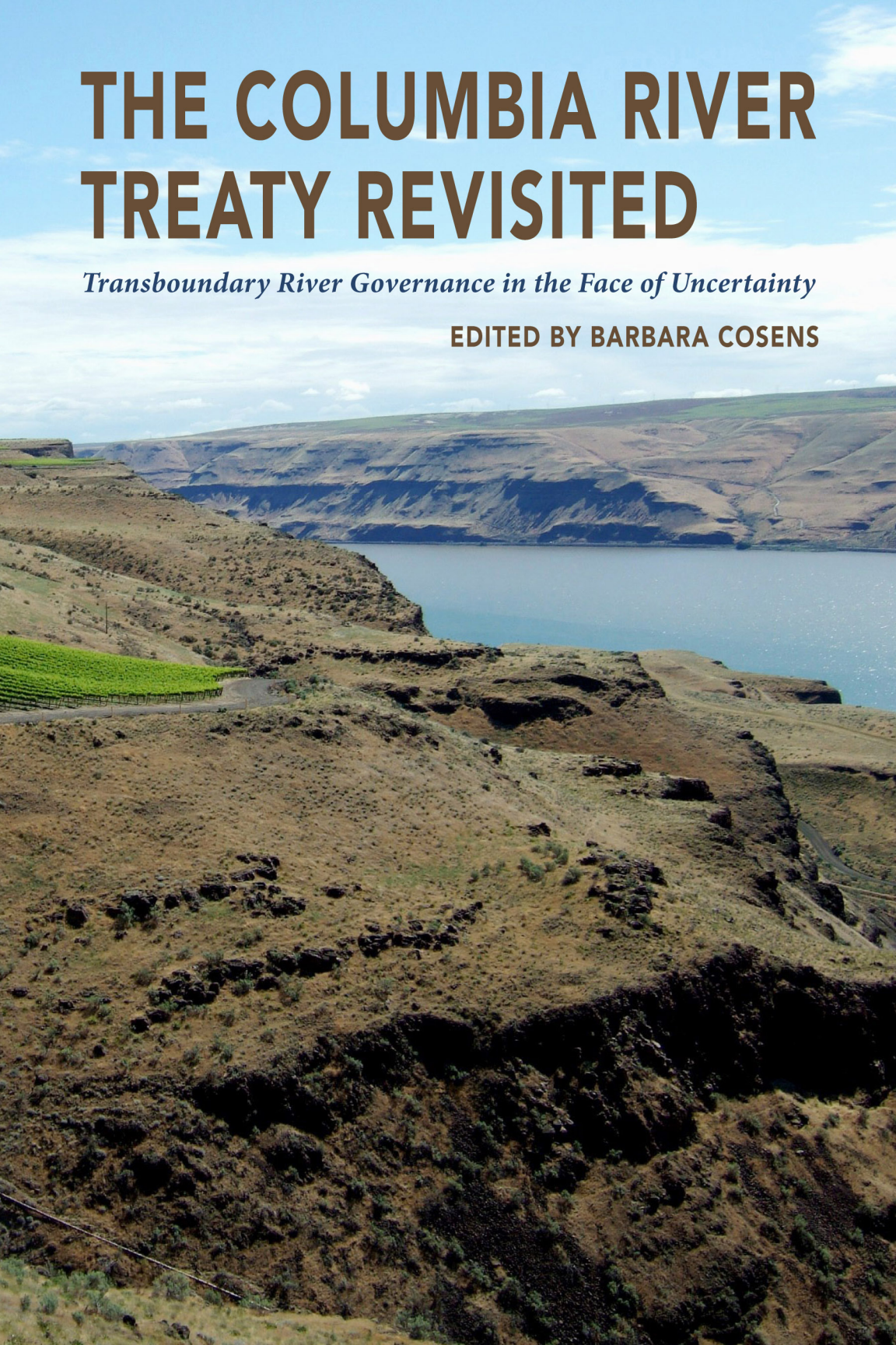
THE COLUMBIA RIVER TREATY REVISITED

Transboundary River Governance in the Face of Uncertainty

EDITED BY BARBARA COSENS



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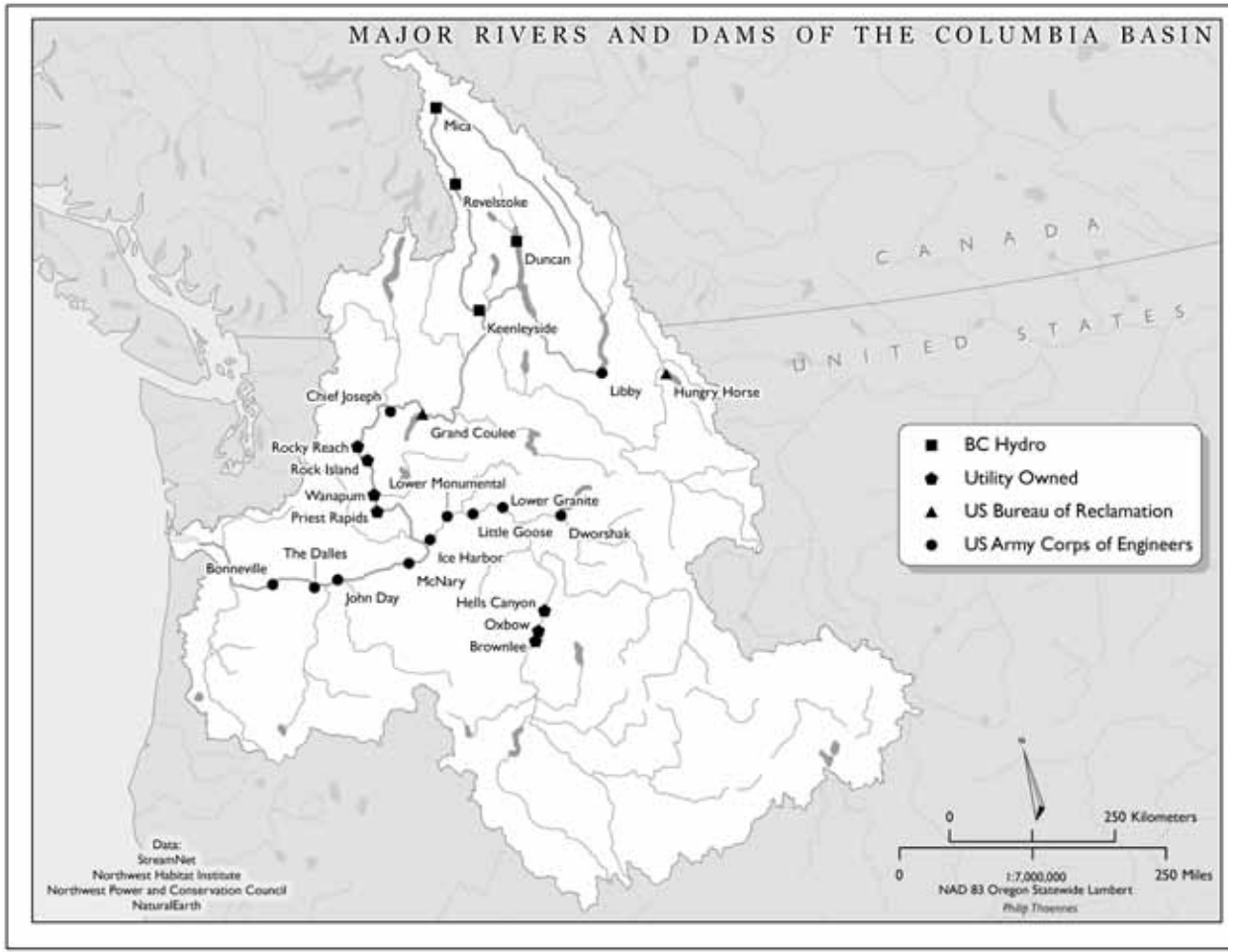
MAJOR RIVERS AND DAMS OF THE COLUMBIA BASIN
CANADA
UNITED STATES
Mica
Revelstoke
Duncan
Keenleyside
Libby
Hungry Horse
Chief Joseph
Grand Coulee
Rocky Reach
Rock Island
Lower Monumental
Wanapum
Lower Granite
Priest Rapids
Little Goose
Dworshak
The Dalles
Ice Harbor
Bonneville
McNary
John Day
Hells Canyon
Oxbow
Brownlee
BC Hydro
Utility Owned
US Bureau of Reclamation
US Army Corps of Engineers
Data:
StreamNet
Northwest Habitat Institute
Northwest Power and Conservation Council
NaturalEarth
0
250 Kilometers
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Philip Thoennes

Transboundary River Governance in the Face of Uncertainty: The Columbia River Treaty

A PROJECT OF THE UNIVERSITIES CONSORTIUM ON COLUMBIA RIVER GOVERNANCE

edited by Barbara Cosens

Oregon State University Press
Corvallis

The paper in this book meets the guidelines for permanence and durability of the Committee on Production Guidelines for Book Longevity of the Council on Library Resources and the minimum requirements of the American National Standard for Permanence of Paper for Printed Library Materials Z39.48-1984.

