

## AN ABSTRACT OF THE DISSERTATION OF

Mark Giordano for the degree of Doctor of Philosophy in Geography presented on February 15, 2002.

Title: International Wildlife Law and the Geography of the Commons.

Abstract approved: Gordon E. Matzke  
Gordon E. Matzke

Common resources are those for which rights to use, access and management have not been assigned. Common resources are frequently subject to over-exploitation, a phenomenon frequently referred to as the "tragedy of the commons," and solutions to commons problems are often sought through the establishment of rights regimes. An examination of the rights regimes used to govern water and salmon use in the U.S. Pacific Northwest's Columbia River watershed reveals variation both by resource type and political scale (international, national, tribal, state). It is hypothesized that this variation is due to the differing spatial characteristics of the resources in question. To further examine this hypothesis, a scale and space explicit theory of the commons problem is proposed. The theory is used to provide insights into the varied nature of the commons phenomena and culminates with a typology dividing common resources into one of three categories-open access, migratory and fugitive- based on their spatial characteristics. It is shown that the spatial categorization of a given resource need not be static but rather may depend on the political or administrative scale at which the resource is considered, a result suggesting that solutions to a commons problem should also vary across scales. As a first test of the theory, a case study of the use of law in establishing rights to international wildlife is conducted. To undertake the exercise, a typology of the processes by which wildlife may be internationalized is developed, and the world's largest known collection of international wildlife treaties, numbering more than 500, is collected and analyzed. A partial test of the hypothesis relating variation in the rights regimes used to govern international wildlife to the spatial

aspects of the wildlife in question reveals that international wildlife law has expanded over time in terms of volume, species coverage, geographic range, and, perhaps most importantly, goals. These changes are themselves due to a combination of improving technologies, increasing recognition of wildlife scarcity, and evolving human values related to wildlife management and use, a finding with important implications for the development of future international wildlife law.

©Copyright by Mark Giordano  
February 15, 2002  
All rights reserved

International Wildlife Law and the Geography of the Commons

By  
Mark Giordano

A DISSERTATION

Submitted to  
Oregon State University

In partial fulfillment of  
the requirements of the  
degree of

Doctor of Philosophy

Presented February 15, 2002  
Commencement June 2002

Doctor of Philosophy dissertation of Mark Giordano presented on February 15, 2002.

APPROVED:

---

Major professor, representing Geography

---

Chair of the Department of Geosciences

---

Dean of the Graduate School

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

---

Mark Giordano, Author

## ACKNOWLEDGEMENTS

Thanks are given to the five members of my dissertation committee- Erik Fritzell, Barbara Gartner, Gordon Matzke, Keith Muckleston, and Aaron Wolf- for their helpful comments, suggestions and insights. Special thanks are also given to the staff of the Geosciences Department at Oregon State University, in particular Joanne van Geest and Melinda Peterson. Funding to help support my doctoral studies and research is graciously acknowledged from the Sasakawa Peace Foundation, the Hunt Foundation, the Arthur Parenzin Foundation, the Anderson Fund, and the Department of Geosciences at Oregon State University.

## TABLE OF CONTENTS

	<u>Page</u>
Chapter 1. Introduction.....	1
Chapter 2. A Typology of Transboundary Resource Use Rights: The Case of Columbia Basin Water and Salmon .....	3
Abstract.....	3
Introduction .....	3
The Conceptual Framework for International Transboundary Water Resource Allocation .....	4
International Management of U.S./Canadian Columbia River Waters .....	5
Columbia Basin Water Resource Allocation between U.S. States.....	7
Columbia Basin Water and the Tribes.....	9
International Management of U.S./Canadian Salmon Fisheries .....	10
Fisheries Management between Washington and Oregon .....	13
Fisheries and Tribes.....	14
Comparative Rights Allocation Principles and Policy Implications .....	16
Conclusion.....	19
 Chapter 3. The Geography of the Commons: The Role of Scale and Space.....	 20
Abstract.....	20
Introduction .....	20
Geography and the Commons .....	22
Property Rights, Scale and the Commons .....	23
Space and the Commons .....	31
Resource Management and the Geography of the Commons .....	35
Conclusion.....	39

## TABLE OF CONTENTS (continued)

	<u>Page</u>
Chapter 4. The Internationalization of Wildlife and Efforts Towards its Management: A Conceptual Framework and the Historic Record .....	41
Abstract.....	41
Introduction .....	41
The Nature of the International Wildlife .....	42
International Transboundary Wildlife .....	43
International Open Access Wildlife .....	44
Secondary Order Internationalization.....	45
Internationalization through Direct Trade .....	46
Wildlife as Intrinsically Valuable or as a Global Common .....	48
Historical Development of International Wildlife Law.....	49
Early Trends in Wildlife Treaties .....	50
Wildlife Treaties since 1900.....	51
Allocation of International Wildlife Through Treaties .....	57
Lessons for Future International Wildlife Policy .....	61
Conclusion .....	65
Chapter 5. Conclusion .....	66
Bibliography .....	70
Appendix: Wildlife Treaty Series.....	80

## LIST OF FIGURES

<u>Figure</u>	<u>Page</u>
1. The Ownership Continuum and the Commons: Selected Socio-political Scales and Associated Population Ranges .....	27
2. Stylized Division of a Common Resource Space at Three Political Scales .....	29
3. Basic Relationships between Spatial Phenomena as Related to the Commons (Modified from James, 1952) .....	31
4. A Resource Typology by Spatial Attributes .....	33
5. Non-Fisheries Treaties as a Percent of All Wildlife Treaties .....	52
6. Average Number of Wildlife Treaties per Year .....	54
7. Average Number of Signatories per Wildlife Treaty .....	54
8. Multi-lateral Treaties as a Percent of all Wildlife Treaties .....	55
9. International Wildlife Treaties: Number by Country .....	55

## LIST OF TABLES

<u>Table</u>	<u>Page</u>
1. Rights Principles for the Use of Columbia Basin Salmon and Water .....	17
2. Number of Wildlife Treaties by Species Type .....	51

# **International Wildlife Law and the Geography of the Commons**

## **Chapter 1. Introduction**

Common resources are resources for which rights to use, management and access have not been well established. There is strong evidence that common resources, such as the atmosphere and some fish species in the open ocean, tend to be overexploited resulting in what is often referred to as the "tragedy of the commons" after a now famous article by Hardin (1968). As a consequence of the tendency for mismanagement, a major focus of resource policy has been on the development of methods for allocating rights to common resource use and the formulation of administrative rules to govern those common resources that will maintain their un-owned status. While contributions to commons policy and understanding have come from a variety of disciplines including economics, anthropology, and political science (for example see, respectively, Gordon, 1954; McCay and Acheson, 1989; and Ostrom, 1990;), the problem has rarely been considered, at least at the theoretic level, by geographers.

The present dissertation attempts a first step at overcoming this shortfall by using the tools and perspectives of geography to provide new insights into the nature of the commons problem. The work is structured around three chapters, each of which, though able to stand independently, is connected to a larger whole as part of a research process following the three steps of the scientific method, namely observe, hypothesize and test. As such, the dissertation begins with a set of observations related to the allocation of rights to two resources, water and salmon, within the Columbia River of the northwestern United States. Even a brief examination of the principles employed in allocating rights to water and salmon in the Columbia system reveals substantial inter-resource variation. Furthermore, when the principles are examined in a formal framework using the constructs of water law, it becomes evident that this variation exists not only by resource but, for a given resource, by political scale.

The observation that the principles used to allocate rights to two resources within the same geographic system may vary both by resource type and political scale

leads naturally to a search for the source of that variation. The second section of the dissertation explores this issue by developing a scale dependent resource typology based on the spatial relationships between resources and their users. Application of the typology makes clear that the incentives for the use or misuse of common resources may vary by their spatial categorization. Given this finding, a reasonable hypothesis follows that the efficacy of resource policy might be improved if it too varied with the spatial categorization of the resource to which it was applied.

As a first step in testing this hypothesis, the final section of the dissertation examines the case history of wildlife policy at the international scale. The goal of the work is to discover if correlations exist between the rights allocation principles that have historically been applied in the management of internationalized wildlife species and the spatial characteristics, as defined in the previous section, of those species. To undertake the analysis, a collection of historic and existing law related to international wildlife was collected. The resulting compilation of wildlife treaties is the largest in existence and allows a significant expansion in our understanding of the scope, extent and evolution of international wildlife policy. While it was not possible to fully test the initial hypothesis, the analysis of the body of international wildlife law nonetheless provides major new insights into the management of internationally common wildlife resources and the creation of international wildlife law as well as lessons for future international wildlife policy.

In summary, the present work takes the reader through a series of related observations, hypotheses and discoveries that together provide original insights into theoretical and applied aspects of common resource management. The findings provide a new understanding of variation in common resource problems across space and scale and suggest new considerations in the formulation of common resource policy. In addition, the insights, along with the catalog of the world's wildlife treaties created for this dissertation, provide researchers with new analytic frameworks and data resources for the further study of the commons problem in general and international wildlife management in particular.

## **Chapter 2. A Typology of Transboundary Resource Use Rights: The Case of Columbia Basin Water and Salmon**

### **Abstract**

The allocation of resource use rights is complicated when the resources in question cross political or administrative boundaries. This paper develops a framework to examine the allocation of use rights for transboundary resources using the paradigm of U.S. and international water law. In an application of the framework to Columbia Basin water and salmon, it is demonstrated that resource allocation principles vary considerably by both resource type and political scale. This result suggests 1) that management of Columbia Basin water and salmon may be improved by harmonizing administrative regimes and 2) resource management in general may be improved by matching rights allocation principles to fundamental resource characteristics.

**Key words:** resource policy, Columbia River, salmon, transboundary resources

### **Introduction**

The U.S. Pacific Northwest's cultural and economic identity stems in large measure from the water and salmon flowing from the Columbia Basin.<sup>1</sup> The management of these two resources is complicated by their transboundary nature. A significant percentage of the Columbia River's waters originate in Canada before flowing through, and being joined by waters from, U.S. federal, tribal, state and private lands. Since the construction of the Grand Coulee dam, the Columbia's anadromous salmon are entirely of U.S. origin. However, their life history strategies take them to Canadian coastal waters, and, on their journey to the sea and back, the salmon, like the Columbia River itself, pass through various state, tribal and private holdings. Thus U.S. management of Columbia Basin water and salmon in a

---

<sup>1</sup> The term "Columbia Basin" in this paper is used to describe the entire Columbia River watershed and not, as the term is often locally applied, the much smaller physical depression through which the Columbia River flows in eastern Washington State.

sustainable and equitable manner involves agreement at a variety of administrative and legal levels.

The fundamental physical and biological connection between Columbia Basin waters and the salmon within them is clear. In recent decades, river and fish management have also become increasingly intertwined as pressure has grown to mitigate the deleterious impact of some Columbia Basin water use practices on salmon numbers. Given the similarities in the physical and political spaces occupied by Columbia Basin water and salmon resources and the growing interconnection of their management, a comparison of the principles employed by the U.S. in their transboundary administration at multiple political scales is especially timely. This paper uses the theoretical constructs of international and U.S. water law to make such a comparison.

