

1-1-2010

Managing Transboundary Natural Resources: An Assessment of the Need to Revise and Update the Columbia River Treaty

Matthew McKinney Ph.D.

Lorie Baker

April M. Buvel

Andy Fischer

Dana Foster

See next page for additional authors

Follow this and additional works at: https://repository.uchastings.edu/hastings_environmental_law_journal



Part of the [Environmental Law Commons](#)

Recommended Citation

Matthew McKinney Ph.D., Lorie Baker, April M. Buvel, Andy Fischer, Dana Foster, and Christine Paulu, *Managing Transboundary Natural Resources: An Assessment of the Need to Revise and Update the Columbia River Treaty*, 16 *Hastings West Northwest J. of Env'tl. L. & Pol'y* 307 (2010)

Available at: https://repository.uchastings.edu/hastings_environmental_law_journal/vol16/iss2/2

This Article is brought to you for free and open access by the Law Journals at UC Hastings Scholarship Repository. It has been accepted for inclusion in *Hastings Environmental Law Journal* by an authorized editor of UC Hastings Scholarship Repository. For more information, please contact wangangela@uchastings.edu.

Managing Transboundary Natural Resources: An Assessment of the Need to Revise and Update the Columbia River Treaty

Authors

Matthew McKinney Ph.D., Lorie Baker, April M. Buvel, Andy Fischer, Dana Foster, and Christine Paulu

**Managing Transboundary Natural Resources:
An Assessment of the Need to Revise and Update
the Columbia River Treaty**

*Matthew McKinney, Ph.D.**

Lorie Baker

April M. Buvel

Andy Fischer

Dana Foster

Christine Paulu

I. INTRODUCTION	308
A. Historical Perspective	308
B. Purpose and Methods	311
II. PERFORMANCE TO DATE	312
A. What is Working?	312
B. Drivers of Change	313
1. Ecosystem Health	313
2. Expectations for Public Participation	314
3. Tribal Rights	315
4. Population Growth	317
5. Climate Change	318
6. Recreation	318
III. PROSPECTS FOR THE FUTURE	318
A. People's Preferences	318
B. Legal and Institutional Options	320

* Matthew McKinney is Director of the Center for Natural Resources and Environment Policy at The University of Montana. His work focuses on collaboration and conflict resolution on issues related to natural resource and environmental quality. He is also an Adjunct Professor at The University of Montana's School of Law where he serves as Chair of the Natural Resource Conflict Resolution Program. He received his Ph.D. from The University of Michigan in Natural Resource Policy and Conflict Resolution.

IV. OPTIONS ON HOW TO PROCEED.....	323
A. Convening the Dialogue.....	323
B. Representation - Who Should Be at the Decision-making Table?	324
C. Public Participation - How to Inform and Engage Unaffiliated Citizens?.....	325
D. Process Management - The Role of Facilitation and Mediation	326
E. Information - The Need for Scientific and Public Learning.....	328
F. Governance - Implementing and Adapting to Change	330
V. SUCCESS AND BARRIERS.....	331
A. Indicators of Success	331
B. Barriers to Overcome.....	333
VI. CONCLUSIONS AND RECOMMENDATIONS.....	335
1. Build on the Options and Recommendations Articulated by the Interviewees.....	335
2. Conduct a More Complete Assessment.....	336
3. Clarify the Options to Revise and Update the CRT	336
4. Evaluate Options to Involve Organized Stakeholders and Unaffiliated Citizens	336
5. Facilitate Scientific and Public Learning.....	336
VII. APPENDICES.....	338
Appendix A: Maps of the Columbia River Basin.....	338
Appendix B: Columbia River Treaty Organization	341
Appendix C: List of Interviewees.....	342
Appendix D: Interview Questions	343
Appendix E: Chronology of Major Events Since 1964.....	344
Appendix F: Top-Ten Lessons for Transboundary Water Management.....	347
Appendix G: Principles of Collaboration on Natural Resources	349

I. Introduction

A. Historical Perspective

The Columbia River basin is the fourth largest river basin in the United States, equal to the size of France (see Appendix A). It includes parts of Oregon, Montana, Idaho, Nevada, Wyoming, Utah, Washington, and British

Columbia.¹ The Columbia River has ten times the flow of the Colorado River.² It is one of the most hydroelectrically developed river systems in the world, with a generating capacity of more than 21 million kilowatts.³ There are 11 dams on the mainstem in the United States and three in Canada, in addition to more than 400 other dams for irrigation and hydropower on tributaries.⁴ While this infrastructure has generated many benefits in the form of power and flood control, many people argue that it has adversely impacted fish, navigation, irrigation, recreation, and indigenous cultures.⁵

In 1944, planners in Canada and the United States recognized that cooperative development of the basin might generate more benefits than each country could generate acting independently.⁶ The planners requested that the International Joint Commission ("IJC") study the feasibility of cooperative development in the Columbia Basin. From 1944 to 1959, the IJC studied a range of options to cooperatively develop and manage resources within the basin.⁷ Following years of negotiation, the governments of Canada and the United States ratified the Columbia River Treaty and Protocol in 1964.⁸

The Columbia River Treaty is considered one of the most far-reaching water treaties in the world.⁹ It required Canada to build three new storage

1. Bill Lang, *Columbia River*, Center for Columbia River History, <http://www.ccrh.org/river/history.htm> (last visited Feb. 13, 2010).

2. William L. Lang, Robert C. Carriker, *Great River of the West: Essays on the Columbia River*, 90 (1999).

3. Lang, *supra* note 1.

4. *Id.*

5. *Id.*

6. U.S. ARMY CORPS OF ENGINEERS & BONNEVILLE POWER ADMINISTRATION, HISTORY AND 2014/2024 REVIEW, 3 (2009), available at http://www.bpa.gov/Corporate/pubs/Columbia_River_Treaty_Review_-_Feb_2009.pdf [hereinafter U.S. ARMY CORP OF ENGINEERS REVIEW].

7. *Id.*

8. Treaty Relating to Cooperative Development of the Water Resources of the Columbia River Basin, U.S.-Canada, Jan. 22, 1964, 15.2 U.S.T. 1555 [hereinafter Columbia River Treaty or CRT].

9. *Id.*; For a review of the literature on the formulation and implementation of the Columbia River Treaty, see U.S. ARMY CORP OF ENGINEERS REVIEW, *supra* note 6; Keith W. Muckleston, *International Management in the Columbia River Systems* (Report prepared for UNESCO's International Hydrological and World Water Assessment Programme, 2003); Richard Paisley, "Adversaries Into Partners: International Water Law and the Equitable Sharing of Downstream Benefits," 2002 *Melbourne Journal of International Law* 280-300 (2002); Nigel Bankes, *The Columbia Basin and the Columbia River Treaty: Canadian Perspectives in the 1990s* (Northwest Water Law and Policy Project, 2001, available at www.lclark.edu/dept/water); John Volkman, *A River in Common: The Columbia River, The Salmon Ecosystem, and Water Policy* (Western Water Policy Review Commission, 1997); Neil Swainson, *Conflict Over the Columbia: The Canadian Background to an Historic Treaty* (Institute of Public Administration of Canada, 1979); John Krutilla, *The Columbia*

dams: Keenleyside, Duncan and Mica (referred to as The Treaty Dams), to optimize flows for hydroelectric power and flood control in both nations.¹⁰ The Treaty Dams provide more constant year-round streamflows, as spring floods from snowmelt are held back and released throughout the year.¹¹ In return for building the dams, Canada is compensated by the United States through two mechanisms that have efficiently transferred hundreds of millions of dollars annually. First, the United States paid Canada for half of the estimated flood control benefits provided by the Treaty Dams until 2024 (after 2024 the U.S. will pay operating costs and economic losses for any requested Canadian flood control operation).¹² Second, the Treaty set up a system in which the United States compensates Canada for one-half of the downstream hydroelectric power benefits generated by the upstream storage dams (known as the “Canadian Entitlement”).¹³ Canada also retains the rights to use all of the power generated by the Canadian Treaty Dams.¹⁴

The CRT is considered by some experts to be one of the most sophisticated transboundary natural resource treaties in the world.¹⁵ Unlike other international water treaties, it does not focus on allocating fixed quantities of water, but rather allocates a mix of “benefits” to each country.¹⁶ The primary benefits of the CRT - hydroelectric power, flood control, and compensation - were largely fixed in 1964. The governance of the Columbia River under the original CRT thereby excludes many of the values that society has found increasingly important in the intervening years, particularly the quality and quantity of instream flows for ecosystem health, as well as the legal obligation to tribes for treaty-based water and fishery resources.¹⁷

River Treaty, The Economics of an International River Basin Development (Resources for the Future, 1967).

10. Columbia River Treaty, *supra* note 8; The treaty also gave the U.S. power to build the Libby Dam with a reservoir that extended into Canada.

11. U.S. ARMY CORPS OF ENGINEERS REVIEW, *supra* note 6.

12. *Id.*

13. *Id.* (Canada is entitled to one-half of the downstream power benefits created by Canadian storage. Canada sold its first 30-year entitlement, up front, to a group of U.S. utilities for \$254 million. This was known as the Columbia Storage Power Exchange (negotiated after the CRT was signed) and was important for establishing funding for the construction of the Treaty Dams. Since that 30-year period ended, Canada receives payment for its entitlement annually.)

14. *Id.*

15. Interview with Professor Aaron Wolf, Oregon State University (October 2008) (on file with author); Interview with Professor Richard Paisley, University of British Columbia (October 2008) (on file with author).

16. *Id.*

17. The recognition of tribal legal rights to water and fishery resources is largely a function of multiple lawsuits and judicial decisions, as explained more fully below.

The administration of the CRT is governed by what are commonly referred to as the “Entities” - including the Bonneville Power Administration and Army Corps of Engineers from the United States, and BC Hydro from Canada.¹⁸ A Permanent Engineer Board is responsible for preparing and approving an Annual Operating Plan.¹⁹ Appendix B presents an organizational chart for the CRT.

The CRT does not have an expiration date. However, after sixty years of implementation (no sooner than 2024) the treaty can be terminated and renegotiated as long as either the United States or Canada give at least ten years notice of their intent to terminate.²⁰ The flood control agreement expires in 2024.²¹ While these deadlines may seem to be beyond the planning horizon of most political decision makers, many professionals involved in management of the basin have started to think about how, if at all, the CRT may be revised and updated in light of all the changes that have occurred since 1964.

