Review led by the US Entity (Bonneville Power Authority and Army Corps of Engineers)

2. To evaluate the formal Treaty reviews you will answer a series of survey questions about four characteristics of the review based on your experiences. These characteristics are the **evaluation criteria** of the Treaty review process:

Context

Information & Knowledge

Representation & Inclusiveness

Accountability

3. In the survey you will also answer questions about the outcomes of the review process, namely the recommendation, decision, and other byproducts.

A **decision** is defined as the official result of the process (i.e., BC Recommendation, US Regional Recommendation, or either the US or Canadian official decision)

Byproducts are the (non-target) outcomes resulting from a process in addition to the formal decision, document, agreement, etc. (e.g., trust, new technical models)

4. After taking the survey you will discuss your responses with the student researcher to explore how the Treaty review process impacted the outcomes of the review and your opinions of those outcomes.

Instructions: Please fill out the following survey to help evaluate either the US or BC Columbia River Treaty review. Your survey responses are confidential. The survey should take about 20 minutes to complete. If you have any questions feel free to ask the interviewer. Thank you.

1. Rate (circle) the degree to which you agree or disagree with the following statements about the ACCOUNTABILITY of the Treaty review:

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
The review was sufficiently transparent	1	2	3	4	5
The review tasks/objectives were clearly specified	1	2	3	4	5
Criteria used for how decisions would be made were clearly specified	1	2	3	4	5
The degree to which decision authority would be shared was clear	1	2	3	4	5
To the best of your knowledge, the review followed the appropriate laws	1	2	3	4	5
To the best of your knowledge, the review fulfilled its legal obligations	1	2	3	4	5
The review was procedurally fair/just	1	2	3	4	5
Representatives of the public and interest groups represented their constituents' interests appropriately	1	2	3	4	5
The lead agency of the Treaty review was responsive to review participants	1	2	3	4	5

2. Do you have any additional comments on ACCOUNTABILITY in the Treaty review? You will also have an opportunity to discuss this in the interview or focus group.

3. Rate (circle) the degree to which you agree or disagree with the following statements about the INFORMATION (studies, data, knowledge, facts, etc.) produced and/or used in the Treaty review:

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
The review utilized the appropriate existing information (studies, knowledge, etc.)	1	2	3	4	5
The appropriate technical studies were conducted	1	2	3	4	5
Information was made available in a timely manner	1	2	3	4	5
Information made available was easily understood	1	2	3	4	5
Information shared was audience appropriate (e.g., matched the level of technical understanding)	1	2	3	4	5
Information produced in the review was adequate (i.e., appropriate for the decision)	1	2	3	4	5

4. Rate (circle) the number corresponding with the most accurate statement describing the degree of INFORMATION SHARING between the review's lead agency with you and/or your organization:

Scale	Indicators (timing/method/content)
1	No exchange of information
2	Irregular release of information (1/yr); informal exchange (e.g., through release of reports or journal articles)
3	Irregular but formal exchange of information that is limited, disputed or questioned
4	Irregular but formal exchange of limited information, validity accepted
5	Regular formal exchange, only one topic included, validity accepted or disputed
6	Regular exchange, multiple topics related to water included, validity accepted
7	Regular exchange, joint gathering and/or processing, only one topic included
8	Regular (1-2x/year) exchange, joint gathering and/or processing, multiple water issues included
9	Regular exchange, joint gathering and/or processing, multiple water issues included, including socio-economic and environmental issues exchanged or discussed
10	Extensive and regular exchange, joint information gathering and/or processing, socio-economic-environmental, policy and planning information

5. Do you have any additional comments on the INFORMATION produced, used, and/or shared in the Treaty review? You will also have an opportunity to discuss this in the interview or focus group.

6. Rate (circle) the following statements about the REPRESENTATION & INCLUSIVENESS in the Columbia River Treaty Review:

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Interested and affected parties had a venue for participating the Treaty review	1	2	3	4	5
Interested and affected parties were adequately represented in the Treaty review	1	2	3	4	5
You (or your organization) were adequately represented in the Treaty review	1	2	3	4	5
You (or your organization) had the ability to influence the Treaty review <i>on policy issues</i>	1	2	3	4	5
You (or your organization) had the ability to influence the Treaty review's <i>technical studies</i>	1	2	3	4	5
You (or your organization) had the resources needed to participate (e.g., money, personnel)	1	2	3	4	5
You (or your organization) were given the opportunity for early involvement	1	2	3	4	5
Your (or your organization) were given fair notice and time to be involved in the Treaty review	1	2	3	4	5

7. Do you have any additional comments on REPRESENTATION & INCLUSIVENESS in the Treaty review? You will also have an opportunity to discuss this in the interview or focus group.