Library of Congress Cataloging-in-Publication Data
Transboundary river governance in the face of uncertainty : the Columbia River treaty : a project of the Universities Consortium on Columbia River Governance / edited by Barbara Cosens.
p. cm.
Includes index.
ISBN 978-0-87071-691-1 (alk. paper) -- ISBN 978-0-87071-692-8 (e-book)
1. Canada. Treaties, etc. United States, 1961 Jan. 17. 2. Water resources development--Law and legislation--Columbia River Watershed. 3. Water resources development--Social aspects--Columbia River Watershed. 4. Water resources development--Environmental aspects--Columbia River Watershed. 5. Water resources development--Columbia River Watershed--Citizen participation. 6. Watershed management--Law and legislation--Columbia River Watershed. 7. Watershed management--Social aspects--Columbia River Watershed. 8. Watershed management--Environmental aspects--Columbia River Watershed. 9. Watershed management--Columbia River Watershed--Citizen participation. 10. River engineering--Environmental aspects--Columbia River Watershed.
I. Cosens, Barbara, 1955-
KDZ642.C65A3 2012
346.7304'69162--dc23

2012015122

 First published in 2012 by Oregon State University Press
Printed in the United States of America

Oregon State University Press
121 The Valley Library
Corvallis OR 97331-4501
541-737-3166 • fax 541-737-3170
http://osupress.oregonstate.edu

CONTENTS

The International Experience

Acknowledgments

This book would not have been possible without the energy and enthusiasm of the members of the Universities Consortium on Columbia River Governance who planned and carried out the 2009 Symposium on Transboundary Governance in the Face of Uncertainty: The Columbia River Treaty. Funding for the symposium was provided by the University of Idaho College of Law and the Thomas Foley Institute at Washington State University. In 2009 the Consortium members were: University of Idaho, Barbara Cosens; University of Montana, Matthew McKinney; Washington State University, Edward Weber; Oregon State University, Aaron Wolf and Lynette deSilva; and University of British Columbia, Richard Paisley. The Consortium has since grown to include Craig Thomas and Lara Whitely Binder at the University of Washington, Nigel Bankes at the University of Calgary, and Sarah Bates at the University of Montana, who have all contributed to continuing efforts to provide a neutral forum for a cross-border dialogue on the Columbia River Treaty. Nicholas Sackman, Water Resources graduate student and law student at the University of Idaho, provided invaluable help both with the logistics of the symposium and editing the contributions to this book. These acknowledgments would not be complete without expressing my deep gratitude to my husband, Eugene Allwine, for his constant support throughout this project. Finally, a heartfelt thank you to the peoples of the Columbia River Basin whose vision and hope for the future serve as a constant reminder of the power of a collaborative dialogue.

Barbara Cosens

Introduction to Parts I, II, III

Barbara Cosens, Lynette de Silva, Adam M. Sowards

This book is an outgrowth of the first University of Idaho College of Law Natural Resources and Environment Symposium held in 2009, which focused on the issue of transboundary water governance in the face of uncertainty. The symposium used the natural laboratory of the Columbia Basin, shared by the United States and Canada, as a focal point for discussion and the following question as the point of integration for contributions: *How do we design and implement governance of international watercourses in the face of uncertainty?*

The symposium was developed in collaboration with researchers from Oregon State University, University of Montana, University of British Columbia, and Washington State University. Representatives of the first four of these universities and the Universities of Washington and Calgary have joined to form the Universities Consortium on Columbia River Governance and continue to work with stakeholders in the basin to inform issues of governance. The Consortium has evolved to focus on three efforts within the basin: (1) to provide a yearly forum for an informal cross-border dialogue on the future of the Columbia River Basin; (2) to connect Consortium university research to stakeholders in the basin; and (3) to engage students at Consortium universities in relevant research and curriculum both to serve the basin and to provide a natural laboratory for understanding issues of water basin governance.

This collaborative effort among academics and the people of the Columbia River Basin was inspired by a moment in time. Joint operation of the river for the purposes of hydropower production and flood control is governed by a 1964 treaty between the United States and Canada (reproduced in the Appendix). Certain of the flood-control provisions expire in 2024, and either country must provide ten years notice should it seek to terminate the treaty. Thus efforts are underway to understand and predict changes within the basin and to determine whether those changes warrant modification of the treaty. The expiration of provisions that have protected basin residents and businesses from flooding, and the need to review the treaty provide a window of opportunity and a potential for open dialogue not otherwise present in the daily operation of the river under a treaty that, for its intended purposes, works. At the same time, the absence of any immediate crisis provides both the basin and the researchers with time to explore and undertake a measured dialogue.