### **The Conceptual Framework for International Transboundary Water Resource Allocation**

Principles for the international allocation of transboundary water resources can be thought of as existing along a rough continuum bounded by two polar extremes. At one extreme is the 'doctrine of absolute sovereignty' that maintains the absolute of a sovereign to use the waters flowing through its territory. At the other extreme is the 'doctrine of absolute river integrity' which holds that all riparian sovereigns have a right to use, un-degraded, the waters naturally within their province (in application to resources beyond fluvial waters, this principle can be thought of as 'absolute resource integrity'). When water is considered as a consumable resource,<sup>2</sup> there is a natural tendency for upstream riparians to favor the former doctrine and downstream riparians the latter. However, when navigation or the use of water-related resources such as anadromous fish are the primary issue, the incentives are reversed. In both cases, the opposition of the two principles and tendencies for upstream and downstream riparians to favor opposite positions has resulted in neither principle being applied in

---

<sup>2</sup> i.e. when water is considered a scarce resource for direct human consumption, irrigation, or industrial purposes.

international law (Wolf, 1999). Instead, international treaties on the allocation of transboundary water resources have found compromise in the middle ground. Commonly, a doctrine of 'limited territorial sovereignty' is applied in which each riparian is allowed the use of waters within its boundaries so long as they do not interfere with the "reasonable" uses of downstream riparian states (Buck et al., 1993). This concept has been expanded to include the "principle of equitable participation" which holds that water use can be optimized through the cooperative development of water resources by co-riparian states (Krutilla, 1967). The principle of equitable participation goes beyond simple resource apportionment and, in effect, recognizes the possibility of positive-sum solutions to transboundary resource allocation problems.

### **International Management of U.S./Canadian Columbia River Waters**

The 1961 Columbia River Treaty, known formally as the *Treaty between the United States of America and Canada Relating to Cooperative Development of Water Resources of the Columbia River Basin*, and its ratified annexes of 1964 embody the principle of equitable participation in their concept and practice (United Nations, 1964). The *raison d'être* for the treaty was the desire by Canada and the U.S. to cooperatively manage storage of waters in the Columbia Basin including the Columbia River itself and many of its primary tributaries (Swainson, 1986). While the Columbia's waters are shared between the U.S. and Canada, the Columbia Basin itself does not share homogenous demographic, economic and geographic conditions on each side of its international boundary.

Population densities in the U.S. and the U.S. portion of the Columbia Basin are higher than densities in Canada. In addition, major Canadian population centers are relatively far removed from the Columbia Basin. Not surprisingly, pressure to use the Columbia River and its tributaries as a source of power generation, irrigation supply and other uses have historically been higher in the U.S. than in Canada, and Columbia River development in the U.S. has outpaced that in Canada (Krutilla, 1967). As with most rivers, natural flow patterns on the Columbia's mainstem vary widely by season (Krutilla, 1967), and peak flows, occurring in spring/summer, are not synchronous

with the winter peak power demand in U.S. Pacific Northwest (Swainson, 1986).<sup>3</sup> Uneven flow not only reduces the utility of the Columbia as a power source but also exacerbates flooding, the damage from which has potentially high economic costs, especially in the more developed areas of the United States' lower Columbia Basin.

Though Canada controls only 15% of the Columbia Basin's territory, it contributes 31% of the Columbia's total flow and a considerable proportion of summer peak flow (Pacific Northwest River Basins Commission, 1970).<sup>4</sup> At the same time, the Canadian portion of the Basin contains excellent sites for reservoirs that could be used to store water for controlled release at times more beneficial to the United States' interests (Swainson, 1986). By the 1940's, the U.S. could clearly see potential benefit from the construction of storage reservoirs on Canadian territory (Swainson, 1986). Canada could likewise see that such construction could be in its national interest if it received an adequate return on its investment and compensation for losses in terms of land inundation, environmental degradation and foregone potential for future internal power generation.

The Columbia River Treaty was eventually negotiated on the recognition that both the U.S. and Canada could benefit from cooperation over the Columbia's development. In the final form of the treaty, Canada agreed to build reservoirs capable of 15.5 million acre-feet of active storage to be managed for joint Canadian/American benefit and allowed the flooding of Canadian territory by an additional reservoir sited in the U.S. (United Nations, 1964, Articles II and IV). In exchange, the U.S. agreed *inter alia* to give Canada rights to one-half of the power produced in the U.S. from treaty storage in Canada and to pay one-half the value of prevented flood damage (United Nations, 1964, Articles V and VI). The Columbia River Treaty thus realized the principle of equitable participation, at least with respect to hydropower and flood

---

<sup>3</sup> The importance of this factor has been lessened by the completion of the Northwest/Southwest power intertie in 1968 that allows efficient transfer of electric energy from the Pacific Northwest to California.

<sup>4</sup> Columbia River discharge measured at The Dalles, rather than the mouth as reported here, may be more suggestive of Canadian water contribution in terms of hydropower production and flood crests in the Portland-Vancouver area. Approximately 40% of the water passing The Dalles is of Canadian origin.

mitigation purposes. This exchange of benefits between up- and downstream riparians was unique to international water agreements and has come to be called the 'principle of sharing downstream benefits' (Muckleston, March, 2000).<sup>5</sup>

It should be noted, however, that the 'principle of sharing downstream benefits' as embodied in the treaty is limited rather than comprehensive. The Columbia River Treaty is based only on bilateral cooperation in hydropower generation and flood damage reduction, and not, for example, on uses of the Columbia for salmon production. With the Pacific Northwest Electrical Power Planning and Conservation Act of 1980, the use of Columbia Basin waters for salmon management has joined hydropower as an explicit U.S. objective (Swainson, 1986), an objective that has been strengthened under the Endangered Species Act. However, Canada has been reluctant to expand the Columbia River Treaty's scope to include salmon management at least partly in response to concerns over U.S. harvest, off the coasts of Alaska and Washington, of natal Canadian salmon (Swainson, 1986 and Muckleston, May, 2000, personal communication). An attempt was made to address harvest concerns in the recently updated Pacific Salmon Treaty (see below), though it is not clear if the new agreement will eventually allow an expansion of the Columbia River Treaty's scope.

### **Columbia Basin Water Resource Allocation between U.S. States**

Conflict over water allocation between U.S. states can only be adjudicated through the United States Supreme Court (Getches, 1987). When it rules, the Court uses a standard of 'equitable apportionment.'<sup>6</sup> This standard has no specific meaning

---

<sup>5</sup> A version of this principle has since been included in two additional water treaties, the 1998 *Agreement Between the Government of the Republic of Kazakhstan, the Government of the Kyrgyz Republic, and the Government of the Republic of Uzbekistan on Use of Water and Energy Resources of Syr Darya Basin* and the related 1998 *Agreement Between the Government of the Republic of Kazakhstan, the Government of the Kyrgyz Republic, and the Government of the Republic of Uzbekistan on the Joint and Complex Use Water and Energy Resources of the Naryn Syr Darya Cascade Reservoirs*.

<sup>6</sup> The vague concept of 'equal apportionment' should not be confused with the 'equal participation' principle discussed earlier.

but merely “describes the exercise that the Court goes through to render a fair and just judgment as between two co-equal sovereigns” (Cairo, 1998, 116). Thus the Court may draw from a variety of water doctrines, laws and statutes in its ruling. In practice, the court has been reluctant to involve itself in interstate water allocation. There are a variety of reasons for the Court’s hesitancy including, as put in *Colorado v. Kansas*, the fact that adjudication “necessitate(s) expert administration rather than judicial imposition of *a hard and fast rule* (italics added)” (Cairo, 1998, 117). Instead, the Courts have suggested the use of mutually negotiated interstate compacts, allowed with the consent of Congress under Article I of the U.S. Constitution, to manage conflicts over water resources. While there are no inherent limitations on the water allocation principles that may be employed in state compacts, most are based on the same vague standard of ‘equitable apportionment’ favored by the Supreme Court (Getches, 1987).

With respect to Columbia Basin states, there are no Supreme Court rulings and few compacts governing uses of the Columbia Basin resources.<sup>7</sup> Interestingly, one of the reasons the U.S. pursued the Columbia River Treaty with Canada was the failure of downstream U.S. states to come to an agreement, similar to the eventual agreement signed with Canada, for the construction of storage facilities for Columbia Basin waters on upstream riparian lands. Upstream states balked on the grounds that the construction of such projects would flood economically important valleys, destroying prime agricultural land and mining sites and requiring community relocations, all for the purpose of providing low cost electricity and flood control to more urbanized downstream states (Muckleston, 1980). In fact, attempts to form compacts, none of them successful, between major Columbia Basin riparian states concerning water related issues were made using a variety of approaches over a forty-year period beginning in 1924 (Bastash, 1998), demonstrating that international agreements are not necessarily more difficult to conclude than their intra-national counterparts.

---

<sup>7</sup> Compacts exist between Idaho and Wyoming over allocation of Snake River water and between Oregon and Washington, discussed below, concerning salmon.

## Columbia Basin Water and the Tribes

Water law in the Western U.S. is based on a concept of historic rights that has ties to the 'doctrine of absolute river integrity' already discussed (Wolf, 1999). Under the historic rights principle, water is allocated based on the seniority of historic use. In other words, an early user of water resources has a greater right to continued consumption than a party whose use began subsequently. This concept is often referred to as "first in time, first in right" and has been widely applied in Western U.S. water law through the principle of 'prior appropriation' (Dzurik, 1996). In prior appropriation law, water is allocated to the most senior appropriators until available water, however defined, is fully consumed. More junior appropriators then lose their right to withdraw water for the relevant time period. In general, prior appropriation rights can be forfeited only for non-use or for failing to meet 'beneficial use' criteria (Dzurik, 1996).

Tribal lands in the U.S. are held by the federal government in trust. Thus, there is no inherent conflict between tribal and federal claims for water, since the tribal lands are in fact federal in nature. The relation between the tribal trust lands and the prior appropriation laws of individual states was established in the 1908 Supreme Court case of *Winters v. United States* (Cohen, 1982). In this and later decisions, the Supreme Court held that in setting out the tribal land system, it was the intent of Congress to "ensure (sic) a permanent homeland and livelihood" for the tribes (Goldfarb, 1988, 50). The maintenance of livelihoods was assumed to depend on agricultural development, and, since agriculture in the arid West typically required irrigation, tribal lands implicitly maintained a reserved right to water. Principles for determining the quantity of water reserved under the treaties were later established in the Supreme Court's 1964 *Arizona v. California* decision (Price and Clinton, 1983).