8. Rate (circle) the degree to which you agree or disagree with the following statements about the Treaty review's REGIONAL RECOMMENDATION or BC PROVINCIAL DECISION:

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
The recommendation adequately addressed the review's central task (i.e., determine if the Treaty should be continued, modified, or terminated)	1	2	3	4	5
The recommendation is legitimate	1	2	3	4	5
The recommendation will be effective (i.e., the terms of recommendation will be accepted by the US or Canada)	1	2	3	4	5
The recommendation reflects the views of the region (US Pacific Northwest or BC)	1	2	3	4	5
The recommendation reflects your (or your organization's) views	1	2	3	4	5

9. Do you have any additional comments on the Treaty review RECOMMENDATION? You will also have an opportunity to discuss this in the interview or focus group.

Instructions: Review the list of process byproducts below (“byproduct” is defined as outcomes resulting from a process in addition to the formal decision, document, agreement etc.). Identify which byproducts you believe emerged, increased, or decreased as a result of the Treaty Review process.

Byproduct	Emerged (new)	Increased	Decreased	No change or don't know
Ability to resolve future disputes				
Changes in water management				
Coalitions				
Communication				
Community capacity for environmental/policy decision making				
Co-produced science (scientific information created jointly by parties)				
Economic costs				
Economic opportunities				
Your own education/awareness				
Your organization's education/awareness about the issues at hand				
Public education/awareness				
Human capital (skills, knowledge, training, and experience of review participants)				
Innovation (innovative ideas or solutions)				
Institutional capacity (the ability for the basin to adapt to change, such as new laws, ecological changes like drought and climate change)				
Mutual/shared understanding				
Programs or initiatives (outside of the decision)				
Quality of relationships				
Level of conflict and hostility				
Social capital (networks, relationships of reciprocity, and connectedness)				
Shared knowledge and information				
Technical models				
Trust in the lead agency				
Trust in others involved				
Understanding of ecological/biophysical system				
Understanding of the social system				
Understanding of other's views, positions, etc.				
Other - please specify:				
Other - please specify:				

10. List the top THREE byproducts most important to you (or your organization) that resulted (emerged or increased) from the review process. You will be given an opportunity to explain.
11. List up to THREE byproducts you wish had resulted from or increased due to the CRT Review process but did not. You will be given an opportunity to explain why during the interview.

Instructions: Please fill in the demographic information below.

12. Select the review you participated in:

United States

British Columbia/Canada

13. What was your role in the Columbia River Treaty review (e.g., member of SRT, member of Sounding Board, technical committee, etc.)?

14. Select which option best describes your affiliation:

Federal government

Non-governmental organization

Tribal or First Nation

Stakeholder group

Provincial/State government

Academia

Local government

Other - please specify:

Basin resident/member of public

15. Approximately when did you or your organization first get involved with the Treaty review?

16. Approximately how long were you involved in the review?

Thank you for your participation in this survey.

If you have any questions please contact Kim Ogren at (703) 625-6754 or by email at ogrenk@geo.oregonstate.edu.

11 Appendix B - Case Study Interview Guide

Interview Questions

We will discuss as many of these questions as time allows. This will be a semi-structured interview, meaning we may not go through the list question-by-question, but will touch on all of the topics through a more organic conversation.

Process Questions

1. Did the degree of transparency in the Treaty review process influence the outcome of the review? In what ways?
2. How did the degree of accountability in the Treaty review process influence the recommendation/decision?
3. In what ways did the information used and produced during the Treaty review influence the recommendation?
4. What aspects of the context (such as the social, ecological, or political setting) influenced the FORMATION Treaty review process?
5. What aspects of the context (such as the social, ecological, or political setting) influenced the IMPLEMENTATION Treaty review process?

Decision Questions

1. Did any aspect of the Treaty review process influence how you or your organization agreed with or did not agree with the recommendation?
2. What parts of the recommendation do you agree with or disagree with? Why?
3. What other characteristics of the process influenced the outcome of the [BC CRT or US CRT 2014/2024] Review? What would have improved the outcome (the recommendation)?
4. Is there anything else you would like to share and think is important to consider in an evaluation of the Treaty review?

Byproduct Questions

[In reference to the top three byproducts you listed on the “Process Byproduct Assessment” as most important.]

1. Why did you list these byproducts [name them, one at a time] as most important to you?
2. How did the CRT Review process promote, enable, or contribute to the byproduct?
[reference previous parts of the conversation about the process assessment, if relevant]

[In reference to the byproducts you listed on the “Process Byproduct Assessment” as those that did not result from the CRT Review process but they wish they had.]

3. Why did you want these byproducts [name them, one at a time] to emerge from or increase as a result of the CRT Review process?
4. What prevented them from occurring?
5. What could have promoted or enabled them?