B. Purpose and Methods

The purpose of this article is to present and discuss the findings of an assessment of the need to revise and update the CRT. During fall 2008, five graduate students in The University of Montana’s Natural Resources Conflict Resolution Program set out to interview people representing the “Entities” in the United States and Canada (i.e., those agencies with primary authority to formulate and implement the CRT), other government agencies, tribal governments, and selected scholars. Due to time and financial constraints, the team was forced to limit the number of interviews. A more complete and robust assessment would include interviews with representatives from various interest groups and other stakeholders.

Appendix C presents a list of interviewees, and Appendix D presents the interview questions. In addition to the interviews, we reviewed scientific, legal, and other commentary on the merits of the CRT. We also provided interviewees a chance to review and comment on earlier drafts of this article and to provide any additional technical information. We

18. Columbia River Treaty, *supra* note 8.

19. *Id.*; The CRT allows the Entities the option to prepare Detailed Operating Plans (DOP) annually that may produce results more advantageous to both countries than those that would arise from operation under the Annual Operating Plan. For more than 20 years, the DOP’s have included operations that meet a growing number of fishery and recreation objectives; *see* U.S. ARMY CORPS OF REVIEW *supra* note 6.

20. *Id.* If the Treaty is terminated and not renegotiated, the Boundary Waters Treaty of 1909 will govern the transboundary Columbia River, however, certain provisions of the Treaty continue so long as the projects exist, including called-upon flood control, Libby coordination, and Kootenay diversion rights.

21. *Id.* Some interviewees interpret flood control provisions to continue beyond 2024.

presented and discussed the results of this assessment at a conference on the governance of transboundary rivers in the face of uncertainty.²²

We are very grateful to all of those people and organizations that provided feedback. Throughout this assessment, the team was guided by the Ethical Standards of Professional Responsibility for the Association for Conflict Resolution, which, in essence, compels members of the team to operate as nonpartisan, impartial servants of all stakeholders and decisionmakers.²³

The following sections of this article present our findings, along with conclusions and recommendations that build on what interviewees told us and best practices in multiparty negotiation and collaboration. We do not attribute ideas or comments to individual interviewees, preferring to operate on the principle that what is most important is what was said, not who said what. This principle allows everyone to consider the merits of the ideas presented, regardless of who said what. The people we interviewed represented their own viewpoints, not official positions of their organizations.

Our hope is that this assessment helps inform and invigorate discussions about the future of the CRT.

II. Performance to Date

A. What is Working?

Nearly all of the interviewees said that the CRT is working well for its intended purposes, hydroelectric power production and flood control. Many people also agreed that the technical operations of the CRT have been very successful (i.e., the combination of the operating committee, annual operating plans, and the Permanent Engineering Board). One person asserted, "Lots of things are working well. The CRT is probably one of the most successful agreements of international cooperation." Another person explained how floods have been reduced with the infrastructure of new dams and the careful management of hydropower systems. One interviewee said that the CRT "contributed hugely to the reduction of global warming by reducing the use of fossil fuels," and has also "provided the Northwest with some of the cheapest electricity in the world."

Although nearly all respondents said the CRT is working well for its original purposes, many interviewees cited various problems with the CRT.

22. *Transboundary River Governance in the Face of Uncertainty: The Columbia River Treaty*, 2014 (The University of Idaho College of Law, Natural Resource and Environment Symposium, April 2-4, 2009, Coeur d'Alene, Idaho).

23. Society of Professionals in Dispute Resolution, *Ethical Standards of Professional Responsibility*, (1986), http://acnet.org/acrlibrary/more.php?id=28_0_1_0_M.

These difficulties, explained more fully below, include adverse impacts on fish and wildlife in both Canada and the United States, the loss of thousands of acres of habitat, and harm to tribal interests (particularly fishing and hunting), community interests, and farming interests in both Canada and the United States. A few respondents, however, stated that the operating team does a pretty good job of integrating fishery interests when it can.

The interviewees were somewhat split over the distribution of benefits within the CRT. Some say, "The framework allows some of the economic benefits to be divided on an equitable basis between the countries." Others said that they "would like to see a better exchange of benefits across the border."

Finally, some respondents said that no single aspect of the CRT is working well. In fact, some interviewees failed to answer the original question (What is working well with respect to the CRT?), and instead cited various ways in which the CRT is not working well: it does not satisfy current social and environmental needs, it does not allow for the legal rights of tribes in Canada and the United States to be met, and it does not provide sufficient opportunity for stakeholders and the public to be informed and engaged. These issues are addressed in more detail below.

B. Drivers of Change

According to the interviewees, the changes that have taken place since ratification of the treaty are the primary reasons to revise and update the CRT. One interviewee succinctly noted that "we have moved from a time when the primary interests (hydropower and flood control) were readily quantified and generally complimentary, to a time with many more interests that are extremely difficult to quantify and are often mutually exclusive." This sentiment was echoed by many of the interviewees.

The interviewees identified six specific drivers or reasons to revise and update the Columbia River Treaty - (1) ecosystem health; (2) expectations for public participation; (3) tribal interests and rights in both Canada and the United States; (4) population growth; (5) climate change; and (6) other considerations. Appendix E, Chronology of Major Events Since 1964, provides additional information on issues and decisions that influence the management of the Columbia River.

1. Ecosystem Health

Nearly all of the interviewees explained that ecosystem health is one of the most compelling drivers to revise and update the CRT. This driver is a catch-all term for a number of specific issues identified by the respondents, including but not necessarily limited to:

- The emergence of ecosystem health values as reflected by a series of environmental laws passed by the U.S. Congress since 1964, including the National Environmental Policy Act of 1969 (“NEPA”),²⁴ the Clean Water Act of 1972 (“CWA”),²⁵ and the Endangered Species Act of 1973 (“ESA”).²⁶ The most influential of these to the CRT is the ESA, which provides protections for endangered and threatened plants and animals (listed species) and the habitats upon which they depend.²⁷
- The impact of Treaty Dams and reservoir operations throughout the basin on fish species, including salmon and resident fish, particularly as these impacts influence the maintenance of commercial, tribal, and recreational fisheries.
- The impact of land use development, resource development (e.g., mining), and transportation infrastructure on fish resources.
- The importance of conserving and restoring fish and other wildlife in recognition of traditional cultural, spiritual, and legal rights of the Tribes and First Nations consistent with the tenets of environmental justice.²⁸
- The adequacy of water supply in the face of continued population growth and climate change.
- The degradation of water quality from point sources (e.g., industrial and municipal effluent) and non-point sources (e.g., urban growth, agriculture, and forestry) and the impact on fishery and other resource values.

The interviewees concluded that these and perhaps other ecosystem health issues are not adequately taken into account in the existing CRT. Some of the interviewees also noted that these ecosystem health interests are often at odds with each other, for example, upstream and downstream fisheries may need water retained or released at conflicting times.

2. Expectations for Public Participation

Most of the interviewees agreed that another reason to revise and

24. 42 U.S.C. §§4321-4370f (1969).

25. 33 U.S.C. §§1251-1387 (1972).

26. 16 U.S.C. §§1531-1599 (1973).

27. *Id.*

28. Mary Christina Wood, *Protecting the Attributes of Native Sovereignty: A New Trust Paradigm for Federal Actions Affecting Tribal Lands and Resources*, 1995 UTAH L. REV. 109 (1995).

update the CRT is an increased expectation for public and stakeholder involvement in future management of the system.

As explained above, most interviewees agree that the Columbia River must be managed to meet a broader and more complex set of values beyond the original focus on hydropower and flood control. These respondents explained that the best way to integrate the interests and concerns that revolve around ecosystem health, tribal rights, and recreation is to make the process of managing the Columbia River system more open, transparent, and inclusive. Several people cited the Pacific Salmon Commission as one model to improve the governance of the basin under the CRT, in large part because it provides meaningful opportunities for tribes and stakeholders to be involved in decisionmaking and implementation.²⁹

Some respondents explained that it is not only important to engage organized stakeholder groups and unaffiliated citizens in setting priorities for the system, but also to involve them in monitoring and adapting the system over time.

Not all interviewees agreed about whether or when citizens and stakeholders should be engaged. Some of the respondents suggested that the best time to engage non-governmental interests is after the entities and other key actors have a chance to work through some of the issues and propose some type of revised plan.

3. Tribal Rights

According to many respondents, another significant reason to revise and update the CRT is to fulfill the trust responsibilities and legal obligations of the federal government with respect to the interests, customs, and legal rights of First Nations and Native Americans (collectively referred to herein as “tribes”). The existing operations of the Treaty dams have caused further damage to what was an already compromised fishery,³⁰ and to which the tribes have a reserved legal right. The interviewees noted that the U.S. government has a “trust and fiduciary responsible to the tribes on actions that affect their treaty-protected resources.” These resources include salmon fisheries, other fish species, wildlife, and native plants. The tribes’ legal rights have been established through a long history of legal action.³¹

29. See Pacific Salmon Commission, <http://www.psc.org> (last visited Feb. 13, 2010).

30. When the U.S. Senate debated the treaty in 1961, they assumed there couldn’t be any more salmon losses since Grand Coulee had already knocked out the runs that would have returned to the area where the Canadians were to build their dams. However, they ignored the serious detrimental impacts to the fisheries that remained and the resulting impact to the tribes’ right to fish. *Columbia River Treaty: Hearing Before the S. Comm. on Foreign Relations, 87th Congr.* (March 8, 1961).

31. In addition to the narrative provided herein, additional information on the tribes’ legal rights is presented in Appendix E, Chronology of Major Events.

In 1855, Native Americans in the Columbia River basin signed a series of treaties with the United States which ceded most of their lands, but reserved exclusive rights to fish and hunt within their reservations as well as rights to fish in usual and accustomed places off the reservation.³² First Nations have similar rights based on Section 35 of the Constitutional Act (1982)³³ that gave constitutional protection to the aboriginal and treaty rights of the First Nations in Canada. To exercise these rights, some interviewees explained that the tribes have had to resort to the courts. Over time, the courts have increasingly recognized these legal rights as reflected in several notable cases.³⁴ These include: *Winters v. United States*,³⁵ *Sohappy v. Smith*,³⁶ *U.S. v. Washington*,³⁷ *Settler v. Lameer*,³⁸ and the *Haida and Taku River* decisions in Canada.³⁹ In addition, the Pacific Salmon Treaty incorporated tribal rights as it set out to cooperatively provide recommendations to managers of Pacific salmon stocks.⁴⁰ With so many existing court decisions and treaties governing fisheries management, some interviewees made it clear that the tribes do not want fisheries management simply “incorporated” into the CRT per se. Rather, they want the governance of the

32. Center for Columbia River History, *Treaties & Executive Orders Archive*, <http://www.ccrh.org/comm/river/treaties.htm>.