At least in the Western U.S., tribal reserved rights fall within broader prior appropriation system. However, because of the nature of the *Winters* and *Arizona v. California* decisions, Indian reserved rights, unlike non-Indian prior appropriation rights, cannot be forfeited through either non-beneficial or non-use (Dzurik, 1996). In

addition, tribal rights are assigned a seniority date no later than the date of reservation establishment, and as a result, tribal reserved water rights typically have seniority over the rights of non-Indian claimants (Cohen, 1982). Further, to meet treaty obligations requiring water right reservations, tribal reserved rights cannot be reduced even in times of water shortage (Cohen, 1982).

Until the early 1980's, Columbia Basin tribes made few efforts to assert their recognized water rights. In the 1981 case of *Colville Confederated Tribes v. Walton*, the Colville Tribes, with reservation land within the Columbia Basin, successfully sued Walton, a non-Indian, to end his Washington State sanctioned water withdrawals. The basis for the suit was the contention that water withdrawals were detrimental to the production of fish and that the preservation of the tribe's access to fishing grounds was a recognized federal goal in creating the Colville Reservation (Price and Clinton, 1983).<sup>8</sup> Since *Colville v. Walton*, Columbia Basin tribes have brought additional suites over water rights based on the same legal principles (Sampson, 2000). With substantial tribal lands within the U.S. portion of the Columbia Basin and increasing water demand boosting the value of water for both traditional and "new" in-stream uses, for example in salmon production, the importance of tribal rights in Columbia Basin water allocation issues will likely continue to grow as it has elsewhere in the Western U.S. (Dzurik, 1996).

### **International Management of U.S./Canadian Salmon Fisheries**

Anadromous salmonids, which include five species of Pacific Northwest salmon, are born in freshwater streams, migrate to the ocean to feed, and return to their natal waters to spawn. Runs of anadromous Columbia Basin salmon historically included fish natal to both U.S. and Canadian territory (Muckleston, 1992). The 1930's construction of the Grand Coulee Dam in Washington State eliminated all Canadian salmon fisheries with the exception of those for the landlocked sockeye (Krutilla, 1967). The international allocation of salmon is therefore no longer an issue

---

<sup>8</sup> This legal argument is based on the logic of the *Winter* decision discussed above.

within the Columbia Basin itself. However, the anadromous lifecycle and migration patterns of Columbia Basin salmon brings them into Canadian coastal waters where they mix with salmon originating in Canadian river systems (Cederholm et al., 2000). Salmon born in Canadian rivers, most notably those of the Fraser River system, likewise spend part of their lives in U.S. coastal waters (Huppert, 1995). The natal fish of both countries mix at sea and are caught (“intercepted”) by the legitimate fisheries of each country. While interceptions are to some degree unavoidable, both Canada and the U.S. have at times allowed their harvesters to target fish known to have originated outside their waters (Huppert, 1995).

The subject of salmon interception has been a point of discussion since the early part of last century, and the first bi-lateral agreement on shared harvest, the Fraser River Convention (League of Nations, 1937), was written in 1930. The impetus for the convention was the inadvertent blockage of Canada’s Fraser River during railroad construction. To clear the blockage and improve salmon passage, Canada required assurance that its efforts would be repaid in salmon catch, i.e., that the U.S. would not intercept an inordinate amount of restored Fraser River fish before they could return to Canadian waters. At the same time, the U.S. had incentive to assist Canada in expanding Fraser River salmon production in order to increase the number of Canadian fish entering U.S. waters, which U.S. fishermen could then catch. In the convention, ratified in 1937, Canada agreed to a 50-50 split of Fraser River harvests within the territory governed by the agreement in exchange for U.S. financial contributions to Fraser River restoration.

For a variety of reasons, the 50-50 principle was called into question by both the U.S. and Canada, and by the late 1960s both sides began to argue for a “nation of origin principle” (Huppert, 1995). Under this principle, the right to harvest fish was tied to the fishes’ natal origin. The logic for this approach is that the country controlling salmon breeding habitat is in the best position to manage the habitat and should enjoy the economic benefits, via increased harvest, of proper management. After long negotiation, the new principle was incorporated in the 1985 *Treaty between the Government of Canada and the Government of the United States of America*

*Concerning Pacific Salmon* (United Nations, 1985). The agreement, known as the Pacific Salmon Treaty, was amended in 1999 to include provisions for abundance based harvest management (Annex 4).

The Pacific Salmon Treaty is based on the principles that 1) the interception of fish resulted in pressures for over-harvest on both sides of the border and 2) each party to the treaty should “receive benefits equivalent to the production of salmon originating in its waters” (United Nations, 1985, Article 3, 1.a.). The second principle, the “nation of origin” principle, is related to the absolute sovereignty concept from international water law described above and varies considerably from the water management principles embodied in the Columbia Basin Treaty. The Pacific Salmon Treaty in effect states that each country claims, and grants to the other, the right of absolute sovereignty over the fish born within its territory and that the right to the fish is not diminished by the departure of the fish from territorial waters. This is the same principle applied in the portions of the 1982 United Nations Convention on the Law of the Sea governing anadromous fish (United Nations, 1982, Article 66, 1).

In practice, the treaty has at times varied somewhat from this strict interpretation. For example, while the 50-50 split on Fraser River fish was eliminated, the treaty allocated the U.S. a numeric quota on Fraser River catch even though the fish are entirely of Canadian origin (United Nations, 1985, Annex 4, Chapter 4). The treaty also recognizes that the migratory nature of anadromous salmon preordains some international salmon interception during harvest. The treaty advocates reducing interceptions (United Nations, 1985, Article III), and the overall structure of the agreement attempts to balance or otherwise mitigate those interceptions that do occur. However, even the issue of balance is in itself controversial. The U.S. intercepts a relatively high number of economically low-value salmon, especially in the waters of the Washington State and Southeast Alaska, while Canada intercepts a relatively low number of economically high-value salmon, mostly originating in Alaska, off British Columbia (Huppert, 1995). As a result, Canadian and U.S. positions on appropriate methods for equity measurement have varied (Huppert, 1995).

It should be noted that, analogous to the Columbia River Treaty, the basis for the Pacific Salmon Treaty is not salmon *per se* but the value salmon represent. Commercially caught salmon are generally believed to provide less overall economic benefit than those caught by sport fishermen spending relatively large sums on equipment, travel and other costs for each fish they catch.<sup>9</sup> As a result, commercial fishermen are barred from fishing outside their home country's waters, while sport fishermen, with their relatively high demand for fishing services, are not. In fact, as evidenced in magazine and web-site advertisements, American sport fishermen are actively encouraged to fish in Canadian waters, probably because they are believed to more than "pay" for the fish they take in terms of monetary contributions to the Canadian economy. Thus live salmon, like their processed and frozen counterparts, can in a sense be reallocated even after their initial apportionment within the Pacific Salmon Treaty.

### **Fisheries Management between Washington and Oregon**

As discussed, any compact between U.S. states must be ratified by Congress. In 1915, Washington and Oregon passed such a compact, known as the Oregon-Washington Columbia River Fish Compact, concerning fishing rights in the Columbia River and its tributaries (General Laws of Oregon, 1915, Chapter 188). Under the agreement, ratified by Congress in 1918, Washington and Oregon granted each other concurrent jurisdiction over the Columbia Basin fisheries within their respective territories and allowed only citizens of the two states to obtain licenses for fishing therein (General Laws of Oregon, 1915, Chapter 188, Sections 5 and 7).<sup>10</sup> Notably absent at the signing of the compact were upstream riparian states, in particular Idaho.<sup>11</sup>

---

<sup>9</sup> In purely economic terms, sport fishermen are inefficient in the sense that they expend more resources than commercial fishermen for each fish caught.

<sup>10</sup> The compact, known as the Oregon-Washington Columbia River Fish Compact, has been amended over time. For example, national and state residencies are no longer relevant in determining eligibility to obtain a sport fishing license. The relevant Oregon code is now found as ORS 507.010.

With most of the Columbia Basin salmon fishery jointly managed under the aforementioned agreement, freshwater salmon allocation between Washington and Oregon is not a significant issue. The situation in the coastal fishery is similar. Off-shore salmon harvests are managed within zones set by the Pacific Fisheries Management Council, a body consisting of representatives of state, federal and tribal interests (Pacific Fisheries Management Council, 2000). The zones are constructed so as to manage specific salmon runs, and fish caught within each zone are normally landed at the nearest port, typically by fishermen of the same state (Martin, personal communication). This does not, however, need to be the case, and commercial or sport licenses can be obtained by any U.S. citizen regardless of state residence. In fact, the principal management issue regarding salmon allocation within Washington and Oregon is competition between fishing interests—commercial, sport and tribal—not between the states themselves (Martin, personal communication).

Nonetheless, conflict over Columbia Basin salmon allocation does exist at the interstate level. The primary issue involves the interception catch of Columbia Basin salmon by fisheries in Southeast Alaska (Huppert, 1995). Interestingly, intra-state salmon interception is not handled as a domestic U.S. issue, but rather at the international level via the Pacific Salmon Treaty (United Nations, 1985, Annex 4, Chapter 2) as part of the overall U.S./Canadian effort to balance international salmon interception.

### **Fisheries and Tribes**

In 1854-55, some Columbia Basin tribes—the Warm Springs, Yakama, Umatilla and Nez Perce—signed treaties negotiated with Isaac Stevens, the first governor of Washington Territory, which guaranteed them the “right of taking fish at all usual and accustomed grounds and stations, ...in common with citizens of the Territory” (Cohen, 1982, 450). In exchange for this and monies, the tribes gave up rights to most of their lands (Price and Clinton, 1983). When the treaties were signed,

---

<sup>11</sup> The point is now moot since salmon runs in states upstream from Washington and Oregon are now virtually non-existent.

salmon were plentiful and, as put in the 1979 Supreme Court opinion of Justice Stevens in *Washington v. Washington State Commercial Passenger Fishing Vessel Association* it “simply was not contemplated that either party [the tribes or settlers] would interfere with the other’s fishing rights”(Price and Clinton, 1983, 682). Thus the simple access guarantee was considered sufficient, and quantitative harvest measures were not addressed.

Conditions changed rapidly after treaty signing, and as early as 1905, even the issue of access had made it to the supreme court in *United States v. Winans*. The *Winans* case, involving the Yakima, affirmed tribal rights to access fishing grounds, even if on private lands, but did not address the issue of harvest numbers. As fish numbers dwindled in the 20th century, the question of quantitative allocation came to the fore. In the 1979 *Washington v. Fishing Vessel Ass’n* decision, tribes were given the “right to take a share of each run of fish that passes through tribal fishing areas” (Cohen, 1982, 454). As part of its ruling, the Court upheld earlier lower court rulings (*Sohappy v. Smith/U.S. v. Oregon* (1969) and *U.S. v. Washington* (1974), known respectively as the Belloni and Bolt decisions) that held that the treaty tribes were entitled to 50 percent of harvestable fish numbers. The logic of the decision was similar to that in the tribal water rights case of *Arizona v. California* (see above). The Court found that the treaty signatories had recognized the vital importance of salmon to the livelihoods of Indians (Price and Clinton, 1983). Thus the right to take fish, just as with the right to use water, was considered implicit in the treaty even though it had not been explicitly mentioned. The court held that the language of the treaty was synonymous with the “reservation” of a right to catch fish and cited both *Winters v. United States* and *Arizona v. California* in its opinion (Price and Clinton, 1983, 686).