This volume is a contribution to the effort to explore the question of water governance in the face of uncertainty. The specific application to the Columbia River allows the reader to explore that question in the realities and constraints of a real international basin. In the Columbia River Basin, as elsewhere, political boundaries were drawn without consideration of river basin boundaries. In fact, 276 surface water resources cross international boundaries (Oregon State University Program in Water Conflict Management and Transformation, 2011). Over the next decade, several contributing factors could trigger rapid change and social and economic instability in these international watersheds, placing greater demands on competing water interests and a greater need to cooperate across jurisdictional boundaries. The contributing factors explored in this volume as a subset of drivers of change are: changing values; empowerment of local communities; a threatened and deteriorating ecosystem; and climate change. Uncertainty in these social and ecological factors challenges traditional approaches to governance of transboundary water resources—approaches that rely on the certainty that historic data concerning water supply, demand, values, and ecosystem health can be used to predict the future; approaches that protect sovereignty through clear upfront rules for dividing benefits across political boundaries rather than flexibility to adapt to change and foster system resilience.

Part I of the volume begins with an exploration of the treaty itself, how it is implemented, and the social changes reflected in both increased local empowerment and changing values since 1964. Contributions from historians Jeremy Mouat, Paul W. Hirt, and Adam M. Sowards provide bookends to Part I by placing first the treaty and then the changing values of the people of the Columbia River Basin within the larger context of environmental history. The intervening articles describe how the treaty is implemented by those charged with the task, and changes in local empowerment, capacity, and values viewed through both legal changes and the voices of those in the basin.

Part II addresses two of the prominent ecological changes underway in the river: the health of the anadromous fish (only present in the U.S. portion of the river) and the current stalemate in efforts to address their decline, and climate change. Each of these topics is dealt with thoroughly elsewhere in the literature and the contributions here provide a mere sampling of the issues faced in these areas. They provide a window on the complexity of the uncertainties surrounding the ecological system and the difficulty of addressing that uncertainty without coordination at the scale of the basin. These issues should also caution us that an inflexible international agreement based on predicted change may be inadequate to address future surprises, even those comparable to the changes since 1964.

Part III begins the exploration of the future for international cooperation in the Columbia River Basin from the viewpoint of two experts with considerable

experience in the basin. Their views provide a real-world grounding before the academic explorations of Part IV. At first glance, the reader will see redundancy in the description of the geographic, hydrographic, biological, and social setting of the river, as well as the description of the treaty and its impact on the basin, in Parts I, II, and III. But read closely, with a view to each author's background. The differences in these descriptions tell as much about the different values and viewpoints in the basin as each analysis of the treaty. Understanding this is essential to the future of this and any international basin.

To understand the flow of the contributions to this volume, it is necessary to begin the story with the river itself. As described by James D. Barton and Kelvin Ketchum, both with considerable experience in implementing the treaty, the Columbia River Basin covers 259,500 square miles, with 15 percent in Canada and the remainder in the United States. Portions of seven states (Washington, Oregon, Idaho, Montana, Nevada, Wyoming and Utah); the province of British Columbia; the aboriginal lands of First Nations in Canada; and fifteen Native American reservations in the United States lie within the Columbia River Basin. To express runoff from the Columbia River Basin in terms of its average annual flow of 200 million acre-feet at the mouth would be misleading. The year-to-year variability in unregulated peak flow is 1:34, compared to a mere 1:2 on the Saint Lawrence River or 1:25 on the Mississippi River (Hamlet 2003). Hirt and Sowards note that this variability translated to substantial storage potential in the eyes of early twentieth-century boosters and engineers.

In 1805, when Lewis and Clark made their way down the Columbia River to Astoria, there were, of course, no dams. Salmon fisheries sustained the native population. Falls slowed upriver migration of salmon and provided excellent fishing locations. Each year thousands of Native Americans from numerous tribes gathered at locations such as Celilo Falls (now drowned by The Dalles Dam) to fish and trade (Landeen and Pinkham 1999; Hirt 2008). Mary L. Pearson describes the effect on native culture. Competition from commercial fishing and an influx of canneries began in 1866. The U.S. Army Corps of Engineers began transforming the river for navigation with locks at the Cascades as early as 1896, with numerous dams to follow (White 1995). As noted by John Shurts, most dams in the U.S. portion of the river main stem served to generate hydropower and aid navigation, but did not store substantial water. Barton and Ketchum describe that in 1948, even though the total flow was close to average, runoff occurred rapidly and peaked with a flood in May that destroyed the town of Vanport, Oregon, with an estimated flow of over 1 million cfs (average peak flows are less than half that rate). At the time of the 1948 flood, total storage capacity on the Columbia was about 6 percent of the average annual flow, as noted by Anthony G. White. Barton and Ketchum compare this to the Colorado, which has a storage capacity of over four times its average annual

flow or the Missouri, with storage capacity over two times its average annual flow. The approach at the time, implemented by the U.S. Army Corps of Engineers, was to address flood control through storage. The problem: the best remaining storage sites were in Canada.