33. Constitution Act, 1982 (1982) (Can.).

34. Though most of these court cases were not specifically referenced by interviewees, we feel their inclusion here reflects and refines the discussions with interviewees about legal rights of tribes in the U.S. and Canada.

35. 207 U.S. 564 (1908) (allowing tribes to reserve future water needs in the amount necessary to meet the primary purpose of the reservation when established, with priority based on the date of establishment of the reservation; this means that Native Americans in the Columbia Basin have an authority to legally define their water rights).

36. 529 F.2d 570 (9th Cir. 1976) (holding that the tribes were entitled to a “fair share” of the fish runs and the state is limited in its power to regulate Indian fisheries, only possessing the power to regulate when “reasonable and necessary for conservation”); *see also* Columbia Inter-Tribal Fish Commission, “A Short Chronology of Treaty Fishing on the Columbia River,” <http://www.critfc.org/text/timeline3.html>.

37. 492 F.2d 620 (9th Cir. 1974) (holding that a “fair share” was 50 percent of the harvestable fish destined for the tribes’ usual and accustomed fishing places and reaffirmed tribal management powers; this principle was then applied to the fisheries in the Columbia River Basin).

38. 507 F.2d 231 (9th Cir. 1974) (holding that treaty fishing is a tribal right, not an individual right, and the tribes had reserved the authority to regulate tribal fishing on and off the reservations).

39. *Haida Nation v. British Columbia*, 3 S.C.R. 511 (2004). In the *Haida and Taku River* decisions in 2004, the Supreme Court of Canada ruled that the Crown (federal government) has a legal duty to consult and accommodate First Nations when considering an action that might adversely impact Section 35 rights (established or potential).

40. Treaty Concerning Pacific Salmon, U.S.-Canada, Jan. 28, 1985, T.I.A.S. No. 11091, 1469 U.N.T.S. 358 [hereinafter *Pacific Salmon Treaty*].

basin under the CRT to meet their legally defined interests on par with other designated benefits or values of the system.

Some interviewees explained that First Nations have been displaced and otherwise negatively impacted during the creation of CRT storage reservoirs and dams in Canada. First Nations apparently lost significant hunting, fishing, and gathering land that they have historically relied on. Interviewees also explained that First Nations are concerned about the disruption of burial grounds and artifacts by the fluctuating water levels of reservoirs. These respondents went on to explain that First Nations have not been adequately compensated for the sacrifices they have made to develop the Columbia River under the CRT, and that their interests are not being represented in the current CRT.

In conclusion, some interviewees explained that the needs and interests of tribes should be reflected in any process to revise and update the CRT. Most of the interviewees concluded that tribes from Canada and the United States should have a decisionmaking role in any process to revise and update the CRT.

4. Population Growth

Some interviewees expressed concern about the potential impact of population growth on the management of the Columbia River system, and the system's ability to meet increased demands for water and energy. When the CRT was ratified, it was anticipated that some of the dams on the Columbia would provide growing populations with water and power (in fact, consumptive use is the highest priority of the CRT).⁴¹ However, the Columbia Basin has continued to grow at unprecedented rates (between 20 percent to 40 percent in urban areas since 1960).⁴² If populations in the lower basin continue to grow at the current rates, many interviewees agree there will be a significant increase in demand for water and power in major metropolitan areas of the Pacific Northwest.

Energy producers have voiced concerns about meeting future demands in the region.⁴³ Some have expressed concern about California's continued dependence on Columbia River hydropower, which could indirectly increase electricity rates as the demand for this power increases in the Northwest.⁴⁴ Some interviewees concluded that the CRT should be revised and updated to prioritize the future water and energy needs of the basin before exporting

41. U.S. ARMY CORPS OF ENGINEERS REVIEW, *supra* note 6.

42. INDEPENDENT SCIENTIFIC ADVISORY BOARD. HUMAN POPULATION IMPACTS ON COLUMBIA RIVER BASIN FISH AND WILDLIFE 9 (ISAB Human Population Report, June 8, 2007).

43. NORTHWEST POWER PLANNING COUNCIL, NORTHWEST POWER SUPPLY ADEQUACY: RELIABILITY STUDY- PHASE I REPORT (Paper Number 200-4, March 6, 2002).

44. *Id.*

either resource out of the basin.

5. Climate Change

Some interviewees said that the uncertainty and potential impacts associated with climate change (particularly its impact on future water availability) is another compelling reason to revise and update the CRT. In addition to a lack of information on climate change, interviewees suggested that changes to snowpack, temperature, and precipitation patterns would likely influence the management of the Columbia River to meet multiple interests. While the impacts of climate change are uncertain, interviewees explained there is a growing need to develop management scenarios to both mitigate and adapt to whatever impacts may emerge.

Some interviewees said that some public resource agencies have started working on this issue, but that more attention might be focused on it in the near future. Others suggested that the CRT, in its current form, could already accommodate these issues through adjustments in operating plans.

6. Recreation

The impact of reservoir management on recreation in and around reservoirs and the associated impact on tourism were also mentioned by some interviewees as an important driver to change the CRT. At least one interviewee expressed concern about the need to maintain consistent water levels for reservoir-based recreation. The ability to access reservoirs and associated recreational resources is impaired when reservoir levels fluctuate to meet downstream needs and interests.

Some interviewees noted that recreation objectives are sometimes met through special operating agreements authorized by the Detailed Operating Plan, but that these objectives must be balanced against competing objectives including power.

III. Prospects for the Future

A. People's Preferences

In light of the changes that have taken place since 1964, interviewees were asked what their preference was in terms of the future of the CRT: maintain the status quo, terminate the treaty, or revise and update some or all aspects of the treaty.

Most interviewees expressed a desire to revise and update the CRT. A frequent sentiment was that "things have changed" and there are additional considerations that were not prevalent during the 1960s negotiation, such as climate change, sensitivity to ecosystem health, consideration of fish and wildlife, expectations for public involvement, and increased pressure

(socially and legally) for tribal input. In addition, many respondents feel there is potential for more equitable sharing of benefits.

While most of the interviewees agree that the CRT needs to be revised and updated, many of them also explained that they hope the CRT could be revised and updated short of renegotiating the entire treaty. These respondents seem to embrace a principle of “keep the foundation in terms of what is working, and build on that foundation to revise and update the CRT.” Some of these interviewees expressed a concern about opening “Pandora’s box” if the entire treaty is open for renegotiation, fearing that valuable benefits might be lost. One respondent put it very clearly: “[renegotiation is] probably the best option, as it would allow consideration of many facets, and allow for broad consultation with stakeholders. However, for almost the same reasons, a new treaty is probably impossible to accomplish, given the diversity of values, and rampant self-interest.” Other interviewees concluded that the only option to fully incorporate their interests would be a full renegotiation of the CRT.

A few interviewees said that letting the CRT continue as is may be the easiest and, therefore, most preferred option. These respondents explained that opening the CRT to full and complete renegotiation and involving a diversity of interest groups has the potential to “dissipate more benefits than it could possibly create.” However, other respondents think that the existing CRT can integrate some, if not all, of the interests not currently reflected in the CRT through various procedures built into the existing framework. (The following section presents some of these more “informal” approaches to revise and update the CRT). These options provide an opportunity to reduce the risks inherent to termination and renegotiation (e.g., the potential for national interests to overrun the interests of the Pacific Northwest).

Finally, none of the interviewees expressed a preference to terminate the CRT. Some respondents noted that termination would most likely result in a loss of the existing benefits associated with the CRT. This sentiment is captured by one respondent’s answer: “The CRT cannot stay the way it is and I don’t see how you can operate the river in these times without a cross-border agreement, so letting it go away is not an option.”

While none of the interviewees said that the CRT should be terminated, some respondents speculated that other people or agencies might believe that termination is in their best interest.

In sum, nearly all interviewees agree that the CRT should be revised and updated. The question is, “how” should it be revised and updated? To answer this question, the following section reviews the legal and institutional options available. We offer these options as a place to begin a conversation, keeping in mind that we are not legal experts and cannot fully explore the ramifications of these options in this article.

B. Legal and Institutional Options

Based on our research, there appear to be several options potentially available to revise and update the CRT. The purpose of this section is to simply lay out, in a preliminary way, what the legal and institutional options are to revise and update the CRT, and to thereby inform and invigorate ongoing conversations.

Option 1 - Maintain the status quo: The first option is to maintain the status quo. As explained earlier, the CRT has no expiration date.⁴⁵ If the United States and Canada agree (and neither country sends the other a notice to terminate), the existing CRT could presumably stay in place. One potential complication with this option is that Canada's obligations for annual flood control operation expire after sixty years (in 2024).⁴⁶ At this time, the United States Congress would have to authorize additional payments to Canada for providing any requested flood control measures.⁴⁷

Option 2 - Terminate the treaty: A second option is to terminate the CRT by giving formal notice any time after 2014.⁴⁸ If one country chooses to terminate without renegotiating some or all of the existing CRT, the governance of the Columbia River would default to the 1909 Boundary Waters Treaty.⁴⁹ Under this option, each country would maintain exclusive control of the use of the river on their side of the border.⁵⁰ It also means that consent from the International Joint Commission must be obtained for any change in the flow of water at the boundary.⁵¹

Option 3 - Revise and update the treaty: The third option is to revise and update the CRT. According to our research, there are several ways to accomplish this objective. The following options are presented from most formal (and therefore, perhaps hardest) to most informal (and perhaps easiest). The CRT itself does not specify any procedures to revise or update the Treaty; it only provides a procedure for terminating the Treaty.

Renegotiate the treaty - As implied above, the existing CRT could be renegotiated after either Canada or the United States submit a notice to terminate.⁵² If both countries agree to renegotiate, then they can presumably proceed with whatever renegotiation process they determine

45. Columbia River Treaty, *supra* note 8.

46. *Id.*

47. U.S. ARMY CORPS OF ENGINEERS REVIEW, *supra* note 6.

48. Columbia River Treaty. *supra* note 8.

49. Columbia River Treaty. *supra* note 8.

50. Treaty Relating to Boundary Waters and Questions Arising Between the United States and Canada, U.S.-Gr. Brit., Jan. 11, 1909, T.S. No. 548 [hereinafter Boundary Waters Treaty].