The Court’s ruling on tribal fishing rights was not, however, completely consistent with its ruling on tribal water rights. For example, tribal harvest rights were held to be based only on harvestable stocks, not total supply (Price and Clinton, 1983). Tribal fishing rights were therefore limited by fish supply, and so while tribes were allowed to use all of their water rights irrespective of conditions, “the state may interfere with the Indian’s right to fish when necessary to prevent the destruction of a

run of a particular species in a particular stream” (Cohen, 1982, 451). Still, tribes were given senior appropriator status in that measures to reduce tribal fisheries for species protection were allowed only after the state had limited the catch of its other citizens (Cohen, 1982).

The rulings on tribal salmon rights also differed from water resource rulings in that the 50 percent allocation was viewed as a maximum, not a minimum. If tribal numbers declined or tribes found alternative ways to maintain their livelihoods, they could theoretically be allowed less than 50 percent of the allowable harvest (Price and Clinton, 1983). As a result, unlike with tribal water allocation, tribes can in effect forfeit their fishing rights through non-use as is the case in traditional non-tribal prior appropriation water law.

### **Comparative Rights Allocation Principles and Policy Implications**

The various principles used by the U.S. in transboundary management of Columbia Basin water and salmon are summarized in Table 1. Clearly the principles that have been applied to Columbia Basin resource allocation vary considerably by both resource type and jurisdiction. Water has been allocated using limited territorial sovereignty and historic use doctrines, and salmon allocation has involved both those principles as well as the doctrine of absolute sovereignty. Looking across resources, the treaties between the U.S. and Canada on water and salmon employ fundamentally different allocation principles, while no formal interstate agreements exist for either resource regarding allocation. With respect to the tribes, rights to both water and salmon emanate from 19th century treaties. Over time, the nature of tribal use rights has been clarified by the courts and placed within the framework of prior appropriation law. However, interpretative variation between tribal water and salmon rights exists, and courts have made tribal rights to salmon, unlike rights to water, subservient to resource protection. In fact, for salmon management in general, resource conservation has been incorporated within rights doctrines at all jurisdictional levels, while the opposite has been the case with respect to water. This result perhaps

stems from a conception by some of salmon as a depletable resource and water a renewable resource.

**Table 1. Rights Principles for the Use of Columbia Basin Salmon and Water**

	Absolute Sovereignty	Limited Sovereignty/ Equitable Participation	Historic Use	Absolute Resource Integrity
<b>Columbia River</b>				
U.S./Canada		X		
Between U.S. States		None		
U.S./States/Tribes			X	
<b>Salmon</b>				
U.S./Canada	X			
Between U.S. States		None*		
U.S./States/Tribes			X	

\* A compact without explicit principles exists between Washington and Oregon. Allocation between Pacific Northwest states and Alaska is handled as part of the U.S./Canada Pacific Salmon Treaty.

The treaties and agreements establishing rights to the use of the Columbia Basin water and salmon have been concluded over a period of more than 150 years. However, they have largely developed independently of one another and without recognition for the interconnection between the two resources. Not surprisingly, inherent conflicts between the agreements exist. The flow regimes mandated in the Columbia River Treaty to cooperatively increase hydroelectric output, for example, are antithetical to those required for high levels of sustained Columbia Basin salmon production, an explicit goal of the Pacific Salmon Treaty. With the recent listing of 26 salmon and steelhead stocks under the Federal Endangered Species Act and 76 additional Columbia Basin stocks considered of special concern or at moderate to high risk of extinction (Committee on Environment and Natural Resources, 2000), the need for interconnected Columbia Basin water and salmon management is growing. As shown through *Colville v. Watson*, tribes have already successfully asserted the interdependence of their water and salmon rights in court. A logical step for the U.S. and Canadian governments is to voluntarily make the same association at the

international level. For example, including the value of salmon production within the “sharing of downstream benefits” construct of the Columbia River Treaty might be a more cost effective method of mitigating salmon decline than alternative, domestic solutions which may otherwise soon be forced by U.S. courts.

The study of rights allocation as presented here also has implications beyond the Columbia Basin for resource management in general. In particular it asks for an explanation of the variability in rights allocation principles both across resources and across jurisdictions. For the Columbia Basin, that explanation appears multi-faceted. In the case of tribal rights, the rationale probably lies in historic accident. Neither side in tribal treaties likely understood the full implications of the agreements they signed, the massive change in resource availability— especially with respect to salmon—that was to come, or the eventual interpretations which would emanate from U.S. courts. In fact, it seems unlikely that any principles for rights allocation were explicitly considered when the treaties were signed. At the international level, in contrast, paradigms for the allocation of use rights were explicitly considered. The question then is why, in the final treaties signed by the Canada and the United States, the principles applied to water and salmon varied. One reason may be related to differences in geographic relations between water, salmon and the political boundaries they cross. While both resources share in the simplest sense transboundary characteristics, the nature of those characteristics varies. Much of the Columbia River can be considered a uni-directional transboundary resource in that it travels from Canada to the U.S. but does not return to Canada (except circuitously through precipitation). The Columbia Basin’s salmon are bi-directional transboundary resources in that they are born in the U.S., enter Canadian and international waters to feed, and return to U.S. waters again to spawn. A key question is whether a correlation exists between the nature of rights allocation principles, transboundary and other characteristics,<sup>12</sup> and policy success across a broader range of resources than the water and salmon discussed here. If so, it may be possible to develop general guidelines for

---

<sup>12</sup> For example, management goals for open access resources such as ground fish in the open ocean may best be met through rights allocation principles different from those most successful in the management of uni- or bi-directional transboundary resources.

associating particular rights principles with particular resource characteristics in the negotiation and formulation of resource policy.

## **Conclusion**

This paper used the paradigm of U.S. and international water law to develop a typology of principles utilized in the allocation of use rights to transboundary resources. Using the framework, it was shown that the principles applied in the management of Columbia Basin water and salmon have varied greatly both across resources and across jurisdictions. This finding leads to two key questions for policy and future research, one relating to Columbia Basin water and salmon specifically and the other relating to resource management in general. First, given the jurisdictional similarities and physical interrelationships between Columbia Basin water and salmon, can management of the two resources be improved by strengthening linkages in their administration, especially at the international level? Including the benefits of salmon production within the Columbia River Treaty may, for example, lower the cost of current and probable future U.S. salmon recovery programs and improve chances for the long-term survival of some salmon populations. Within such a framework, Canada might time water releases to assist in flushing smolting salmon from U.S. estuaries in exchange for an increased share of Columbia generated power or salmon catch. Second, generalizing from the insights of the Columbia Basin experience, do relationships exist between fundamental resource characteristics, including but not limited to the transboundary characteristics discussed here, and the efficacy of various rights allocation principals? If further research suggests such a relationship, broad guidelines could then be constructed to assist in policy and law formation across a range of resource types and political scales.

### **Chapter 3. The Geography of the Commons: The Role of Scale and Space**

#### **Abstract**

The “tragedy of the commons” is a concept familiar to students of resource management, and many academic disciplines have devoted considerable attention to its understanding and solution. Despite a long tradition of concern with issues directly related to the problem, the field of geography has been relatively silent in the commons literature, especially on the theoretic front. The present paper attempts to address this shortcoming by applying geographic methodologies, in particular as related to scale and space, to an understanding of the phenomenon. The paper first demonstrates the role of socio-political scale in defining the commons problem and then develops a typology classifying common resources into one of three categories- open access, fugitive and migratory- based on spatial relationships between resources and resource users. It is shown that the geographic nature of the commons problem for any particular resource is dependent on the socio-political scale at which it is assessed and suggests that solutions to commons problems should vary both by scale and spatial nature.

**Key Words:** common property, resource management, transboundary, open access, scale

#### **Introduction**

This paper examines an issue fundamental to natural resource allocation and exploitation, the issue of rights. Neo-classical economic theory holds that efficient resource allocation can only occur when well-defined property rights, which include the right to exclude others from use, exist (Tietenberg, 1992). Frequently the property rights condition is not met with respect to the allocation of natural resources. For example, air is neither owned nor can one party practically exclude another from its use. As a result, inefficient use, evidenced in pollution and over-exploitation, often

prevails.<sup>13</sup> Resources subject to such conditions are referred to as “open access” or, more frequently, “common” goods<sup>14</sup> and their mis-allocation has come to be termed the Tragedy of the Commons after a well known article by Hardin (1968).

The theory of common good use and misuse has been best developed in such fields as economics, anthropology and political science (for example see, respectively, Gordon, 1954; McCay and Acheson, 1987; and Ostrom, 1990). However, the commons problem is in many respects fundamentally geographic in nature in that the phenomenon is predicated on the relationships between the spatial domains of resources and resource users. Indeed, the role of spatial relationships in the commons problem has been recognized across a variety of disciplines including economics, international relations and hydrology (e.g., Netanyahu, 1998; Wolf, 1998; and Richey, 2000). Nonetheless, the focus of such research has been on particular resources and not on the development of theory relating spatial characteristics to commons problems across the full ranges of resource types.<sup>15</sup> Geographers too have tended not to focus on a systematic understanding of the commons problem, especially at the theoretic level, despite the fact that resource issues (Zimmerman, 1933; Harvey, 1977), human/environmental interaction (O. H. K. Spate, 1960), and spatial relations (Pattison, 1964; and Taaffe, 1974) have all formed long and important traditions in geographic thought. The present paper partially addresses this shortcoming by using geographic perspectives to develop a scale- and space- explicit theory of the commons. After demonstrating the role of socio-political scale (e.g., household, village, or nation-state) in defining “common,” a typology is developed dividing common resources into three categories —open access, fugitive, or migratory —based on spatial relationships between resources and resource users. It is then shown that the nature of the commons problem for any particular resource is dependent in part on the

---

<sup>13</sup>It should be noted that well-defined property rights are clearly not (1) sufficient to prevent resource denigration and that (2) efficient resource use and conservation/preservation are not equivalent.

<sup>14</sup> There are major definitional problems, explored below, with the term “common good.”

<sup>15</sup> Each of the authors just cited studied spatial aspects of the commons as related to water.

scale at which it is assessed. Finally, it is suggested that the efficacy of policy towards common resource problems could be improved if guidelines were developed to match particular management rules and rights principles to common resources by both scale and geographic nature (open access, fugitive, or migratory).

### **Geography and the Commons**

At its most fundamental level, the problem of the commons revolves around humans, their environment and the spatial relations between them. Human-environment interaction, formerly known as the man-land tradition, has long formed a core element of the American geographic thought. The impacts of the environment on humans (Semple, 1903) as well as of humans on their environment (Marsh, 1864; and Sauer, 1925) were both well-established subjects in the geographic literature by the early 20<sup>th</sup> century. While formal consideration of geography as a “spatial” subject probably began with a 1953 publication by Schaefer, the importance of areal relations within geography had clear origins in the decades prior to the Second World War (Hartshorne, 1939) and arguably much earlier (Pattison, 1964).