This brings us to the starting point of the contributions to Part I: the history of negotiation of the 1964 Columbia River Treaty between the United States and Canada. Jeremy Mouat's contribution tells us that, even before the 1948 flood, the International Joint Commission formed by the Boundary Waters Treaty between the United States and Canada was directed to study the possibility of storage within Canada to provide flood control or power benefits to both countries. The Columbia River Treaty that would form the framework to accomplish this task was not adopted until 1964. Mouat describes what may have been the largest obstacle to its completion: the fact that the three new dams contemplated would all be in British Columbia and the majority of the flood control and hydropower benefits would be in the United States. Between 1961 and 1964 negotiations between the federal government of Canada and the province of BC led to a solution that would turn the operation and benefits under the treaty over to the province and divide benefits between the U.S. and the province allowing sale of Canada's share of power not needed by the province. The treaty has been hailed throughout the world as a pinnacle of international cooperation on freshwater sources, as described by Barton and Ketchum. White's contribution gives us a view of the provisions of the treaty itself.

One further complication would need to be addressed before the treaty could be completed. In 1964 the Pacific Northwest did not require the amount of power the new projects would generate. As Chris W. Sanderson notes in his contribution in Part III, this was solved when Congress authorized construction of the Pacific Northwest–Pacific Southwest Intertie allowing sale of power to utilities in the southwestern United States, with a preference for sale to northwest utilities (Pub. L. 88–552, August 31, 1964; Vogel, Part IV Chapter 1).

The treaty contains no automatic termination date or renegotiation clause and 2024 is the earliest date either party may terminate. At least ten years notice must be provided; hence the importance of a thorough review of the treaty before the year 2014. The operating entities are undertaking studies to inform options to be explored by 2014 and have begun a process of stakeholder input (U.S. Army Corps of Engineers and Bonneville Power Administration 2009). Certain of the flood-control provisions, paid for upfront by the United States to cover sixty years, expire in 2024, leading to consideration of whether the time is ripe for modification of the treaty. The contributions in this volume look at this question by exploring what has changed since 1964 and where the uncertainties lie in contemplating basin needs after 2024. Generally, the sources of change are in five areas: (1) change in values

concerning the river, assessed by Matthew McKinney and his students through a series of interviews, and analyzed by Hirt and Sowards by, in part, looking at changes in the law; (2) change in empowerment of local communities and, in particular, of Native American and First Nation governments, described by Barbara Cosens and given personal meaning by the narratives of Mary L. Pearson (Native American) and Garry Merkel (First Nation); (3) change in the viability of populations of anadromous fish that spawn within the Columbia River system and gridlock in the existing forum for dispute resolution concerning fish versus dams, described by fish biologist Chris Peery and analyzed through the lens of the resulting litigation by Carmen Thomas Morse; (4) climate change, analyzed by climate scientists Anne Nolin, Eric Sproles, and Aimee Brown; and (5) change in population and energy demand, described by John Shurts. Some of the important points raised by contributions are summarized in the following paragraphs, supplementing where appropriate from the literature, in each of these categories.

Change in values concerning the river: Two approaches are used: historians Hirt and Sowards examine the adoption of new laws reflecting a change in societal values concerning the environment; and Matthew McKinney describes the results of a reconnaissance-level survey of stakeholders in the basin done by students at the University of Montana.

Like all historical moments, events, and documents, the CRT was situated in time and place. Hirt and Sowards emphasize how the CRT fits within a century-long pursuit of economic efficiency by purportedly controlling nature to enhance individual, corporate, and national wealth. However, as they also note, the treaty came at a moment in time when cultural and political values were in the midst of a paradigm change to bring issues of equity—for nature, for Native peoples, and others—into the calculus of natural resource management. They conclude that the CRT was entirely a product of its time, reflecting a limited set of values and goals predominant in water-development programs of that era. They argue that moving forward will require balancing efficiency *and* equity. In addition, Hirt and Sowards look at a more subtle yet pervasive change in laws that reflect a trend surely to impact any effort to update the Columbia River Treaty. Beginning with, or resulting in, the passage of the Freedom of Information Act in 1966 and the National Environmental Policy Act in 1970, the expectation of the public for access to and participation in governmental decision making began to increase dramatically in the United States.