51. *Id.*

52. Columbia River Treaty. *supra* note 8

appropriate under existing international and federal laws and customs. This option might best be referred to as a “formal renegotiation” of the CRT under the auspices of existing law and practice, which would include the United States Congress and the Canadian Parliament.

Negotiate a “partner treaty”- A “partner treaty” could be negotiated that elaborates on and amends the CRT. This option may, however, raise questions about how to resolve potential conflicts between the CRT and the “partner treaty.” In addition, since it would be a new international treaty, it would need the approval of the United States Congress and the Canadian Parliament.

Negotiate formal amendments - Yet another option to revise and update the CRT is to seek formal amendments. According to international law, a treaty may be amended under the same rules that govern creation of the treaty, as long as the current treaty does not prohibit this.⁵³ Therefore, amendments go through the same formal diplomatic process as a formal negotiation, but do not necessarily open the whole treaty for consideration.⁵⁴ Currently, there are no formal amendments to the CRT.

Negotiate and implement protocols - Another option is to engage in diplomatic discussions without the presumption of terminating and completely renegotiating the entire treaty. After the CRT was initially signed in 1961, additional negotiations about the distribution of benefits and operations were completed with a diplomatic “Exchange of Notes” resulting in the Protocol (dated 1964), which is attached to the CRT.⁵⁵ Although this Protocol contains some significant provisions, it is viewed as consistent with the original CRT and therefore is not considered a formal renegotiation needing ratification.⁵⁶ Protocols are simply another frequently used form of international negotiation.⁵⁷ The use of this option begs the question of how far the Entities can go in revising and updating the CRT through the use of Protocols before such changes trigger a formal renegotiation. Any substantial changes require consultation with the United States’ State Department (State) and the Canadian Department of Foreign Affairs and International Trade (“DFAIT”) to authorize the agreement with a diplomatic “Exchange of Notes.”

53. Vienna Convention on the Law of Treaties art 39, May 23, 1969, 1155 U.N.T.S. 33.

54. *Id.*

55. Nigel Bankes, *The Columbia Basin and the Columbia River Treaty: Canadian Perspectives in the 1990s*, (Northwest Water, Law and Policy Project, Working Paper No. P095-4 1996).

56. *Id.*

57. Another example of a Protocol used to incorporate additional interests is the Migratory Birds Convention Act, 1994, S.C. 1994, c. 22, which amended a 1916 agreement between the U.S. and Canada to incorporate Aboriginal practices and conservation.

Incorporate new "Entities" or advisors - In the United States, an Executive Order ("EO") issued by President Johnson in 1964 carried out the implementation of the treaty.⁵⁸ The EO designated the U.S. Entities (BPA and the Corps) and the formation of the U.S. Section of the Permanent Engineering Board ("PEB").⁵⁹ This EO may be modified by the President, which may provide an opportunity to expand participation on the U.S. side.⁶⁰ For example, the President could modify the composition of the "U.S. Entity" - perhaps including the U.S. Fish and Wildlife Service, the National Oceanic and Atmospheric Administration, Environmental Protection Agency, and even tribal representatives as legally recognized sovereign nations within the United States. Alternatively, Section 204 of the existing Executive Order states that the U.S. Section of the PEB may call upon other federal agencies to aid it in "the performance of its functions."⁶¹ In this context, it would appear that the U.S. PEB could request input and advice from other federal agencies and tribes. A third option could involve the Secretary of State, as the lead negotiator on behalf of the United States, assembling a negotiating team composed of the existing Entities as well as federal, tribal, and regional governments.

Adjust annual operating plans - According to Article 14, Section 2(k) of the CRT, another option to revise and update the CRT is to adjust the annual operating plans.⁶² According to this section of the CRT, the implementing agencies have the authority for "preparation and implementation of detailed operating plans that may produce results more advantageous to both countries than those that would arise from operation under the plans [required by the CRT]."⁶³ Presumably, this means that the Operating Committee and/or the Entities have the authority to integrate what are sometimes referred to as "non-treaty interests" (i.e., those that are not currently recognized in the CRT) into the annual operating plans, as long as such actions are viewed as beneficial to both countries. The Operating Committee has also used Supplemental Operating Agreements to include objectives other than power and flood control.⁶⁴ Whether or not these approaches to revising and updating the CRT are acceptable to all interested and affected parties is an open question. Nevertheless, the Operating

58. Exec. Order No. 11,177, 29 Fed. Reg. 13,097 (Sept. 19, 1964), as amended by Exec. Order No. 12,038, 43 C.F.R. 4,957 (Feb. 3, 1978).

59. *Id.*

60. *Id.*

61. *Id.*

62. Columbia River Treaty, *supra* note 8

63. *Id.*

64. For example, the Libby Coordination Agreement of 2000, which allowed for maintenance of in-stream flow for endangered fish species in the U.S. and provided compensation to Canada for lost benefits. For more information, *see* Muckleston, *supra* note 9.

Committee has apparently used this option in the past.⁶⁵

IV. Options on How to Proceed

Although we did not assume interviewees would conclude that the CRT should be revised and updated, we wanted to ask various questions related to the process of revising the CRT *if the participants did conclude that the CRT should be revised and updated*. As the findings presented above indicate, most of the interviewees believe that the CRT should be revised and updated.

During the interviews, we framed a series of questions around the process of renegotiating the CRT. We quickly learned, however, that the word “renegotiating” is a term of art, interpreted by many people as the formal process of terminating the existing treaty and negotiating a completely new treaty. In response to this potential confusion, we have chosen to talk about “revising and updating” the CRT, whether the process to do that is more or less formal.

A. Convening the Dialogue

Many interviewees said that if the CRT were renegotiated in any formal sense (in other words, if either the United States or Canada terminate the existing treaty and seek to negotiate a completely new treaty), then the conveners would be the U.S. Department of State and the Canadian Department of Foreign Affairs and International Trade. Many of the interviewees explained that this is a simple matter of law; international negotiations must start with the highest level of government. In other words, they claimed that the CRT, the law governing international treaties, and law in both the United States and Canada dictate who can convene formal negotiations over international treaties and transboundary resources.⁶⁶

Some interviewees, however, suggested that the authority to convene a multiparty negotiation to revise and update the CRT could be delegated to the Entities (U.S. Army Corps of Engineers, Bonneville Power Administration, The Province of British Columbia, and BC Hydro). As explained in the previous section, one option along these lines is to amend the Executive Order that directs implementation of the CRT and officially name other agencies and perhaps tribes as part of any formal negotiation process.

Respondents indicated that if the CRT is revised and updated through some type of informal process as explained in the previous section, the

65. *Id.*

66. Please note that this is the view of some interviewees and may or may not be consistent with established law.

question of who convenes the process is a bit more open. The interviewees identified a number of entities who could possibly convene the revision and update process:

- Sovereign entities, including tribes, United States, and Canada;
- Entities and other governmental agencies (e.g., U.S. Bureau of Reclamation, Environmental Protection Agency, National Oceanic and Atmospheric Administration, U.S. Fish and Wildlife Service, BC Ministry of Environment, Ministry of Energy, Mines and Petroleum Resources, Environment Canada, etc.)
- Northwest Power and Conservation Council⁶⁷ and Columbia Basin Trust - two distinctly regional entities;
- Permanent Engineering Board;
- International Joint Commission; and
- First Nations on both sides of the 49th parallel.

The interviewees who advocated a more informal approach to convening seemed to be open to combining the options presented above. These interviewees effectively articulated the following principle around the question of convening: create a homegrown process, one that is convened and coordinated by and for the people within the Columbia River Basin; the convening body should be viewed as credible and legitimate by all affected parties, particularly in terms of making sure all of the interests within the basin are sufficiently represented.

B. Representation - Who Should Be at the Decisionmaking Table?

A small minority of interviewees suggested that only representatives from the Entities should be at the table. An equally small number of respondents said that everybody who has an interest or stake in the basin should be at the table.

The majority of respondents said that any process to revise and update the CRT should provide meaningful opportunities for all decisionmakers, stakeholders, and citizens to influence the process and the outcomes. Realizing that it would be cumbersome to have representatives from every conceivable stakeholder group at the table, most of these individuals were quick to mention that the process to revise and update the CRT will need to be multifaceted. That is, there can or should be a core-negotiating group, one or more advisory groups, and multiple opportunities for public

67. Some interviewees suggested that this group is not appropriate to convene, as they have not been adequately satisfying tribal legal rights and have recently been sued by the tribes.

participation.

In terms of who should be in the core-negotiating group, respondents identified the following options:

- Only sovereign entities, including the tribes, United States, and Canada (i.e., the Entities and tribal representatives, similar to the negotiation process that led to the Pacific Salmon Treaty⁶⁸);
- Some combination of the Entities, tribes,⁶⁹ and:
 - British Columbia, Montana, Idaho, Oregon, and Washington;
 - Groups that have legal rights to resources within the basin (e.g., irrigators);
 - Representatives of identifiable “communities of interest” (that is, groups of individuals that share a common interest, such as conservation, recreation, municipalities, utilities, irrigators, fisheries, etc.); and
 - Multi-stakeholder, place-based groups, such as the Lower Columbia River Estuary Partnership, Clark Fork River Watershed Council, and the watershed planning groups in British Columbia.⁷⁰

C. Public Participation - How to Inform and Engage Unaffiliated Citizens?

Almost without fail, the interviewees stated that any process to revise and update the CRT should be open, inclusive, and transparent. The core principle here seems to be that all citizens and stakeholders should have an opportunity to (1) be informed and educated; and (2) provide input and advice. As the interviewees moved beyond this principle to clarify when and how the public should be involved, their responses were quite varied.

The respondents identified the following options with respect to when the public should be involved (at this point it is helpful to distinguish between “organized” stakeholder groups and “unaffiliated” citizens; the focus

68. For more information, *see* Pacific Salmon Commission, *supra* note 29.

69. Some interviewees noted that the tribes are concerned about having fair distribution of representation (e.g., the conservation, recreation, or fisheries groups have multiple representatives, whereas all tribes only have one). Given their sovereign role and multiple tribes involved, they would expect to have many representatives.

70. These are only some representative examples of the type of multi-party, place-based groups that might play this role. Other groups that might meet these criteria include the Lower Columbia Solutions Group and The Deschutes River Conservancy.

of this section is on the latter):

- At the beginning to help frame values, issues, options, and priorities;
- At key stages throughout the process, such as those defined by the NEPA;⁷¹
- After they are sufficiently informed about the choices and consequences, and before the final plan is ratified.