The more recent geographic literature is replete with work focusing on resources typically associated with the commons problem. For example, in the field of land use, Basselt and Crummey (1993) compiled a study of land utilization in Africa that addressed elements of the commons; Shroeder (1997) studied the gender-influenced distribution of newly re-claimed land in The Gambia; and Dougill et al. (1999) addressed the impact of land use practices on the Kalahari region. Similar attention has been given to water resources (Bradley and Carpenter, 1986; Roberts and Emel, 1992; Emel and Roberts, 1995; and Wolf et al., forthcoming), the atmosphere (Comrie, 1994), forest resources (Allen and Barnes, 1985; and Hosier, 1988), fisheries and wildlife (Kay, 1985; and Reed, 1995) and integrated resource/environmental studies (Kasperson et al., 1995). Other geographers have focused not on resource issues directly but rather on conceptual matters related to the commons including property rights (Clark, 1982; Emel and Brooks, 1995; Price, 1995; Mitchell, 1995; and

Saff, 1996) and spatial relations (James, 1952; Sack, 1973; Sack, 1983; Peuquet, 1988; and Blomley, 1994).

Despite the substantial body of geographic scholarship surrounding the commons, few if any authors have addressed the problem itself from a conceptual or theoretic perspective. In fact, as stated by Young in a recent study of fisheries in Mexico, geographers “have devoted surprisingly little attention to the role of the commons and their management” (2001, 284). This paper attempts a first step at overcoming this deficiency by applying the perspectives and tools of geography to address the commons problem using scale concepts within a spatially explicit framework.

### **Property Rights, Scale and the Commons**

The solution to resource allocation problems, including the problem of the commons, involves concepts of rights. According to Furbotn and Pejovich (1972, 1139), there is general agreement between Roman Law, Common Law, and the work of Marx and Engles that property rights determine a “set of economic and social relations defining the position of each individual with respect to the utilization of scarce resources.” It is critical to note the use of the word “set” in the previous definition. The property rights concept is not singular in nature but rather refers to a bundle of rights that may vary by resource, time and place. As Ciriacy-Wantrup and Bishop state, “Different rights (strands of the bundle) may be distributed in various combinations among natural and legal persons, groups, and several publics, including the many units of government” (1975, 714). A number of scholars have created typologies for dissecting the general idea of a property right for a given resource into its component parts. Dales (1968) created a bifurcation between rights of exclusivity and transferability; Tietenberg (1992) broke rights into categories of universality, exclusivity, transferability and enforceability; and Schlager and Ostrom distilled full rights into groupings of access and withdrawal, management, exclusion and alienation (1992).

Myriad examples can be found to illustrate variation in the allocation of strands in the property rights bundle. For example, food in the U.S. is typically allocated between competing consumers using price coupled with monetary exchange mechanisms, while game meat in areas of central Zambia is given by hunters to their elders and redistributed based largely on kinship relations (Marks, 1984, 88). U.S. law vests mineral rights with the owner of land under which they reside, whereas wildlife is typically the property of the state irrespective of location. Zimbabwean wildlife, in contrast, now belongs to the owner of land on which it resides while mineral rights are the province of the state.<sup>16</sup> Unlike in most Western legal systems, Koranic law apportions land to communities and bases use on possession coupled with payment of taxes (Watts, 1983, 73), and water cannot be owned.<sup>17</sup> Despite clear variations in approach, a uniting theme in each of these examples is the existence of a recognized system for apportioning some set of resource rights among competing interests.

One of the conditions for the existence of a commons problem is the lack of well-defined property rights. In the paradigm of neoclassical economics, property rights promote efficiency in part because they invest in the holder the incentive for optimal resource use.<sup>18</sup> However, it was recognized long before this economic argument was formulated that resources for which property rights are not established are subject to over-exploitation. Aristotle, for example, noted “that which is common to the greatest number has the least care bestowed upon it” (Politics, Book II, Chapter 3), Roman law recognized the problems with management of commonly held resources and codified restrictions on their use (Adams, 1993), and an imperial Chinese gazetter commented that where a mountain was owned “industrious owners plant pine, Cunninghamia, tung oil, and tea oil, earning themselves considerable

---

<sup>16</sup> The efficacy of the U.S. system must be questioned, since the landowner has considerable latitude in controlling the creation or destruction of habitat responsible for the health of wildlife and virtually no ability to effect improvements in mineral resources.

<sup>17</sup> In the 1990's, treaty negotiations involving water allocations between Syria and Turkey broke down due to the inclusion by arbitrators of language concerning ownership rights. Negotiations restarted when language was changed to cover only rights to use and distribute, rather than own, water (Wolf, personal communication).

<sup>18</sup> In addition, when tradable, users placing the highest value on particular rights to resource use tend to have those rights bestowed upon them by bidding up the purchase price.

profits,” but on crown land (with no rights for use established) “(a)ny branches or twigs that grow are burned or taken away, and (people) even dig up the roots to use as cooking fuel so that nothing can grow again and the mountains become barren” (quoted in Menzies, 1994, 91). In more recent decades, this correlation between ill-defined ownership and over-exploitation has been the basis for numerous studies and provided the foundation for Hardin’s “Tragedy of the Commons” thesis. However, common ownership and non-ownership are not equivalent concepts. A resource may be held in common among a group, and the group may cooperatively or otherwise define rules concerning members’ rights and obligations towards the resource’s use. In such cases, the group has in effect created property right conditions among themselves and may exclude non-members from use.

By way of example, one can consider a family home in the United States. The house may be owned or rights to its use shared communally among family members. However, members of the household typically agree, at least implicitly, on the rights and responsibilities of each occupant concerning major aspects of the home’s use. Thus, one tends not to worry about “household degradation” despite communal ownership. In contrast, depletion of fish stocks in the open seas is a serious source of concern unless effective agreements or treaties can be formulated to convert the fishery to one available only to a “household” of fishers or nations. In both the household and fisheries examples, the resource in question may be considered common in the sense that multiple individuals possess use rights. However, in the case of the household, access and use are limited to a defined set of individuals while in the case of the fishery, no exclusion principles apply.

A significant portion of the commons literature, especially before the mid-1980s, failed to differentiate between communal resource ownership and true lack of ownership.<sup>19</sup> In fact, it has been shown that the confusion between open access and common property has led to policy prescriptions that de facto withdrew property rights from resources previously managed under communal property regimes.<sup>20</sup> In their oft

---

<sup>19</sup> See Schlager and Ostrom (1992) for a discussion and examples.

quoted article, Ciriacy-Wantrup and Bishop (1975) articulated the fundamental differences between commonly owned and un-owned resources, and considerable effort has since been devoted to further clarification of the issue (Schlager and Ostrom, 1993). Numerous empirical studies have also attempted to demonstrate cases where communal ownership is more efficient than “private” as well as the general conditions under which this might be the case (e.g., Netting, 1976). Because of this work, more exacting authors tend to differentiate between private, communally owned and open access (common pool) resources, though definitional confusion persists.

Nonetheless, at least two important issues related to a rigorous understanding of the commons remain. First, the contrast between owned resources, privately or communally, on the one hand and un-owned, open access resources on the other implies that the primary issue in defining the necessary conditions for the existence a “commons” problem is one of access to, or exclusivity over, a given resource. As the above discussion of property rights points out, exclusivity is but a single element within the property rights framework. Furthermore, as highlighted below, a focus on exclusivity ignores the commons problem as related to transboundary resources, i.e., resources such as fluvial water and migratory wildlife that by nature leave the geographic or otherwise defined zone of access of one resource user and move to the zone of another. For these resources, the primary issue in managing the “commons” is not one of establishing exclusivity in access, but rather one of creating use rights irrespective of resource location.

Second, the division of resources using a neat typology of ownership (i.e., private, communal and open access) masks a continuous gradation existing in reality.<sup>21</sup> In the largely capitalist United States, the term “private property” only occasionally implies ownership by a single individual. In U.S. tax code, for example, the individual can constitute the basic unit for assessment, but households and corporations, which

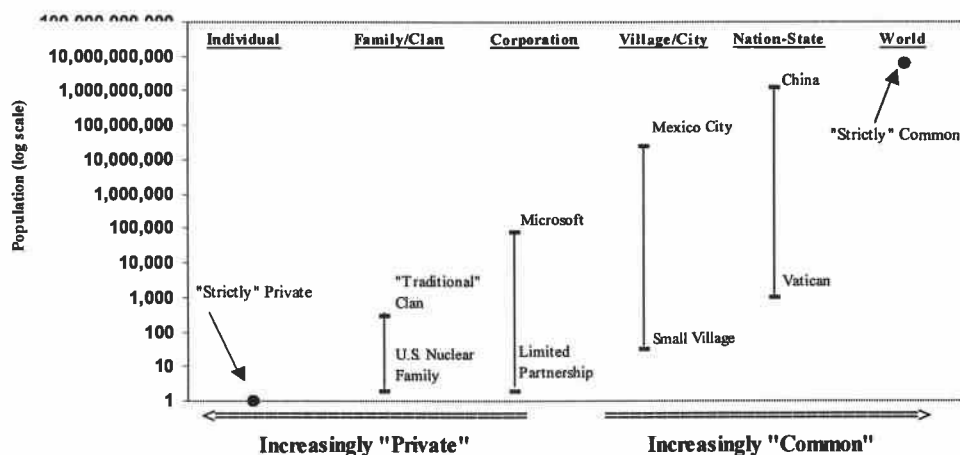
---

<sup>20</sup> For example, Ostrom cites numerous examples in which the state nationalized resources but did not then apply the monetary or other means to protect its assets. The result was the conversion of what had been communally owned property into *de facto* open-access resources with predictably negative results (1997).

<sup>21</sup> This gradation was suggested in the above quotation by Ciriacy-Wantrup and Bishop (1975, 714).

can, in principle, be constituted of any number of individuals, are also legal candidates. In other circumstances, civic organizations, local governments, non-governmental organizations and even nation-states can be considered as singular legal entities possessing property rights. Likewise, in more "traditional" societies, the primary unit of ownership may be the individual, the extended family or the tribe. Simply stated, there is a variety of ownership units to which property rights can be assigned, each of these ownership units is singular, but each may be composed of single or multiple individuals. The range of ownership units can be examined along a continuum, or scale, gradated by social, legal or political level (See Figure 1). Since property rights can be assigned not only to individuals but also to entities, strictly private (possession by one) and strictly common (possession by all) resources exist only at the extremes of the continuum. Between these extremes, where the majority of cases are likely located, "private" property rights may exist within communal organizational structures.

**Figure 1. The Ownership Continuum and the Commons: Selected Socio-political Scales and Associated Population Ranges**



Societies assign resource rights not just to individuals but to a variety of traditional and legal communities. As shown in Figure 1, these communities may be arranged along a continuum according to their general populations. Strictly "private" (possession by one) and "strictly" communal (possession by all) ownership occur only at the extremes of the continuum. Between these extremes, "private" property rights may exist within communal organizational structures.