12 Appendix C - IRB Approval



Institutional Review Board
Office of Research Integrity | Oregon State University
8308 Kerr Administration Building, Corvallis, OR 97331-2140
Telephone (541) 737-8008
irb@oregonstate.edu | <http://research.oregonstate.edu/irb>

**EXEMPT
DETERMINATION**

Date of Notification	01/08/2015		
Study ID	6513		
Study Title	Development and Application of a Framework for Evaluating Water Governance Decision Making Processes		
Principal Investigator	Aaron Wolf		
Study Team Members	Kim ogren		
Submission Type	Project Revision	Date Acknowledged	01/08/2015
Level	Exempt	Category(ies)	2
Funding Source	OUS Sylff Fellowship; Hydro Research Foundation	Proposal #	N/A
PI on Grant or Contract	N/A	Case #	N/A

The above referenced study was reviewed by the OSU Institutional Review Board (IRB) and determined to be exempt from full board review.

EXPIRATION DATE: 10/26/2019

The exemption is valid for 5 years from the date of approval.

Annual renewals are not required. If the research extends beyond the expiration date, the Investigator must request a new exemption. Investigators should submit a final report to the IRB if the project is completed prior to the 5 year term.

Documents included in this review:

- | | | |
|--|---|--|
| <input checked="" type="checkbox"/> Protocol | <input checked="" type="checkbox"/> Recruiting tools | <input type="checkbox"/> External IRB approvals |
| <input type="checkbox"/> Consent forms | <input type="checkbox"/> Test instruments | <input type="checkbox"/> Translated documents |
| <input type="checkbox"/> Assent forms | <input type="checkbox"/> Attachment A: Radiation | <input type="checkbox"/> Attachment B: Human materials |
| <input type="checkbox"/> Alternative consent | <input type="checkbox"/> Alternative assent | <input type="checkbox"/> Grant/contract |
| <input checked="" type="checkbox"/> Letters of support | <input checked="" type="checkbox"/> Project revision(s) | <input type="checkbox"/> Other: |

Comments: Recruitment of Upper Snake River Tribes.

Principal Investigator responsibilities:

- Certain amendments to this study must be submitted to the IRB for review prior to initiating the change. These amendments may include, but are not limited to, changes in funding, study population, study instruments, consent documents, recruitment material, sites of research, etc. For more information about the types of changes that require submission of a project revision to the IRB, please see: http://oregonstate.edu/research/irb/sites/default/files/website_guidancedocuments.pdf
- All study team members should be kept informed of the status of the research. The Principal Investigator is responsible for ensuring that all study team members have completed the online ethics training requirement, even if they do not need to be added to the study team via project revision.
- Reports of unanticipated problems involving risks to participants or others must be submitted to the IRB within three calendar days.
- The Principal Investigator is required to securely store all study related documents on the OSU campus for a minimum of seven years post study termination.

13 Appendix D - Codebook

Table 108. Water GPA process category primary codes

Code	Explanation
Accountability	The organization and atmosphere of the process designed to produce a legitimate decision based on 1) what is the scope of the decision making process, 2) who will make the decision, and 3) how the decision will be made.
Information	The data, information and knowledge used to make the decision, including all stages of collection, modeling, experiments, and analysis.
Inclusivity	The degree and quality of inclusion of interested and effected parties at various stages of the process, which may take many forms (e.g., direct participation or representation) to result in meaningful engagement.
Context	The various conditions of the basin and socio-ecological system under which the decision is being made. Three subcategories of the context are: social system, ecological system, and the problem.
Other	Statements about the process that do not fit in any of the other codes

Table 109. Water GPA decision codes

Primary	Secondary	Explanation
<i>Decision</i>		<i>Statements about the decision resulting from the process</i>
	Dec - Neutral	Neutral or mixed feelings/statements about decision in the process
	Dec - Positive	Positive feelings/statements about decision in the process
	Dec - Negative	Negative feelings/statements about decision in the process

Table 96. Additional codes for analysis of link between a process and its decision

Code	Explanation
Influenced content	Some aspect of the process influenced the structure or content of the decision
Increased support	Some aspect of the process <i>increased</i> participant support for the decision
Decreased support	Some aspect of the process <i>decreased</i> participant support for the decision
No influence	The process did not influence the decision in terms of content or support
Other	The process had some other impact on the decision

Table 96 displays the codes I used to document potential links between the characteristics of a process and the decision.

Table 97. Additional codes for analysis of link between a process and its byproducts

Code	Explanation
Increased byproduct	Some aspect of the process promoted the emergence or increase of a byproduct
Worked against byproduct	Some aspect of the process impeded the emergence or increase of a byproduct
No influence	The aspect of the process had no impact on the byproduct
Would have helped	Recommendations or statements about how if the process was run or structured differently, it would have contributed to a byproduct

Table 97 displays the codes I used to document potential links between the characteristics of a process and the process byproducts.