In terms of how to involve the public, most of the interviewees seemed to agree on a principle that the process for public participation should be jointly designed by all of the affected parties: the Entities, other governmental agencies, tribal representatives, and both communities of place and communities of interest. More specifically, the interviewees identified the following options on how to involve the public:

- Include one or more “public” representatives at the negotiating table;
- Convene regional (i.e., basin-wide) and sub-regional dialogues to inform and educate the public, seek their input and advice to clarify values and priorities;
- Coordinate separate public processes within the United States and Canada;
- Follow the legally required opportunities for public involvement as defined by the NEPA;
- Encourage citizens to provide input and advice through informal means such as lobbying elected officials, talking to interest groups, etc.

When asked who might be in the best position to facilitate meaningful public involvement, the interviewees identified the following options:

- A team of facilitators and mediators;
- Agencies;
- Universities;
- Communities of interest; and
- Place-based groups.

D. Process Management - The Role of Facilitation and Mediation

The responses to a question about facilitation and mediation were quite varied. On the one hand, some of the interviewees said that an

71. For more on how collaborative approaches to public participation might be integrated in the National Environmental Policy Act, *see* COUNCIL ON ENVIRONMENTAL QUALITY, *COLLABORATION IN NEPA: A HANDBOOK FOR NEPA PRACTITIONERS* (October 2007).

impartial, nonpartisan person or team was not used during the original CRT negotiations, and it is not a common practice in negotiating international, transboundary agreements around natural resources. Nor is it legally required. Other respondents said that, while facilitation might be helpful, the Entities will not likely support such a role and the diplomats representing the different countries are (at least in theory) capable of playing this role.

On the other hand, the majority of respondents seemed to embrace something like a principle that recognizes the value of using a nonpartisan, impartial person or team to:

- Assess the needs and interests of other stakeholders, similar to what has been done with this assessment;
- Help design an inclusive, informed, transparent, and effective process to revise and update the CRT;
- Organize and convene regional and sub-regional dialogues and other opportunities to facilitate public involvement;
- Work with communities of interest and place-based groups to prepare for participation in the process to revise and update the CRT;
- Facilitate communication, understanding, and agreement across government agencies;
- Mediate, as necessary, the conversation among the core group of decision makers.

The interviewees who support this role also said that a facilitator or mediator must be impartial and nonpartisan, and should have some knowledge about the CRT, issues, players, and the process to revise and update the CRT. Along these lines, the respondents suggested that one or more of the following groups might play such a role:

- Northwest Power and Conservation Council and Columbia Basin Trust;⁷²
- International Joint Commission; and
- University-based public policy and conflict resolution centers within the Columbia River Basin.

72. Note that the Northwest Power and Conservation Council and Columbia Basin Trust are separate entities with different missions. Although they are both regional agencies created through legislation, have some similar interests, and have direct connections with the interested public, they are not identical and they operate under different mandates and different authority. In addition, some interviewees do not view these groups as “non-partisan” due to their lack of tribal representation.

E. Information - The Need for Scientific and Public Learning

Most of the interviewees asserted that there is a huge need to promote and support both scientific and public learning. In terms of what information is needed, respondents offered the following suggestions:

- Clarify the process (and options) to revise and update the CRT;
- Identify public values, interests, and priorities - throughout the basin;
- Clarify legal rights (e.g., the rights of First Nations and Native Americans) and how different legal rights may conflict (e.g., endangered species vs. power and water supply);
- Examine the likely influence of numerous variables on what is preferable and what is doable in terms of revising and updating the CRT, such as:
 - Climate change;
 - Environmental laws adopted since 1964;
 - Change in population;
 - Demand for energy;
 - Demand for water; and
 - Species at risk.
- Map the options and consequences (costs, benefits, and trade-offs) to accommodate multiple interests and communicate this information to citizens, stakeholders, and decisionmakers; and
- Make hydrological models and data available to citizens and stakeholders to facilitate a broad-based understanding of the trade-offs of various policies.⁷³

In terms of how to gather and distribute the desired information, many of the respondents seemed to embrace the principle of joint fact finding.⁷⁴

73. Note that some interviewees suggested that these models and data have been viewed by the Entities as proprietary, rather than public, information.

74. For a history of the idea of joint fact finding, see Herman A. Karl et al., *A Dialogue, Not a Diatribe: Effective Integration of Science and Policy through Joint Fact Finding*, 49 ENVIRONMENT 1, 20-34 (2007); PETER S. ADLER AND JULIANA E. BIRKHOFF, BUILDING TRUST: WHEN KNOWLEDGE FROM HERE MEETS KNOWLEDGE FROM AWAY (The National Policy Consensus Center, undated); MATT LEIGHNINGER, THE NEXT FORM OF DEMOCRACY: HOW EXPERT RULE IS GIVING WAY TO SHARED GOVERNANCE ... AND WHY POLITICS WILL NEVER BE THE SAME (Vanderbilt Univ. Press 2006); BRUNNER R.D. ET AL., ADAPTIVE GOVERNANCE: INTEGRATING SCIENCE, POLICY, AND DECISION MAKING (Columbia Univ. Press 2005); JOHN T. SCHOLZ AND BRUCE STIFTEL, EDS., ADAPTIVE GOVERNANCE AND WATER CONFLICT: NEW

That is, several interviewees suggested that existing information should be pooled and made publicly available.⁷⁵ Then, based on what they know, they can begin a dialogue to jointly identify what they don't know, what they need or want to know, and how they might go about learning together. The respondents suggested that this approach to gathering, evaluating, and disseminating information would increase the chances that the information is politically relevant, scientifically valid, and widely accepted.

Some of the more specific methods recommended by interviewees include:

- Survey to clarify public values, interests, and priorities;
- Scenario building to examine options, consequences, and trade-offs;
- Modeling to assess the impacts of alternative operating scenarios;
- Research to clarify legal rights and potential conflicts among legal rights;
- Dialogue and deliberation to facilitate communication, understanding, and agreement on how to revise and update the CRT; and
- A public education campaign to raise awareness and seek informed input and advice.

To facilitate joint fact-finding, the interviewees suggested that the following resources be utilized to help generate and distribute the desired

INSTITUTIONS FOR COLLABORATIVE PLANNING (Resources for the Future 2005); GAIL BINGHAM, *WHEN THE SPARKS FLY: BUILDING CONSENSUS WHEN THE SCIENCE IS CONTESTED* (RESOLVE 2003); FRANK FISCHER, *CITIZENS, EXPERTS, AND THE ENVIRONMENT: THE POLITICS OF LOCAL KNOWLEDGE* (Duke Univ. Press 2000); PETER ADLER, ET AL., *MANAGING SCIENTIFIC AND TECHNICAL INFORMATION IN ENVIRONMENTAL CASES: PRINCIPLES AND PRACTICES FOR MEDIATORS AND FACILITATORS* (RESOLVE 2000); John R. Ehrmann & Barbara L. Stinson, *Joint Fact-finding and the Use of Technical Experts*, in *THE CONSENSUS BUILDING HANDBOOK*, 375-99 (Lawrence Susskind, et al., eds. Sage Publ. 1999); KAI LEE, *COMPASS AND GYROSCOPE: INTEGRATING SCIENCE AND POLITICS FOR THE ENVIRONMENT* (Island Press 1995); LAWRENCE SUSSKIND, *ENVIRONMENTAL DIPLOMACY: NEGOTIATING MORE EFFECTIVE GLOBAL AGREEMENTS* (Oxford Univ. Press 1994); CONNIE OZAWA, *RECASTING SCIENCE: CONSENSUAL PROCEDURES IN PUBLIC POLICY MAKING* (Westview Press 1991); SHEILA JASANOFF, *THE FIFTH BRANCH: SCIENCE ADVISORS AS POLICYMAKERS* (Harvard Univ. Press 1990).

75. Many interviewees explained that the Northwest Power and Conservation Council maintains one of the best websites including information on the history of the CRT and key players and issues, and provides newsletters and other opportunities to inform and educate the public and to seek their input and advice. See www.nwcouncil.org. Some interviewees explained that the Northwest Power and Conservation Council and/or Columbia Basin Trust might play the role of an impartial, nonpartisan coordinator of information. Along these lines, the various action agencies would submit information to these agencies that would make the information available for public use.

information: tribes, universities, NWPCC, CBT, students, watershed groups, agencies, and consultants.

F. Governance - Implementing and Adapting to Change

When asked what type of governance arrangement would be most effective to implement the treaty, many interviewees suggested that the answer would depend on the outcome of any process to revise and update the CRT. Others said that the existing system is working extremely well, particularly the Permanent Engineering Board, the Operating Committee (which meets frequently), and the annual operating plan. They said this success is due in large part to a history of trust and technical understanding. These actors are responsible for assembling flow records, resolving differences that may arise among competing uses, and creating annual reports of accomplishments. The PEB consists of two members appointed by Canada and two from the United States.

The underlying idea or principle here seems to be, build on what works and adjust accordingly.⁷⁶ In other words, if the treaty integrates new interests, including but not limited to tribes and ecosystem health, then the existing boards and committees designed to govern and implement the treaty should be accordingly revised. For example, if water quality interests are integrated into the CRT, perhaps it makes sense to have a representative from the Environmental Protection Agency and Environment Canada to serve on one or more of the governing bodies. Likewise, if fisheries are integrated, a representative from the National Oceanic and Atmospheric Administration (which oversees endangered species recovery) might be appointed. Some interviewees opposed the idea of incorporating new players into the governance of the CRT, preferring to clarify that such interests should be better integrated and balanced with hydropower power and flood control.

Other respondents suggested a variety of possibilities in terms of governing the system:

- Create a standing Scientific and Technical Work Group that can research and respond to questions and issues (i.e. fishery management) as they arise, perhaps then reporting to an entity such as the PEB;⁷⁷
- Create a Policy Board to address value-based issues, to

76. For an introduction to different models of governing transboundary resources, *see* MATTHEW MCKINNEY AND SHAWN JOHNSON, WORKING ACROSS BOUNDARIES: PEOPLE, NATURE, AND REGIONS (Lincoln Institute of Land Policy 2009).