These distinctions have direct relevance to a full understanding of the commons, because the problem for any given resource must be defined for a particular socio-political scale if its nature is to be fully articulated. For example, problems of the global commons are frequently addressed between sovereigns through treaties. However, a treaty that successfully addresses open access issues at the international scale will not, necessarily, solve remaining problems at smaller scales. The United States and Canada confronted perceived over-harvest of Pacific salmon through the Pacific Salmon Treaty, which clearly defines many of the rights and responsibilities of each sovereign with respect to salmonid management and use.<sup>22</sup> Despite the treaty and clear demarcation of harvest rights for the nations involved, debate continues in the U.S. as to salmon allocations within the remaining *national* “commons” used by competing domestic fishing interests, namely commercial, sport and tribal. Even given a solution at the national scale, allocation must still be resolved at yet smaller scales.<sup>23</sup> In the U.S. case, commercial allocations are handled through season limitations; sport fishing allocations are limited by daily quotas, seasonal limitations, and gear restrictions; and harvests for tribe members are influenced at least in part by the allocation of fishing sites along the Columbia and other rivers.

A generalization of this concept can be seen in Figure 2. The circle represents the domain of some resource and may be thought of in terms of either spatial extent or quantitative measure, e.g., number or weight. If the resource domain can be utilized by at least two parties (analogous to the U.S and Canada in the example above), a commons problem may exist. A first order solution to the problem can be achieved through a division of resource use or other rights between the parties, for example by providing one party with the resources associated with Semi-circle I and the other with

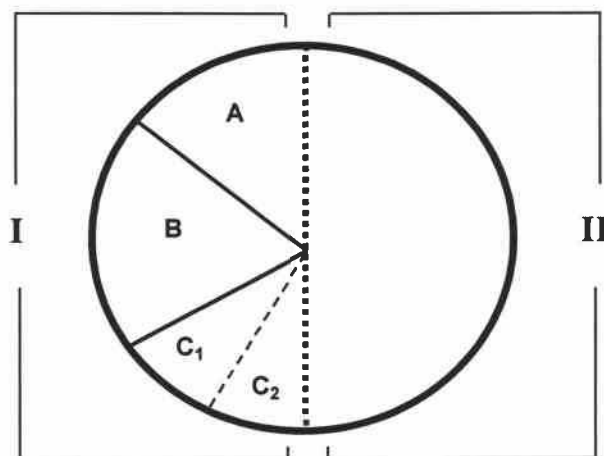
---

<sup>22</sup> It should be noted that the statutory establishment of “optimal” harvest limits, even if followed, does not necessarily result in efficient resource use. For example, commercial fish harvests in the U.S. have frequently been designed such that seasons are suspended when quotas are met. This “first come, first served” allocation system encourages over-capitalization in equipment as fishers compete among themselves for the maximum shares of the fixed available harvest.

<sup>23</sup> It is also possible that an open access solution at one scale could be proscribed at another. For example, Columbia River fishers in the U.S. were prohibited by U.S. national law from communally managing the salmon fishery (Ostrom, 1997) despite work by the U.S. government to address “commons” issues for salmon at an international scale.

the resources associated with Semi-circle II. However, a second order commons problem may still exist at a lower political scale if at this lower scale more than one entity can still “access” either of the subdivisions of the original resource domains. This problem may be solved by again dividing the resource domain, for example into slices A, B, and C (analogous to the case of commercial, sport and tribal salmon fisheries in the above example). Clearly though, further subdivisions at yet smaller scales, such as those indicated by areas C1 and C2, may still be necessary until the level of the individual is reached.<sup>24 25</sup>

**Figure 2. Stylized Division of a Common Resource Space at Three Political Scales**



In Figure 2, a circle represents a resource space, broadly defined, shared by two entities. A resultant commons problem may be addressed by dividing the space into exclusive zones of use or access as shown by semi-circles I and II. However, a commons problem may continue if the newly defined spaces are themselves occupied by multiple actors operating at lower socio-political scales. Assuming three actors at the next lower scale, further subdivision of the resource space into sections A, B and C may be appropriate. Additional subdivisions at yet smaller scales, such as those indicated by areas C1 and C2, may still be required until the level of the individual is reached. This example is similar to the case of salmon management on the Pacific Coast of the United States.

<sup>24</sup>It should not be inferred from this discussion that resource allocation decisions *should* be made via a top-down political or legal approach rather than through direct cooperation between involved parties. Efficacy of approach is an empirical question and may also be scale dependent.

<sup>25</sup> In this example, a neatly nested hierarchy of social and political power existed in which units at smaller scales were plainly subservient to those at larger scales. While the demarcation of authority is

While the preceding discussion highlights the potential existence of the commons problem for any particular resource at a multitude of scales, the issue of scale also has direct relevance to the question of efficiency and equity of common resource use. The literature seeking to define the conditions under which private rights are superior to communal rights and vice versa often implicitly assume that the appropriate criteria for assessment is some measure of total output derived from the resource (e.g., annual yield in a fishery, milk production from a given pasture, etc.). However, once output is produced in a communal system, it must be distributed to the individuals making up the system. Ciriacy-Wantrup and Bishop (1975) state that in systems of communal ownership all members are coequals and, in their discussion, cite examples such as a Nery's Swiss grazing commons in which output is divided equally among members.<sup>26</sup> In reality, members within a communal ownership system can rarely expect to be coequals, a fact which has now been made abundantly clear through gender-oriented research. In countries in which material and intellectual well-being are clearly correlated with gender, such as India where female literacy is half that of male and life expectancy is lower for women than men, the proposition that women would generally share coequally in the output of a communal production system appears dubious. Thus while total output of some resource, be it fish, milk or forest products, may be higher under communal rather than strictly private management, it is not clear if *all* members of the communal structure are better off than they would have been under a strictly private ownership system. Unless each member is able to opt out of the communal structure through the free exchange of membership rights, we cannot know *a priori* if the communal system is more efficient than the strictly private system or simply produces more output. In other words, the possibility exists that a communal ownership system *may* be more productive than a

---

unlikely to be so clearly structured in most resource management regimes, the scale construct is still useful in conceptualizing the commons problems across and between socio-political boundaries.

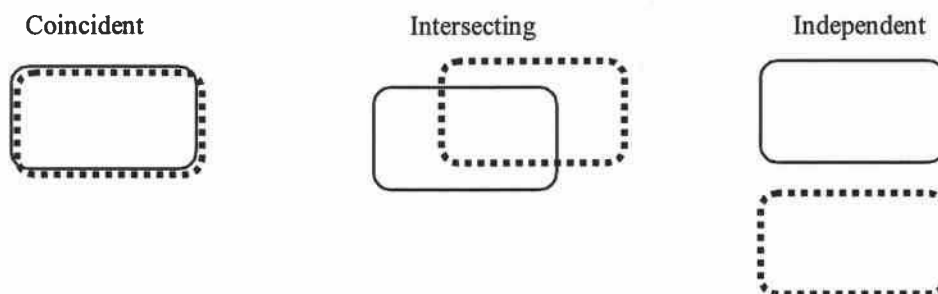
<sup>26</sup> They did not, however, define the human scale at which the "even" division of output was carried out, the household or the individual within the household.

purely private system but also less equitable, a possibility counter to that frequently offered by both sides of privatization arguments.

### Space and the Commons

The commons problem is, in simplest terms, a general resource problem with particular spatial characteristics related to resource domains and rights assignment. This idea can be illustrated using a loose derivation of James' (1952) characterizations of areal relationships, originally applied to the study of regional geography, between the spatial domains of phenomena. We can consider the relationships between two phenomena whose spatial extent occupy exactly the same area as "coincident," relationships in which the spatial extent of the two phenomena overlap imperfectly as "intersecting," and the relationships between phenomena with no areal overlap as "independent"<sup>27</sup> (see Figure 3).

**Figure 3. Basic Relationships between Spatial Phenomena as Related to the Commons (Modified from James, 1952)**



<sup>27</sup> James' (1952) framework was developed for a separate purpose and divided relationships between spatial phenomena into four categories, correspondence, in-situ correspondence, ex-situ correspondence, and discordant.

The commons problem occurs when the natural domain<sup>28</sup> of a resource has some degree of intersection with domains in which at least two entities have the right or ability to exploit the resource. Put another way, the commons problem occurs when a *resource* domain<sup>29</sup> is coincident with or intersects the *rights* domains of two or more resource users. These ideas can be more formally illustrated with a stylized description.

Consider a case with two resource users, A and B, and a single resource. Assume also that A and B act independently of one another. Each user has the right, within his or her domain, to utilize the resource. Clearly the users' rights are executable only if their domains of rights correspond to some degree with the domain of the resource. In Figure 4.1, A's domain of rights is coincident with the resource domain. Thus A may exploit the resource, enjoying all benefits and paying all costs arising from the exploitation, while B is excluded. In this case, the resource is essentially privatized and the property rights condition necessary for "efficient" resource use is met.<sup>30</sup> A counter example is given in Figure 4.2. Both A and B are able to exploit the resource, since the resource domain intersects with the rights domains of both parties. In this case, the full benefit of any act of exploitation falls to the party undertaking the exploitation, but at least some of the costs, for example in terms of future reductions in harvestable stocks, are now shared by both A and B. Since each party gets full benefit from its own exploitation but the cost of that exploitation is partially shared between both, the incentive for overexploitation

---

<sup>28</sup> The "natural" domain of some resources can, of course, be modified through human action. The construction of refuges in the U.S., for example, changes the distributional patterns, and hence the domain, of wintering waterfowl.

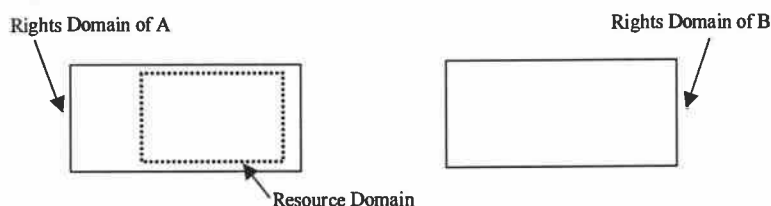
<sup>29</sup> The domain of a resource is not only the space it currently occupies, but also the space needed to carry out its natural function. In the language of Jones' (1954) Unified Field Theory, described below, the domain of a resource is the extent of the "field" in which, in the broadest possible sense, it moves. Thus, for example, the domain of a catfish may be just the pond in which it lives, while the domain of the gray whale is coastal waters of Mexico, the U.S. and Canada. The exact location of whales within their domain varies by season, and thus the domain of the whale is never fully occupied.

<sup>30</sup> This is not to imply that other factors for resource misuse might not apply, but only that a necessary condition has been met for efficient resource allocation within the context of neo-classical economics.