A reconnaissance-level situation assessment of stakeholders in the Columbia River basin done by students at the University of Montana under the direction of consortium member Matthew McKinney confirmed this expectation of public input within the basin. The initial assessment identified several key perceptions. First, if measured by the 1964 goal of flood protection and increased power

production, the Columbia River Treaty has been an outstanding success. Second, among the key issues identified by stakeholders that were not addressed in 1964 but should be in the future were the health of the salmon fishery and participation by affected communities, Native American tribes, and First Nations. This perception is paralleled by the dramatic change in empowerment among basin communities.

Change in empowerment of local communities and in particular, of Native American and First Nation governments: Enhanced empowerment and capacity of basin communities, suggesting that they have the capacity to participate and are likely to demand participation in any decision on whether and how to modify the treaty, is reflected in the following changes since 1964: (1) legal recognition of the treaty rights of certain Native American tribes to participate in the harvest and management of Columbia basin fisheries within the United States, set forth in contributions by Cosens, Merkel, and Pearson; (2) constitutional recognition of the rights of First Nations in Canada in 1982, set forth in contributions by Merkel and Cosens; (3) legislative recognition of the Columbia Basin Trust in Canada in 1995, set forth in contributions by Cosens and Merkel; and (4) establishment of the Northwest Power and Conservation Council in the United States in 1980, briefly discussed by Cosens and set forth in more detail in a contribution by Shurts in Part III.

Displayed in the contributions by Pearson and Merkel is raw candor. Their perspectives as Native American and First Nation members respectively carry with them the history of the Pacific Northwest and all that has brought us to this juncture and moment in time. This gives us the space to listen deeply to the voices of the "River People," to learn the plight of salmon, and to come to terms with the human component of the Columbia River Basin ecosystem. Through Pearson's account of the River People, we begin to know what fish represent to the indigenous people, what their life was like before the building of dams and the signing of agreements and treaties. We begin to get a sense of what spiritual, cultural, and emotional connections their society has with salmon. And we hear what the River People need in this pre-negotiation period and the potential renegotiation of the Columbia River Treaty. The intent of these chapters is not to burden the reader with some sense of guilt nor righteousness, but they do request that the reader listen wholeheartedly and without resistance.

This listening approach brings us to terms with "now," since the process in moving forward may actually have little to do with projections into the future, but in fact have more to do with coming to terms with the present. With the thoughts presented by these authors on issues related to the Columbia River Basin, listen without judgment. This describes where we are now. Our collective experiences have brought us here. In fact, listening is an art, championed in practices of negotiation, meditation, conflict management, and interpersonal skill development.

Deep listening requires us to listen with every pore of our being, beyond thoughts and emotions. Over time, through this kind of intense listening, there is the potential for a shift that can be transformative, that can result in stakeholders being more inclusive, and that can lead to thinking beyond ones' own individual interests. From these social changes, we turn to the ecological changes in the basin.

Change in the viability of populations of anadromous fish that spawn within the Columbia River system: The decline of anadromous fish in the Columbia River system has been extensively documented elsewhere and is addressed here in contributions by Peery and by Thomas-Morse. The blockage of migration from Canada and the reservations of certain upper Columbia River Native American tribes was a *fait accompli* by the time of the 1964 Columbia River Treaty as a result of the completion of Grand Coulee Dam. As noted by Peery, in the remaining portion of the basin, harvest of chinook salmon declined from a high of two million in the early 1880s to less than one hundred thousand when they were first listed in the early 1990s. The salmon fishery in the Columbia River basin is now supported by over two hundred hatcheries. Thomas Morse details the ongoing litigation concerning operation of the federal dams and salmon recovery, which points to relative gridlock between the two competing values. It is difficult to argue that these changes were not foreseen in the decision to dam the river (Bottom et al. 2009), but it is clear that there is a rising desire to revisit that decision.

Peery writes of the system's physical and biological mechanisms. We learn how the networks of constructed dams and impoundments and manipulated flows have affected the dynamics of the Columbia River system. Through this approach, Perry also reaches out and asks us to come to terms with the human dimension of the Columbia River ecosystem and the impact we have on the biological processes across the basin. He asks us to be "mindful," to have awareness, to be conscious, especially as the potential renegotiation of the Columbia River Treaty approaches. Peery suggests using this timeframe to make others aware through the dissemination of information, and through identifying data gaps, so these data needs can be filled.