77. A good example here is the Columbia River Fish Working Group, <http://wdfw.wa.gov/fish/regions/reg5/stakeholder/index.htm>, a joint advisory group created by Washington and Oregon to develop recommendations on a variety of Columbia River fishery-related issues facing the two states.

complement the work of the PEB and operations committee (which is focused more on the technical operations of the system);

- Create a Consultative Committee of other agencies and stakeholders to monitor, evaluate, and suggest adaptations to the operations of the system;
- Create a Transboundary Commission that would include both policy and technical components:
 - One option here might be to amend the Pacific Salmon Commission;
 - Another is to explore the possibility of creating some type of integrated commission from the Northwest Power and Conservation Council and the Columbia Basin Trust, which seem to have more legitimacy, credibility, and capacity to integrate multiple uses;
 - A third option identified by at least one interviewee is to create an International Watershed Board under the auspices of the International Joint Commission;⁷⁸
- Clarify governance protocols in terms of how decisions are made, disputes resolved, and goals and strategies are adapted.

V. Success and Barriers

Interviewees identified a number of indicators of success, as well as barriers to revising and updating the CRT. The comments on success and barriers include both substantive and process issues, which are integrated throughout the following discussion.

A. Indicators of Success

- *Build on what is working* - Most of the interviewees asserted that at least in part, success should be measured by building on what is working: generating and distributing power, preventing floods, and reducing the use of fossil fuels. Maintaining an equitable distribution of benefits between the United States and Canada was also mentioned.
- *Prevent harm and provide more explicit benefits to tribes* - Most of the interviewees feel that the CRT's impact on indigenous people must be addressed in any process to revise and update the CRT. The sentiment of one tribal representative

78. See International Joint Commission, <http://www.ijc.org/rel/comm/ref1198> (last visited Feb. 25, 2010).

captures the essence of this issue: "The cultural aspects of flooding must be addressed. There are burial grounds and artifacts that are constantly being disrupted by fluctuating water levels in the reservoirs. Tribes are constantly forced to reexamine how to handle burial remains. It is like having your family dug up on a regular basis." Some of the respondents explained that tribal interests include compensation for past harms, as well as the prevention of future harms (or, more positively, the provision of benefits in the future).

- *Balance multiple uses and benefits* - In addition to building on what is working, and accommodating tribal interests, most of the interviewees said that one of the most important indicators of success will be to strike a balance between the multiple uses or benefits of the river, including power generation, flood control, ecological health (such as fish and wildlife concerns), cultural interests, recreation, and other offstream uses. An obvious element of this indicator of success is the need to be responsive to the laws, policies, and judicial decisions that have been adopted since 1964, including the Endangered Species Act, NEPA, Pacific Salmon Treaty, and judicial decisions recognizing the rights of tribes. Another aspect is to equitably balance or distribute benefits and costs upstream and downstream.
- *Develop strategies to mitigate and adapt to climate change* - Most respondents said that a new and improved CRT must include strategies to mitigate and adapt to climate change. Given that there is a great deal of uncertainty about how climate change may affect the amount and timing of precipitation, these respondents explained that it is important to consider a range of scenarios, impacts, mitigation procedures, and strategies to adapt the operating system as new information becomes available. Many interviewees also said that it is important to maintain the production of hydropower as a renewable energy source that helps reduce CO2 emissions.

In addition to successfully addressing several substantive issues, the interviewees also identified a number of process issues necessary for success.

- *The Entities should be more open and transparent* - According to several interviewees, the success of revising and updating the CRT will depend on the Entities embracing, supporting, and implementing a more open and transparent process. This means, at least in part, that the Entities should not

name the issues, frame the options, and design the process without the participation of other governmental agencies, tribes, organized interest groups, and unaffiliated citizens. Instead, the Entities should seek to engage all of these people and organizations as early as possible.⁷⁹

- *Provide opportunities for all interested parties to be meaningfully involved* - Most respondents voiced a desire for a more inclusive process, meaning that people other than those associated with the Entities should be meaningfully engaged in the process to revise, update, and implement the CRT. This should include state and provincial agencies, tribes, organized stakeholder groups, as well as unaffiliated citizens. As discussed above, this indicator of success could be accomplished through regional roundtables, watershed groups, web-based surveys, and direct contact with organized interest groups.

B. Barriers to Overcome

Not surprisingly, the barriers to overcome in revising and updating the CRT correspond in many ways to the indicators of success identified by the interviewees.

- *Overcome institutional inertia* - Many of the respondents said that one of the biggest barriers to overcome in revising and updating the CRT is to overcome the inertia of the status quo. The confidence among interviewees varied about the degree to which the Entities might embrace and support an open, inclusive process from the get go. Some concluded that, while this is critical, it is not likely to happen. Other respondents explained that the challenge is to encourage and provide incentives for the Entities and others to move beyond self-interest and focus more broadly on the mixture of benefits provided by the system. Unfortunately, as noted by the interviewees, the Entities are often unwilling to move beyond self-interest because they are bound by legislative mandates.
- *Determine who participates, when, and how* - Another barrier identified by most of the interviewees is the fundamental question of who participates, when, and how - and who decides these questions. While this barrier is somewhat related to the issue of institutional inertia, most

79. For more on designing and facilitating collaborative processes, see Appendix G: Principles of Collaboration for Natural Resources.

respondents seem compelled to highlight it given its fundamental nature. Most of the respondents realize that the more people, organizations, and interests engaged in the process, the more complex and harder it will be to find common ground. That said, many of the interviewees explained that this barrier can and should be overcome.

The interviewees variously identified a number of specific questions along the lines of: (1) Who is at the decisionmaking table? (2) Who is allowed to provide input and advice and when? (3) How will the decisionmakers demonstrate that they have responded to the input and advice of individuals and groups? (4) How will disputes be resolved among those at the decisionmaking table and between the decisionmakers and those individuals and groups providing input and advice? The overarching question here is who decides how to address these process issues?

- *Address specific substantive issues* - Many of the interviewees explained that any process to revise and update the CRT must successfully address a number of substantive issues, some of which will be more difficult than others:
 - Maximize power and flood control benefits while meeting the needs, interests, and legal requirements for tribes and endangered species;
 - Equitably distribute costs and benefits among the two countries, tribal nations, four states, and one province;
 - Quantify the costs (and appropriate compensation) to tribes in the upper basin that have lost cultural assets due to flooding;
 - Clarify the impacts of dams and water quality to anadromous fish and tributaries, and determine how to mitigate the impacts;
 - Resolve issues between commercial ocean fisheries and inland fishermen, given that there is not likely to be a sufficient resource to meet all of their respective interests;
 - Maintain high quality recreation and aesthetic values in upper basin reservoirs while meeting the downstream needs for fish and hydroelectric power;
 - Build-in flexibility and adaptability to deal with (what most interviewees assume is inevitable) climate change. Seek agreement on the scientific and technical facts associated with climate change, beginning with how

- much the average annual flow of the Columbia River might change over time and how future shortages should be allocated among different uses and benefits;
- o Encourage the action agencies to be open and forthcoming across the border prior to giving notice and undertaking negotiations, and to engage other governmental agencies, tribes, stakeholders, and unaffiliated citizens in the design of any process to revise and update the CRT. Avoid the conventional posturing and behind-the-scenes bargaining associated with these types of multiparty negotiations; and
 - o Clarify how NEPA and other legislation and judicial decisions passed since 1964 will influence the process to revise and update the CRT.

VI. Conclusions and Recommendations

The findings based on the interviews speak for themselves. Building on these findings, along with best practices for multiparty, multi-issue negotiation,⁸⁰ we offer the following conclusions and recommendations. To supplement these recommendations, Appendix F provides a synthesis of the top-ten lessons learned about transboundary water management, while Appendix G presents a commonly accepted set of principles for collaboration on natural resources.

1. Build on the Options and Recommendations Articulated by the Interviewees

While the intent of this assessment was not to build agreement per se on the future of the CRT, the interviewees collectively articulated something akin to a set of principles that may be useful in future discussions related to the process of revising and updating the CRT.⁸¹ The principles are:

- (1) Convening - Create a homegrown process, one that is convened and coordinated by and for the people within the Columbia River Basin; the convening body should be viewed as credible and legitimate by all affected parties, particularly in terms of making

80. For an introduction to this topic, see LAWRENCE SUSSKIND AND JEFFREY CRUIKSHANK, *BREAKING THE IMPASSE: CONSENSUAL APPROACHES TO RESOLVING PUBLIC DISPUTES* (Basic Books 1987); BARBARA GRAY, *COLLABORATING: FINDING COMMON GROUND FOR MULTIPARTY PROBLEMS* (Jossey-Bass 1989); SUSSKIND, ET. AL., *supra* note 56; JULIA M. WONDOLLECK AND STEPHEN L. YAFFEE, *MAKING COLLABORATION WORK* (Island Press 2000).

81. It should be emphasized that the framing of these principles is based on the results of the interviews, and that the interviewees themselves have not formally endorsed these principles.

sure all of the interests within the basin are sufficiently represented.

- (2) Representation - Provide meaningful opportunities for all decisionmakers, stakeholders, and citizens to influence the process and the outcomes.
- (3) Public Participation - The Entities, other government agencies, tribal representatives, and both communities of place and communities of interest should jointly design the process for public participation.
- (4) Process Management - Use a nonpartisan, impartial person or team to help design and facilitate an inclusive, informed, and transparent process.
- (5) Information - Engage in joint fact finding to promote and support both scientific and public learning.
- (6) Governance - Build on what works and adjust accordingly.

2. Conduct a More Complete Assessment

This assessment of the Entities, other governmental agencies, and tribes is a solid beginning. However, it is incomplete. A more complete assessment should be conducted to identify the interests and concerns of organized stakeholder groups and unaffiliated citizens, and to evaluate the strengths and weaknesses of the CRT. A nonpartisan, impartial third party operating under the auspices of the Entities and perhaps other governmental agencies and tribes should complete this assessment.

3. Clarify the Options to Revise and Update the CRT

The material presented herein is a beginning. Perhaps a diverse team of people could more clearly articulate the menu of legal and institutional options on how to revise and update the CRT.

4. Evaluate Options to Involve Organized Stakeholders and Unaffiliated Citizens

As revealed above, most of the interviewees believe that whatever process is used to revise and update the CRT, it should provide more opportunities for stakeholder and public involvement. Building on the possibilities presented herein, perhaps a team of people could evaluate, refine, and develop options to meaningfully engage stakeholders and citizens.

5. Facilitate Scientific and Public Learning

Many (if not most) of the interviewees concluded that it is important to identify what we know, don't know, and need to know to make informed

decisions and to promote scientific and public understanding about the CRT and the social, economic, and environmental forces shaping the future of the basin. Once again, perhaps a diverse team of people could build on existing initiatives to answer these questions, and develop one or more strategies to facilitate public learning on these complex issues.