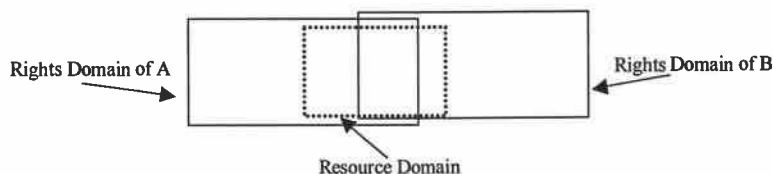
exists.<sup>31</sup> This is the essence of the commons problem and illustrates the spatial mechanism behind the classic example of common grazing lands.

#### Figure 4. A Resource Typology by Spatial Attributes

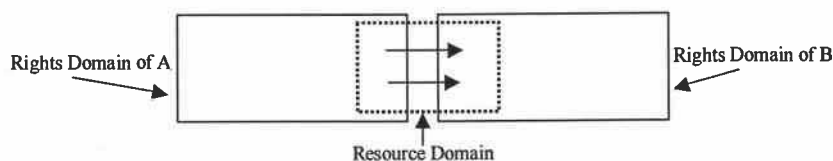
**Figure 4.1 Spatial Aspects of Private Resources**



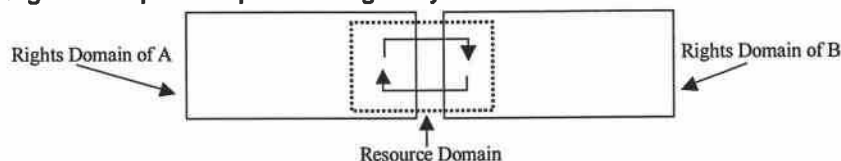
**Figure 4.2 Spatial Aspects of Open Access Resources**



**Figure 4.3 Spatial Aspects of Fugitive Resources**



**Figure 4.4 Spatial Aspects of Migratory Resources**



The spatial relationships between resources and resource users in part determine whether a commons problem exists and, if so, its nature. The above figures show potential spatial relationships between two resource users, A and B, and a single resource. In Figure 4.1, the domain of a resource is completely within the rights domain of a *single* resource user. Thus no commons problem can exist. In Figure 4.2, the rights domains of two resource users overlap a single resource domain, allowing an "open access" problem. A fugitive resource condition is illustrated in Figure 4.3 in which the resource moves from the domain of one user to that of another. Finally, Figure 4.4 illustrates the migratory form of the commons problem in which the resource again moves from the domain of one user to that of another, but then returns to that of the first. The success of resource management regimes may depend in part on a recognition of the potential variation in spatial relationships between rights and resource domains.

<sup>31</sup> The basis for the outcome can be understood through the economic theory of externalities (Tietenberg, 1992) or from a game theoretic perspective using the "prisoner's dilemma" (Runge, 1983).

Spatial aspects of a second commons type, transboundary resources (i.e., resources that cross the domains of two or more users), are illustrated in the subsequent two diagrams. In Figures 4.3 and 4.4, the rights domains of A and B are independent, though both domains still intersect with the resource domain. Since a resource's domain is the extent of the area in which it moves to fulfill its natural function, the resource may clearly still be considered common, because the resource itself moves through the rights domains of both users (a reversal of our prior example in which the two users could be thought of as moving into the domain of the resource). Thus the incentive for over-exploitation exists, since at least one of the users gains full advantage from exploitation while potentially sharing some costs of exploitation with his/her counterpart.

However, the nature of resource movement between A's and B's domains will influence exploitation outcomes. In the case of fugitive resources where movement is uni-directional, e.g., where the direction of movement is always from the rights domain of A to the rights domain of B as shown in Figure 4.3, the initial user gains all benefits from exploitation but, to the extent the costs of exploitation move with the resource, may not bear all costs. By way of example, one may consider the case of fluvial pollution. An upstream riparian, A in our example, gets full "benefit" from any pollution put into the river. However, A does not pay the full costs of that pollution, since the pollution will move from A's domain downstream to the domain of B. Resource user A need not consider the interests of B, since A will not pay the full costs of the pollution nor will A share in any benefits B would receive had B been able to exploit unpolluted water.

If the movement of the transboundary resource is migratory,<sup>32</sup> as in Figure 4.4, the incentives for action by the two parties will vary from the last example. To illustrate the point, one may consider the case of waterfowl breeding in the domain of A and wintering in the domain of B, a situation analogous to a sub-set of North American waterfowl with respect to Canada and the U.S. If waterfowl are harvested

---

<sup>32</sup> The biological definition of migration is "a two-way movement within the area normally occupied by a species population" (Dasmann, 1981, 106).

by A, a lesser number move to B's domain to winter (and so B will bear part of the costs of A's actions through lower potential harvest numbers), but also a correspondingly lower number will return to A the following year for breeding. Likewise, if B harvests the waterfowl when they are in the domain of B, a lesser number will be available for A and a correspondingly lower number will return to B the following year.

From the basic model just presented, one may observe a simple dichotomy in outcomes between the fugitive resource condition on the one hand and the open access and migratory conditions on the other. In the former case, the initial resource user does not share in the costs of use while in the latter two s/he does. Further consideration, however, suggests that though the basic forces driving open access and migratory resource use are equivalent, other factors such as risk and temporal perception may influence actual outcomes. For example, users of migratory resources may estimate exploitation rates of competing harvesters differently than users of open access resources. This may result in differences in individual or group perceptions of their own optimal harvest rates. Such differences may be especially likely if information levels, such as the number of competing users or their off-take rates, between the systems are not equivalent. Similarly, open access resources may be more likely to be perceived as part of static systems while migratory resources, with their inherent periodicity in movement, may be more likely to be perceived as part of dynamic systems. This too may influence perceived optimal resource use rates by individual users.

### **Resource Management and the Geography of the Commons**

A basic insight from the analysis presented here is that commons problems exist when, for a given socio-political scale, the rights domain of a single resource user is not exclusively coincident with the domain of the resource in question. This idea is not new and has long been applied in defining management regions, especially in the field of water resources. John Wesley Powell, one leader of the *Great Surveys* of 1866 to 1879, noted that optimal management of rivers in the Western U.S. required

an understanding of resource space and advocated the establishment of political and administrative units coincident with river basins (Reiser, 1986). These ideas were later taken up by Harlan Barrows and Gilbert White and employed in the design of the Tennessee Valley Authority (TVA) (Teclaff, 1996). The TVA had management authority over a geographic region roughly coincident to the Tennessee River basin. The TVA's architects clearly recognized the interrelationship of social, economic and other factors within the resource "space" of the Tennessee basin and designed the TVA's mandate to roughly correspond with that space. The same idea has been applied more recently through the use of an eco-region concept in which management regimes for particular resources are structured to fit the biogeographic characteristics of the resources in question (Omernik, 1987).

Other research has pointed to differences in resource use outcomes resulting from variation in the spatial characteristics of common resources. Dales (1968), for example, noted that whereas U.S. residents tended to live on rivers flowing to the ocean, Canadians had a higher propensity to reside on lakes, or rivers flowing into lakes, in which pollutants were sequestered over long time periods. Therefore, Americans tend to pollute their downstream neighbors whereas Canadians "tend to pollute themselves." As a result, "[t]he economics of Canadian water pollution is ... quite different from the economics of American water pollution" (793). What Dales described, using a different rhetoric, was variation in the nature of a resource management problem associated with variation in the geography of the commons, in this case between a fugitive resource (U.S. waters) and an open access resource (Canadian waters). This variation in commons geography resulted in differences in water management regimes as well as differential progress in the development of water management institutions (Dales, 1968). Variation in commons geography may also explain why rights regimes used to govern rivers, fugitive resources, may differ from those used to govern the anadromous fish, migratory resources, they contain (See chapter 2 of this dissertation).

Differences in the geography of the commons may also help to explain the nature of cooperation in the solution of commons problems. If, for example, a

downstream riparian wished to receive unpolluted water from his upstream counterpart, s/he might be expected to voluntarily compensate the upstream riparian despite the lack of legally defined rights.<sup>33</sup> This is analogous to the outcome of the *Treaty between the United States of America and Canada Relating to Cooperative Development of Water Resources of the Columbia River Basin*, in which the U.S. paid Canada to modify the Columbia's flow regimes (rather than pollution levels) in order to increase U.S. hydropower production during the season of high demand and reduce flooding. In essence, the commons problem of a fugitive resource was solved by mutual cooperation resulting in a transfer of funds, and since the late 1990s increasing amounts of electrical energy, to Canada. In treaties between Canada and the U.S. concerning salmon and waterfowl, examples of migratory resources, fundamentally different principles were used in negotiations and final treaty outcomes.<sup>34</sup>

It is important to note that the geographic nature of a particular common resource, such as the waterfowl just mentioned, is also dependent on socio-political scale. For example, while U.S./Canadian waterfowl agreements are driven by the transboundary nature of migratory birds, the management issue at national refuges within the U.S. is not transboundary in nature but rather open access: how to control the number of hunters wishing to hunt ducks on the refuge on a given day. Different rights principles (e.g., lottery rationed access, daily bag limits) are therefore applied to the taking of waterfowl on U.S. refuges than are used in setting overall waterfowl harvest levels between the U.S. and Canada.

The analysis to this point has focused on the geographic dimensions of the commons at moments in time. In fact, however, the natural domains of resources and the rights domains of resource users are not static, but vary temporally. The

---

<sup>33</sup> An economic analysis of the conditions under which this outcome might occur, as well as an exposé of the conditions under which private negotiation might effectively solve similar problems can be found in studies of what has come to known as the Coase Theorem (Coase, 1960).

<sup>34</sup> The *Treaty between the Government of Canada and the Government of the United States of America Concerning Pacific Salmon* uses an absolute sovereignty principle reminiscent of the *Convention on the Law of the Sea* in which each party "owns" the fish born in its natal waters regardless of later location. Waterfowl are managed under the *Migratory Bird Treaty Act* (U.S.) and *Migratory Birds Convention Act* (Canada) without specific ownership principles having been established. Instead, parties must come to annual agreements on harvest numbers.

relationship between time and the geography of the commons can be seen using Jones' (1954) work on a Unified Field Theory for geography. Jones noted that fields (or domains in the sense used in this paper) tend to change in size over time, and that this change can have tangible impacts on the phenomena involved. For example, he noted that the administrative domains constructed for newly designated capital cities are often outgrown as the cities expand. The functional area of the city, which can be thought of as analogous to the resource domain, soon falls outside the city government's administrative boundary, which can be considered analogous to the rights domain. The problem for urban areas is then "to make the political area fit the field [domain]" (Jones, 1954, 120). In other words, the problem is to solve a variation of the commons problem by making resource and rights domains coincident over time. Cohen (1991) later considered trends in the global economic and political systems and saw a transformation of the world from a relatively independent set of states towards an integrated world. He then examined how those trends changed the appropriate spatial units at which the world should be considered and hypothesized "a system that progresses spatially in stages" (Cohen, 1991, 561). A recognition that rights and resource domains can, and most likely will, change over time is also important in the development of policy for common resources and is critical if agreements and treaties designed to solve commons problems are to be effective in the long run. In fact, change in national borders, and corresponding change in rights domains, has already been cited as a significant factor in international disputes over fugitive freshwater resources (see Wolf et al., forthcoming).