One caution raised at the symposium by participant Thomas Leschine is important to note: "It is uncertain whether degraded salmon ecosystems remain sufficiently resilient to respond positively to ongoing restoration programs, or have shifted to a stable, low-productivity state that may persist regardless of the climatic regime." Under the definition of resilience—"[t]he amount of disturbance an *ecosystem* can accommodate without shifting to a fundamentally different structure, function and feedback mechanisms" (Leschine 2009)—it is possible that we have so altered the ecological system of the Columbia River that salmon restoration in any way resembling a natural system is impossible, creative governance notwithstanding.

The post-1964 law with the largest impact on operation of Columbia River dams on the United States side of the border is the Endangered Species Act adopted

in 1973. NOAA Fisheries (then National Marine Fisheries Service) began listing anadromous fish in the Columbia River system in 1991, and today eight salmon and four steelhead species that rely on habitat within the basin are listed. Although numerous factors impact these species, operation of dams for hydropower has been identified as a major factor, and operation of the Federal Columbia River Power System (that part of the hydropower system at federal dams in the U.S. portion of the basin) has been the subject of numerous Biological Opinions and subsequent challenges, resulting recently in what some refer to as operation of the river by the federal district court. This is detailed in the contribution by Thomas Morse. The ESA and subsequent listings reflect a change in values and provide an indication of strong interest in giving voice to issues concerning anadromous fish in any negotiation concerning operation of dams on the river. The current gridlock in the judicial system may be a further indication that the solution will come through a form of governance able to adapt to changing values rather than a lawsuit. Further, as detailed in Shurts' chapter in Part III, meeting the concerns of those interested in anadromous fish requires consideration of the run of the entire river, thus raising the possibility of inclusion in treaty issues. Yet no one has yet articulated what might induce Canada, whose anadromous fish runs were cut off in 1942 by completion of Grand Coulee dam, to collaborate on their return to health in the U.S. portion of the river.

Climate change: Water planners have long relied on data from a historic period of record to project water supply into the future. It is the seasonal variation, and the year-to-year variation that can be forecast within the degrees of historical variability, that the type of agency (or "entity") level operational planning envisioned by the 1964 Columbia River Treaty handles well, as detailed in the article by Barton and Ketchum, which describes the current adaptive capacity of the river operation planning.

Climate change takes us out of the range of variation that can be predicted based on historic behavior (Hamlet 2003). Most current discussion on climate change focuses on reducing emissions of greenhouse gases. This is an important goal. However, due to the lag in impact, even the most aggressive efforts at reduction in emissions will not prevent continued impact for the foreseeable future. Climate experts recommend planning for adaptation through use of scenarios that represent a range of possible futures, rather than projections based on historic behavior of a system (Solomon et al. 2009). Thus, given the range of potential temperature and precipitation changes, governance that is adaptive to climate change must include authorization that allows managers to respond to actual outcomes ranging from the best- to the worst-case scenario (Hamlet 2003).

Modeling by the Climate Impacts Group presented by Alan Hamlet at the symposium and published elsewhere suggests that precipitation may not change

dramatically within the Columbia River Basin, albeit substantial uncertainty is associated with this statement. However, changes in annual snowpack can be predicted with greater certainty and are already underway in the basin as documented in this volume by Nolin, Sproles, and Brown. The basin relies on snowpack as natural storage that, similar to reservoirs, moderates summer flows. With climate change, reduction in snow-water equivalent may be as much as 35 percent in the U.S. portion of the basin and 12 percent in the Canadian portion by 2060 (Hamlet 2003). This reduction in natural storage means that the artificial storage configuration in the basin will be insufficient to reap the power benefits available in the past. In particular, summer production that serves utilities in the southwestern U.S. will decrease if the current configuration is maintained (Hamlet 2003).

Moving out of the historic water supply regime has impacts beyond power production. The Columbia River Treaty provides an excellent framework to address high flow. However, it does not address low flow under a climate change scenario. Adaptation to climate change for other uses such as irrigation and fisheries requires response by multiple agencies in the U.S. with no framework for coordination. Irrigation occurs during the summer season when the flows are lowest if storage is insufficient. As Shurts notes, the result of failure to address low flows: fish and farmers will bear the brunt of climate change if no effort is made to adapt.