The Columbia River basin is special place, and the CRT is widely viewed as a model for managing transboundary natural resources. We thank all of the interviewees and reviewers of this article, and hope that it informs and invigorates attempts to foster livable communities, vibrant economies, and healthy environments in this region.

VII. Appendices

Appendix A: Maps of the Columbia River Basin

Map of the Major Dams in the Columbia River Basin



Source: The Federal Columbia River Power System

Major Northwest Dams

The dams on this map generally represent the largest projects and those that have a significant role in river system management. A complete list of projects in the basin can be found in Appendix A. Acronyms and abbreviations are defined on page 76.

- | | | |
|--|---|--|
| 1. BONNEVILLE
Columbia River, USACE | 21. NOXON RAPIDS
Clark Fork River, WWP | 41. BIG CLIFF
N. Santiam River, USACE |
| 2. THE DALLES
Columbia River, USACE | 22. KERR
Flathead River, MPC | 42. DETROIT
N. Santiam River, USACE |
| 3. JOHN DAY
Columbia River, USACE | 23. HUNGRY HORSE
Flathead River, USBR | 43. FOSTER
S. Santiam River, USACE |
| 4. McNARY
Columbia River, USACE | 24. CHANDLER
Yakima River, USBR | 44. COUGAR
McKenzie River, USACE |
| 5. PRIEST RAPIDS
Columbia River, Grant Co. PUD | 25. ROZA
Yakima River, USBR | 45. GREEN PETER
M. Santiam River, USACE |
| 6. WANAPUM
Columbia River, Grant Co. PUD | 26. ICE HARBOR
Snake River, USACE | 46. DEXTER
Willamette River, USACE |
| 7. ROCK ISLAND
Columbia River, Chelan Co. PUD | 27. LOWER MONUMENTAL
Snake River, USACE | 47. LOOKOUT POINT
Willamette River, USACE |
| 8. ROCKY BEACH
Columbia River, Chelan Co. PUD | 28. LITTLE GOOSE
Snake River, USACE | 48. HILLS CREEK
Willamette River, USACE |
| 9. WELLS
Columbia River, Douglas Co. PUD | 29. LOWER GRANITE
Snake River, USACE | 49. MERWIN
Lewis River, PP&L |
| 10. CHIEF JOSEPH
Columbia River, USACE | 30. DWORSHAK
N.F. Clearwater River, USACE | 50. YALE
Lewis River, PP&L |
| 11. GRAND COULEE
Columbia River, USBR | 31. HELLS CANYON
Snake River, IP | 51. SWIFT
Lewis River, PP&L |
| 12. KEENLEYSIDE
Columbia River, BC Hydro | 32. OXBOW
Snake River, IP | 52. MAYFIELD
Cowlitz River, TCL |
| 13. REVELSTOKE
Columbia River, BC Hydro | 33. BROWNLEE
Snake River, IP | 53. MOSSYROCK
Cowlitz River, TCL |
| 14. MICA
Columbia River, BC Hydro | 34. BLACK CANYON
Payette River, USBR | 54. GORGE
Skagit River, SCL |
| 15. CORRA LINN
Kootenay River, W. Kootenay | 35. BOISE RIVER DIVERSION
Boise River, USBR | 55. DIABLO
Skagit River, SCL |
| 16. DUNCAN
Duncan River, BC Hydro | 36. ANDERSON RANCH
Boise River, USBR | 56. ROSS
Skagit River, SCL |
| 17. LIBBY
Kootenai River, USACE | 37. MINIDOKA
Snake River, USBR | 57. CULMBACK
Sultan River, Snohomish Co. PUD |
| 18. BOUNDARY
Pend Oreille River, SCL | 38. PALISADES
Snake River, USBR | 58. LOST CREEK
Rogue River, USACE |
| 19. ALBENI FALLS
Pend Oreille River, USACE | 39. PELTON
Deschutes River, PGE | 59. LUCKY PEAK
Boise River, USACE |
| 20. CABINET GORGE
Clark Fork River, WWP | 40. ROUND BUTTE
Deschutes River, PGE | 60. GREEN SPRINGS
Emigrant Creek, USBR |

The Treaty Dams



Source: COE BPA Columbia River Treaty History and 2014/2024 Review

Appendix B: Columbia River Treaty Organization

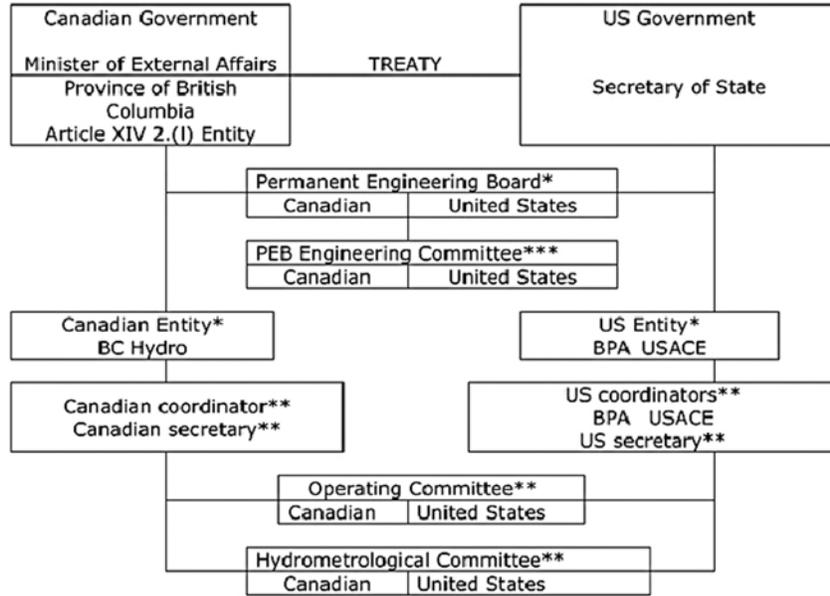


Figure 3. Columbia River Treaty Organization

- Notes:
 * Established by treaty
 ** Established by Entity
 *** Established by PEB

Source: Annual Report of the Columbia River Treaty, Canada and United States Entities, November 1999, p.9.

Appendix C: List of Interviewees

Nigel Bankes, University of Calgary
Kat Brigham, Umatilla Tribe and Columbia River Inter-tribal Fish Commission
Barbara Cosens, University of Idaho
Lynette de Silva, Oregon State University
Bill Green, Canadian Columbia River Inter-tribal Fish Commission
John Harrison, Northwest Power and Conservation Council
Charles Hudson, Columbia River Inter-tribal Fish Commission
John Hyde, Bonneville Power Administration
Kelvin Ketchum, BC Hydro
Bob Lohn, National Oceanic and Atmospheric Administration
Mike Matylewich, Columbia River Inter-tribal Fish Commission (USA)
Pat McGrane, Bureau of Reclamation
Bruce Measure, Northwest Power and Conservation Council
Garry Merkel, Columbia Basin Trust
D. R. Michel, Upper Columbia United Tribes (and Colville)
Rebecca Miles, Nez Perce Tribes
Daniel Millar, Environment Canada
Keith Muckleston, Oregon State University
Tim Newton, Permanent Engineering Board
Richard Paisley, University of British Columbia
Ken Peterson, PowerEx (retired)
Bob Heinith, Columbia River Inter-tribal Fish Commission
Doug Robinson, BC Hydro
Derik Sandison, State of Washington, Department of Ecology
John Shurts, Northwest Power and Conservation Council
Marvin Wodinsky, Canadian Department of Foreign Affairs (retired)
Aaron Wolf, Oregon State University

Appendix D: Interview Questions⁸²

- (1) What is your interest, role, and history related to the Columbia River Treaty?
- (2) What is working well with respect to the Columbia River Treaty?
- (3) What is the most preferred future for the Treaty? Options may include, but are not limited to:
 - a. Allow the treaty to expire?
 - b. Extend the existing treaty?
 - c. Renegotiate (i.e., revise and update) the treaty?
- (4) If the treaty is renegotiated, how could it be improved? What is the single most important change from your perspective?
- (5) What are the key issues (or drivers) that should be addressed in the renegotiation of the Treaty?
 - a. What do you think will be the easiest issues to address?
 - b. Most difficult?
 - c. Where will conflicts arise?
 - d. Between whom and on what issues?
- (6) From a process perspective:
 - a. Who will or should convene the negotiation?
 - b. Who should be at the table during the renegotiation?
 - c. What type of information is needed (scientific, technical, legal, etc.), and who should provide that information?
 - d. How should the public be involved?
 - e. What role, if any, might an impartial facilitator or mediator play in the design and coordination of the renegotiation process?
 - f. What type of governance arrangement will be most effective to implement the treaty? (That is, who should have decisionmaking authority, how should decisions be made, disputes resolved, etc.)?
- (7) What will a successful renegotiation of the Treaty look like? What do you think are the opportunities or potential gains possible through such a renegotiation? For your interests? For the region as a whole?
- (8) What do you think are the barriers to a successful renegotiation of the Treaty? Do you have any suggestions on how to overcome the barriers?
- (9) Is there anything else you would like to share?
- (10) Who else should we talk to?

82. Some of these interview questions (such as question 3) were revised as we conducted interviews and learned more about the CRT.

Appendix E: Chronology of Major Events Since 1964

- 1964:** Columbia River Treaty was implemented, delineating power and flood control benefits between the U.S. and Canada. In addition it authorized construction of a number of Canadian storage facilities to improve storage capacity in the system and maximize hydropower generation.
- 1965: Water Resources Planning Act.** The Water Resources Planning Act of 1965 established a Water Resources Council to be composed of Cabinet representatives, including the Secretary of the Interior. The Council was charged with maintaining a continuing assessment of the adequacy of water supplies in each region of the U.S. The Council also was mandated to establish principles and standards for federal participants in the preparation of river basin plans and in evaluating federal water projects with respect to agricultural, urban, energy, industrial, recreational, and fish and wildlife needs.
- 1966:** To protect dwindling runs of summer chinook above Bonneville Dam, the Oregon Fish Commission asks the Oregon State Police to strictly enforce the law forbidding non-Indian commercial fishing upriver from Bonneville.
- 1968/69: SoHappy v. Smith and United States v. Oregon.** Fourteen Yakima tribal members filed suit to prevent the state of Oregon from interfering with their off-reservation treaty fishing rights. The court found that the state's authority to regulate Indian fishing for conservation purposes was limited as treaties provide tribes an absolute right to a fair share of the fish produced by the Columbia River system.
- 1969: National Environmental Protection Act.** The National Environmental Protection Act of 1969 requires federal agencies to examine the impacts of proposed major federal actions significantly affecting the environment.
- 1973:** Congress passes the Endangered Species Act. "The purposes of this Act are to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved, to provide a program for the conservation of such endangered species and threatened species, and to take steps as may be appropriate to achieve the treaties and conventions. . . ."
- 1974: United States v. Washington.** A federal district court in the state of Washington found that Native American Tribes were entitled to the opportunity to take up to 50 percent of the harvestable number of fish that can be taken. This harvestable sharing principle was also applied in U.S. v. Oregon (see above).
- 1977:** Four Indian tribes with treaty fishing rights on the Columbia River

form the Columbia River Inter-Tribal Fish Commission to coordinate fish management policies and objectives. The participants are the Nez Perce Tribe, Confederated Tribes of the Umatilla Reservation, Confederated Tribes of the Warm Springs Reservation, and Confederated Tribes and Bands of the Yakama Indian Nation.