Table 110. Water GPA byproduct codes

Byproduct code	Explanation
Ability to resolve disputes	Ability to address future conflict
Changes in water management	Actual changes in how water is managed by any party involved in the process (e.g., a change in timing of releases of water, new water quality standards, changes in water rights)
Coalitions	Groups working together towards a common goal
Communication	Exchange of information
Community capacity	The ability of a community to make and/or adapt to decisions in environmental management
Co-produced science	Scientific information created jointly by parties
Economic costs	New costs identified or assigned as a result of the process
Economic opportunities	New opportunities for economic gain resulting from the process
Your own education/awareness	Increased understanding of the decision at hand and its related issues by the evaluator
Your organization's education/awareness	Increased understanding of the decision at hand and its related issues by the evaluator's organization
Public education/awareness	Increased understanding of the decision at hand and its related issues by the general public
Human capital	Skills, knowledge, training, and experience of participants
Innovation	Innovative ideas or solutions
Institutional capacity	The ability for the basin to adapt to change, such as new laws, ecological changes like drought and climate change
Mutual/shared understanding	Parties to the process came to a mutually agreed upon or shared understanding of an issue or issues
Programs or initiatives	New initiative or program (outside of the decision)
Quality of relationships	A change in how parties relate to one another
Level of conflict and hostility	The degree of conflict between different parties in the process
Social capital	Networks, relationships of reciprocity, and connectedness
Shared knowledge and information	Parties to the process all have access to the same information
Technical models	New or improved models
Trust in the lead agency	A change in the belief or confidence in the reliability, ability, honesty or strength of the organization in leading the process
Trust in others involved	A change in the belief or confidence in the reliability, ability, honesty, or strength of the parties involved in the process
Understanding of ecological/biophysical system	Better knowledge of the biophysical characteristics of the river basin system and understanding of ecological its processes
Understanding of the social system	Better knowledge and understanding of the social characteristics of the river basin system and the social processes in the basin
Understanding of other's views & positions	Knowledge of, but not necessarily agreement with, the beliefs, views, and positions of the various parties involved in the decision making process
Other	Byproducts that do not fit in any of the other categories

Table 111. Water GPA process category secondary codes

	Secondary Code	Explanation
Accountability	Acc - Neutral/Mixed	Neutral or mixed feelings about accountability in the process
	Acc - Positive	Positive feelings about accountability in the process
	Acc - Negative	Negative feelings about accountability in the process
	Fair/just	Whether the process was fair and/or just
	Transparency	The degree of transparency and openness in the process
	Decision authority	How decision authority was or was not shared and whether or not that was clear in the process
	Criteria for decision	How decision criteria were set as well as if it was clear what they were and how they would be applied
	Lead agency responsiveness	How the lead agency responded (or did not respond) to participant requests and inquiries during the process
	Rule of law	How the process followed various laws or addressed (or failed to address) legal obligations
	Information	Info - Neutral/Mixed
Info - Positive		Positive feelings about information in the process
Info - Negative		Negative feelings about information in the process
Right information		Appropriate existing studies and new studies were used; focused on content of information and technical work
Available in timely manner		The timeframe in which information was produced and shared
Understandable/ audience appropriate		Whether the information produced/provided was understandable and audience appropriate
Information sharing		Degree of information sharing; focused on access to information
Inclusivity	Inclu - Neutral	Neutral feelings about inclusivity in the process
	Inclu - Positive	Positive feelings about inclusivity in the process
	Inclu - Negative	Negative feelings about inclusivity in the process
	Influence on policy discussions	Ability to have input on the policy discussions in the process, including the ability influence or not influence policy issues
	Influence on technical discussions	Ability to have input on the technical work in the process, including the ability influence or not influence technical issues
	Resources to participate	Resource access and availability for participation in the process
	Early access & notice	Timing of access to and/or inclusion in the process
	Representation	How participants were represented and participated in the process
Context	Listened to	Comments about whether participants felt listened to
	Neutral/Mixed	Neutral or mixed feelings about context in the process
	Positive	Positive feelings about context in the process
	Negative	Negative feelings about context in the process
	Socio-cultural	Culture, norms, economic aspects of the basin
	Legal & geopolitical	Laws, treaties, court opinions, as well as legal jurisdictions and authorities that set the stage for the process; political factors that influenced or set the stage for the process
	Biophysical & ecological	Physical aspects about the basin including geographic extent, ecological, geomorphology, biology, topography that set the stage for the process
	Out-of-basin	Factors physically located outside of the basin (as opposed to within it) that influenced the process