Change in population and energy demand: Energy demand and development has not proceeded as contemplated by the treaty drafters in 1964. As described by Shurts, at that time, planners expected the rapid growth in power demand that followed World War II to continue. This would mean that new thermal generation would have to rapidly replace hydropower as the dominant source of energy in the Pacific Northwest. Conservation nationwide in the wake of the 1970s energy crisis altered this picture, but not before the commitment of major expenditures on development of nuclear power had been made in the Pacific Northwest. The major overestimate of demand and underestimate of the cost of nuclear power plants led to a financial debacle the region is not anxious to repeat and the plants were not completed (White 1995). As a result, hydropower remains the dominant energy source in the region and the value of the system has grown dramatically. With the current push to develop non-carbon sources of energy, it is likely to become even more valuable. The draft power plan released in September 2009 by the Northwest Power and Conservation Council indicates that "the most cost-effective and least risky resource for the region" to meet electricity demand over the next twenty years "is improved efficiency of electricity use" (Northwest Power and Conservation Council 2009). If this projection proves true, it is likely hydropower will remain at the core of Northwest energy production through any near-term scenarios.

The articles in Part III form the bridge between the story of the Columbia River Treaty and the changes since its 1964 ratification and the academic analysis

(Part IV). Part III looks at the future of the treaty through the eyes of experts with a long history in the basin. One author, Shurts, raises the prospect of change; the other, Sanderson, of stability. Both represent views widely held in the basin. Both must be understood and given attention in any effort to revisit the 1964 Treaty.

As both a scholar and a practitioner in the U.S. portion of the Columbia River Basin, Shurts views the treaty through the lens of possibility. He asks: What changes in the basin since 1964 appear inconsistent with both the future envisioned then and the future predicted today? What avenues for accommodating change are available without revisiting an international treaty? Do the changes in the basin call for international or merely domestic action?

As an expert on both the treaty and energy law and policy in Canada, Sanderson calls attention to the enormous benefits joint development of the Columbia River have brought to the region, and asks: Is the risk of destabilizing an effort that works to the benefit of many too high?

An introduction by McKinney and Edward P. Weber precedes Part IV, but a brief discussion of the volume as a whole is warranted here. The primary themes running through this volume are a description and acknowledgement of the major changes in the social-ecological system of the Columbia River Basin since the treaty was ratified in 1964; the struggle to confront the question of whether those changes are so fundamental as to warrant disrupting a cooperative effort at transboundary operation and benefit sharing of a river that, for its purposes, has worked; and the difficulty of addressing transboundary river governance when faced with high levels of uncertainty. Readers will find a split between those close to the daily operations of the original negotiation of the 1964 treaty and those who have suffered harm from the things it does not address. But read carefully to avoid that being the limit of your evaluation. Those close to the 1964 treaty are reminded on a daily basis how difficult is it to achieve and maintain the current level of cooperation across an international border and how easy it might be to lose all benefits. Their concerns must be addressed at the same time the legitimate issues raised by those harmed are heard. Understanding these views is aided by the voices of academics in Part IV. The ability to analyze more objectively how the changes and impacts fit within global changes in governance of transboundary waters provided by McCaffrey et al. and Craig W. Thomas, and specific analyses of almost fifty years of implementation of the 1964 treaty provided by Eve Vogel provide some perspective to use in evaluating the contributions in the first three parts. Vogel's insights into the question of when it is appropriate to raise issues to the international level and when it is better to leave the issue to a more open collaborative process provide an excellent framework for considering the contributions of Gregory Hill et al. and Tanya Heikkila and Andrea K. Gerlak, who analyze smaller-scale collaborative efforts within the U.S. portion of the Columbia River Basin. Balancing the level of response, the degree

of uncertainty versus flexibility, and calls for greater democratization in resource decision making with stability reflect the challenges the people of the Columbia River Basin face in moving beyond 2024. It is also clear that the basin benefits from the fact that it does not start with a clean slate. The lessons of fifty years of treaty implementation combined with the substantial increase in local capacity and experience in collaborative efforts will serve the basin well in entering a dialogue on what the next century of river governance should be.

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The Columbia River Treaty, concluded in 1961 and entered into force in 1964, provided for benefit sharing on hydropower production and for flood control regulation of the river between Canada and the United States. Some of the treaty's provisions will expire in 2024, and that is also the earliest either country can unilaterally terminate with ten years' notice.

With contributions from historians, geographers, legal scholars, political scientists, environmental scientists, and water management experts, The Columbia River Treaty Revisited is designed to facilitate discussion of the impending expiration. An invaluable resource for scholars, stakeholders, and citizens interested in water basin management, the volume reveals the challenges and uncertainties of water governance through a close inspection of the Columbia River Basin. It aids efforts, already underway, to understand changes in the basin since 1964, to predict future changes, and to determine whether alteration of the treaty is ultimately advisable.

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A PROJECT OF THE UNIVERSITIES CONSORTIUM ON COLUMBIA RIVER GOVERNANCE

ISBN 978-0-87071-691-1

Oregon State University Press

Cover photograph by Dan McShane
Cover design by Judy Radovsky