1980: In December, Congress approves and President Jimmy Carter signs into law the Northwest Power Act, which authorizes the four Northwest States of Idaho, Montana, Oregon and Washington to form the Northwest Power and Conservation Council (the agency was known until 2003 at the Northwest Power Planning Council) and gives the Council three distinct responsibilities: 1) prepare a program to protect, mitigate and enhance fish and wildlife, and related spawning grounds and habitat, of the Columbia River Basin that have been affected by hydropower dams, while 2) assuring the Pacific Northwest an adequate, efficient, economical and reliable power supply, and 3) informing the public about energy and fish and wildlife and involving the public in decisionmaking. The Council met for the first time in April 1981.

1985: Pacific Salmon Treaty was ratified as a cooperative agreement between U.S. and Canada to research and enhance Pacific salmon stocks.

1988: Snake River coho salmon are considered extinct.

1991: In April, the National Marine Fisheries Service proposes to list Snake River sockeye as an endangered species. In June, the Service proposes to list Snake River spring/summer and fall chinook as threatened species. The Service declines to list lower Columbia coho on the grounds that the population was so infused with the genetic material of hatchery-bred coho that no truly wild coho remain.

1995: In May, British Columbia's Legislative Assembly approves the Columbia Basin Trust Act, which established the Columbia Basin Trust "...to help create a prosperous economy with a healthy and renewed natural environment." The Trust is "...an autonomous and independent organization of communities," according to its literature. Through the Trust, millions of dollars will flow into the Canadian Columbia River Basin from the sale of electricity in the United States - so called "downstream benefits" - made possible by the operation of storage reservoirs behind the three Canadian dams of the 1962 Columbia River Treaty

1995-1999: Endangered Species Act Listings. Nine additional species of fish throughout Columbia Basin were listed under the Endangered Species Act.

1999: The Entities determined that some provisions of the CRT covering Entitlement delivery did not address the realities of the Pacific Northwest grid, and that new rules covering the cost of electric

transmission had not been anticipated. This change was considered to be “substantial” and the United States’ State Department (State) and the Canadian Department of Foreign Affairs and International Trade (DFAIT) were consulted, and ultimately covered the agreements with an Exchange of Notes.

2000: The Entities agreed to coordinate the operation of Libby with Canadian projects to self compensate Canada for losses incurred as a result of the operation of Libby for Endangered Species. The original difference of opinion was presented to State and DFAIT, but no resolution appeared to be possible, so the Entities were allowed to see if a pragmatic resolution could be developed. The idea of self-compensation allowed an agreement to be developed, without compromising the original position of either country. The agreement provides both parties with very short termination options, so there is an incentive to make it work, rather than go to a very lengthy arbitration process.

2001-2004: Salmon and steelhead returns to the Columbia River are far above recent ten-year averages. Some, such as the returns in 2003, are the highest since record keeping began at Bonneville Dam in 1938. In 2003, more than 920,000 chinook salmon were counted crossing Bonneville Dam, where the ten-year average count was 399,000. A number of factors appeared to be contributing to the increased run sizes, including improved fish passage at dams, improved spawning and rearing habitat, improved feeding conditions in the ocean, and a reduction of intercepting fisheries. In 2004, as strong runs continued, scientists at NOAA Fisheries who monitor the runs said it appeared the runs would stay high at least through 2006.

2008: The Pacific Salmon Treaty established the Pacific Salmon Commission, a bilateral body that recommends to the U.S. and Canada the ocean salmon fishing levels in Southeast Alaska and British Columbia. The United States and Canada adopted a new set of fishing regimes for Chinook, coho, chum and Transboundary Rivers on December 23, 2008, through an exchange of diplomatic notes (see discussion in comments for additional information).

2008: Fisheries have had recent steep declines and there have been closures of recent fishing seasons.

Appendix F: Top-Ten Lessons for Transboundary Water Management⁸³

1. River basins may not be a sufficient “territory of the problem.” If the goal is build livable communities, vibrant economies, and healthy environments, it may be necessary to reach beyond the river basin itself.

2. The initiation and implementation of transboundary water agreements depends first and foremost on political will. If sovereign entities are not willing to share power and negotiate mutual gain solutions, it will be difficult (if not impossible) to forge practical transboundary arrangements.

3. The development and implementation of transboundary water plans should seek to involve all the stakeholders in an open, transparent, and inclusive process. To the extent practicable, the multiple stakeholders should be allowed to help name issues, frame options, deliberate over the consequences of alternatives, and seek consensus on how to move forward.

4. The most effective transboundary initiatives tend to embrace multiple issues: water, land, economic development, and so on. In this respect, transboundary conversations may start by focusing on water allocation but eventually embrace a larger mix of issues and concerns.

5. The participants in a transboundary water negotiation should employ joint fact-finding - clarifying what they know, don't know, and need to know in order to make informed decisions. Joint fact-finding promotes political legitimacy, an interest-based agenda (i.e., a focus on the most salient issues), and scientific credibility.

6. The most effective transboundary agreements and governance arrangements are homegrown, not imposed from outside the river basin. International conventions and protocols may be necessary to create an independent framework when none exists and to otherwise inform and invigorate homegrown efforts - but such conventions and protocols are not sufficient.

7. Transboundary negotiations should apply widely accepted principles such as equitable use, reasonable use, sharing benefits, and doing no harm.

8. Universities and scholars can play a valuable role in terms of informing and invigorating transboundary water efforts; harvesting lessons learned from other experiences; and perhaps in some cases serving as an impartial, nonpartisan convener and coordinator of transboundary collaboration. An important corollary to this lesson is that scholarly studies are necessary, but not sufficient.

83. These lessons - synthesized by Matthew McKinney - are based on presentations and dialogue at the 5th World Water Forum (Istanbul, Turkey, March 2009), and include experiences from Europe, Central Asia, the Middle East, and the United States.

9. In the process of initiating, convening, negotiating, and implementing transboundary water agreements, it is critical to be sensitive to the relative distribution of power among the participants. In theory, hegemony should use their power to initiate, inspire, and model cooperative behavior.

10. To promote transparency and accountability, a multi-stakeholder group should monitor the implementation of transboundary water agreements and plans. This group should expect and plan for change - new information, issues, and players. In this respect, the governing arrangement should be flexible and adaptive.

Appendix G: Principles of Collaboration on Natural Resources

The Collaborative Democracy Network has identified at least fifty different theoretical frameworks for collaborative planning and policy-making.⁸⁴ Although there is some variation among these frameworks, the following propositions constitute a coherent and widely shared group of general principles that inform collaboration on natural resources.⁸⁵ It should also be noted that, while something like these principles might inform and invigorate many collaborative processes (particularly collaborative processes convened by government entities with authority and responsibility over particular issues), many such processes are organic, homegrown efforts by citizens and non-governmental agencies. In the latter case, the collaborative process often starts with a diverse coalition of people committed to a common agenda. Other people are then brought on board as they agree with the purpose and scope of the emerging conversation.

Purpose-driven - Collaboration focuses on the needs and interests of the participants, it is purpose-driven. It is intentionally designed and managed in line with an agenda, ground rules, sideboards, a timetable, and a budget approved by all the parties.

Inclusive - Collaboration includes those people that are interested in or affected by the issues; those that are needed to implement any outcome; and those that might challenge the process or the outcome. Participation is voluntary. The most effective method to identify participants is to allow stakeholder groups to select their own representative.

Informed - All parties have an equal opportunity to share views and information. The process fosters mutual learning, common understanding, and consideration of a variety of options. It enables participants to jointly develop and rely on the best available information, regardless of sources. Scientific information represents one way knowing, and is integrated with other ways of knowing (e.g., anecdotal information).

84. Learn more about the Collaborative Democracy Network at www.csus.edu/ccp/cdn (last visited Feb, 27, 2010).

85. These propositions are adapted from a speech presented by Professor Lawrence Susskind at *Water in the West*, Bozeman, Montana, September 2006. Also, see *Breaking Robert's Rules: The New Way to Run Your Meeting, Build Consensus, and Get Results*, Lawrence Susskind and Jeffrey Cruikshank, Oxford University Press, 2006; and Gerald Cormick, et al., *Building Consensus for a Sustainable Future: Putting Principles into Practice* (National Round Table on the Environment and the Economy, 1996).

Deliberative - Participants jointly name issues and frame options, thereby clarifying their underlying interests and predispositions. They respect and listen to each other, consider the rationale or reason for diverse viewpoints (i.e., the interests that underlie the positions), and seek solutions that integrate as many interests as possible.

Consensus-seeking - Participants seek consensus (defined as unanimity), but accept overwhelming agreement.

Accountability - Participants, including decisionmakers, strive for transparency and communicate in good faith their interests and expectations. Participants respect and work within existing laws and policies, and appropriately seek the input and advice of constituents, the public, and decisionmakers.

Supplemental - The product of collaboration is a recommendation, not a final decision. Decisionmakers do not abdicate their decisionmaking authority, and any proposals are vetted through formal public involvement and decisionmaking processes.

Implementation - The product of collaboration is a written document that participants agree to support individually. Participants seek ratification of the outcome by the people or groups they represent (if any), as well as the public and decisionmakers.

Adaptive Management - Given that it is impossible to estimate all of the impacts or consequences of the recommendations, policy choices/decisions are monitored so that continuous adjustments can be made.

Process Managers - Professional facilitators and mediators increase the effectiveness of collaboration. This individual or team, which should be jointly selected and/or approved by all participants, can help the stakeholders design the right process, convene meetings, resolve disputes, and coordinate implementation.