The preceding analysis demonstrates that the existence and nature of commons problems vary according to spatial relationships between resources and resource users and that those relationships are not constant but themselves vary with temporally dynamic resource and socio-political domains. Policies to manage at least some common resources are also shown to have varied based on the geographic forms of the commons to which resources are subject. While some of the policy differences are due to factors unrelated to commons geography, it seems reasonable to assume that part of the variation exists because different geographic forms of the commons are better

governed under some policy regimes than others. A key question for policy and future research is whether a systematic framework can be developed to match particular management rules and principles to common resources by geographic form (open access, fugitive or migratory) and socio-political scale. Such a framework could serve to refine policy in existing resource management systems as well as reduce the probability of confronting newly identified “tragedies of the commons” as management regimes are created for more recently recognized commons such as the atmosphere, biodiversity, ecosystems, and the internet.

## Conclusion

Natural resources, perhaps to a greater degree than any other general category of goods, are subject to unsustainable use rates due to their existence as part of “common” management regimes. While resource study has formed a major theme of the geographic discipline, geographers have rarely applied their methods towards an explanation of the commons phenomenon or its solution. As a first step in remedying this shortfall, a conceptual framework for the analysis of the commons problem using a geographic perspective is proposed. The role of socio-political scale in the commons is linked to a simple set of spatial archetypes to demonstrate fundamental differences in three categories of common resources: open-access, fugitive and migratory.

The framework presented provides a new perspective from which to examine and consider the problem of the commons and highlights additional issues in resource management deserving further attention. These issues include, first, the definition of resource domains. As has been made evident in the field of water resources through the watershed versus ecoregion debate (Omernik and Bailey, 1997), the spatial dimension of a given resource domain is not always self-evident. Furthermore, the definition of what constitutes a single resource, and therefore its domain, is problematic. With biological resources, for example, the issue may revolve around an assessment of when local populations of a given species are independent and when they are interchangeable parts of a larger population structure (Wilson et al., 2001; and codified in the U.S. Marine Mammal Protection Act, 16 U.S.C. §1362(11)). Second,

even with resource domains clearly defined, the idea, put forward by Powell and others and further emphasized here, that coincidence of resource and rights domains may be beneficial to resource management must be placed in the context of overall system complexity. In other words, the potential advantages of creating new rights domains coincident with a particular resource space must be considered against the costs, in terms of political or administrative complexity, of adding overlapping and spatially inconsistent management layers. Third, the transferability across scales of resource policy in general, and commons policy in particular, should be questioned and not merely assumed. Young (1996) has already drawn attention to the danger of assuming transferability of propositions derived from commons management studies on small societies to the international arena and vice versa. The fact that the very nature of the commons problem may change across scales only heightens the need for a better understanding of cross-scale transferability. Finally, the temporal dimension of resource systems necessitates an understanding that resource and rights domains may change over time. Anticipation of such change may improve the long-term viability of resource systems in much the same way that the recent trend towards proportional, rather than absolute, allocation of international waters in treaty agreements has lessened water disputes by accounting for adjustments in annual flow variation.

In summary, this paper used concepts of scale and space to re-cast the commons problem and demonstrated the applicability of those concepts through a range of selected examples. Clearly, however, the approach taken was a deductive one. The true test of the fidelity of the concepts presented here for a range of resource types and cultural settings awaits additional work using case study and other approaches. Whatever the particular outcomes of such work, the propositions presented here demonstrate how new insights can be gained through the application of geographic tools to previously “un-geographic” problems. It is hoped that this example will encourage others to apply geographic methods to additional problems about which the field has been relatively silent.

## **Chapter 4. The Internationalization of Wildlife and Efforts Towards its Management: A Conceptual Framework and the Historic Record**

### **Abstract**

This paper examines three elements fundamental to the study of wildlife in an international context: the processes behind the internationalization of wildlife, the historic evolution of international wildlife agreements, and the principles employed in those agreements for the management and allocation of internationalized wildlife. To undertake this analysis and fill an existing literature gap, the largest known collection of wildlife treaties was gathered and examined. Results suggest that the internationalization of wildlife is likely more ubiquitous than commonly believed and that international wildlife law has expanded over time in terms of volume, species coverage, geographic range, and, perhaps most importantly, goals. It is hypothesized that temporal changes in the nature of wildlife treaties occurred in response to a combination of evolving technologies, increasing recognition of wildlife scarcity, and changing human values related to wildlife management and use. Since technology, scarcity, and human values will continue to change, the robustness of any particular wildlife treaty could be enhanced by explicitly including provisions that both take the possibility of such change into account and recognize the variation in these factors across states.

**Key words:** globalization, international, international law, wildlife, fisheries, treaties

### **Introduction**

Globalization and internationalization are common concepts used to describe the interconnectedness of the world's economies and cultures. Although not as widely recognized, wildlife can also have an international dimension which can elevate wildlife management to the supranational level. The legal history of international wildlife management is long, dating back to at least 1351 when a treaty addressing fisheries was signed between England and Castile. Well over 200 sovereign states

have since entered into more than 500 wildlife agreements. In the past century, the pace of formation of such agreements has increased, and in just the last decade over 50 new wildlife treaties have been signed. Despite its rich history, international wildlife law is not well understood. The lack of understanding stems in part from a failure in the literature to fully articulate the processes by which wildlife can be internationalized and in part from the absence of comprehensive documentation of international wildlife law. This paper attempts to partially remedy these problems by first creating a typology of the fundamental processes behind the internationalization of wildlife. It then uses a newly created catalog of the world's wildlife treaties, included as an appendix, to analyze the evolution of international wildlife law.<sup>35</sup> The insights from these two exercises suggest factors which future policymakers should consider if internationalized wildlife populations are to be successfully managed and human benefits from wildlife utilization, however defined, are to be efficiently and equitably distributed across nations.

### **The Nature of the International Wildlife**

The processes behind the internationalization of wildlife are not new. Migratory birds have crossed territorial boundaries as long as such boundaries have existed, and trade in wildlife products has existed at least since A.D. 77 when Pliny noted a decline in the size of elephants tusks imported into Rome (Sugg and Kreuter, 1994). However, the internationalization of wildlife is more complex than the international movement of migratory species and trade in wildlife and wildlife products. Wildlife can be "internationalized" through one of five processes. Three of these processes involve the shared right or ability of at least two countries to exploit a particular species or a resource with which that species is associated, another involves trade in wildlife and related products, and the final involves expansive definitions of

---

<sup>35</sup> In the text which follows, all wildlife treaty citations refer to the Wildlife Treaty Series (WTS) index in the appendix.

rights in which states or their citizens consider themselves to have extra-territorial responsibilities and privileges toward wildlife management.

### *International Transboundary Wildlife*

International transboundary wildlife is that which crosses the territorial boundaries of at least two nation-states as part of a life history strategy.<sup>36</sup> Typically we think of migratory species as fitting this category, and in fact wildlife from a wide range of classes including fresh and saltwater fish, marine and land mammals, birds, reptiles, and insects are internationally migratory (De Klemm, 1989). Non-migratory wildlife can also cross international boundaries in simple foraging or other activities. For example, while the polar bear is not migratory,<sup>37</sup> its range crosses national boundaries, and so polar bear management has been elevated to the international level.<sup>38</sup> In some cases, the explicit legal recognition of management rights and responsibilities to wildlife between nations can have implications for domestic wildlife policy. For example, the management of statutorily defined migratory waterfowl in the U.S. was purely the province of individual states until the U.S. federal government entered into the Migratory Bird Treaty<sup>39</sup> with Great Britain on behalf of Canada. The entry into the treaty shifted national management authority for migratory birds from the states to the U.S. federal government (Bean, 1993).

---

<sup>36</sup> Conceptually there are two possible forms of transboundary resources, bi- and uni-directional. Bi-directional transboundary resources originate in one territory, move to a second, and then return to the first. Internationally migratory wildlife typically fits this category. Uni-directional transboundary resources originate in one territory, move to a second, but do not return to the first. Many rivers fit this category. For wildlife, the main issue is bi-directional. See chapter 3 of this dissertation.

<sup>37</sup> Migration is “a two-way movement within the area normally occupied a species population” (Dasmann, 1981, 106).

<sup>38</sup> 1973 WTS 14

<sup>39</sup> 1916 WTS 1

*International Open Access Wildlife*

Wildlife also takes on an international dimension when it resides in an area in which at least two sovereigns have *de facto* or *de jure* access and exploitation rights. Open access resources are notoriously subject to overexploitation as has been documented for a variety of wildlife species including ground and pelagic fish and marine mammals. Internationally, the two primary geographic areas for which open access conditions are still a concern with respect to wildlife resources are the high seas, that is the portion of the ocean outside national territorial waters, and the Antarctic. The concept of the high seas and their content as open access resources (*res nullius*) dates back to at least the early 17<sup>th</sup> century (Chirsty and Scott, 1965). The “freedom of the seas” idea was based in part on the belief that the ocean’s resources were inexhaustible and that therefore ownership was unnecessary. This belief has clearly proven false,<sup>40</sup> and coastal nations have responded by extending their national boundaries further from coastlines. Despite the extension of national sovereignty, large areas of the world’s oceans remain zones of open access. In addition, many access and use rights to the Antarctic have been defined by treaty to lie outside the sovereignty of any one nation,<sup>41</sup> though restrictions on wildlife use rights within the Antarctic have been constrained in other agreements.<sup>42</sup> Nonetheless, the ability to enforce these agreements is unclear, and in some cases Antarctic resources continue to be treated as open access resources.<sup>43</sup>

---

<sup>40</sup> Though even as late as the 1950s the idea of scarcity in ocean resources was questioned. Gordon (1954, 127) notes Dr. Harden F. Taylor’s 1951 work in which was stated “...the yield of the sea fisheries as a whole or of any considerable region has not only been sustained but has generally increased with increasing human population, and there is as yet no sign that they will not continue to do so. No single species so far as we know has ever become extinct, and no regional fishery in the world has ever been exhausted.”

<sup>41</sup> 1959 WTS 2

<sup>42</sup> e.g. 1980 WTS 1

<sup>43</sup> For example, Japan conducts whaling operations in the waters around the Antarctic (Chadwick, 2001).

### *Secondary Order Internationalization*

The previous two processes highlighted the manner in which wildlife can be directly internationalized by crossing sovereign boundaries or residing in areas for which national sovereignty has not been established. Wildlife can also be indirectly internationalized through transnational aspects of resources associated with particular wildlife species. Because of the indirect nature of the mechanism, this process can be thought of as resulting in second order internationalization. Second order internationalization takes two basic forms. In the first, the life history strategy of an otherwise domestic species depends on an environmental attribute that is international in nature. For example, riverine fish in one nation may rely upon stream flow, and its quality, originating in a second, upstream country as is the case with salmon native to the U.S. portion of the Columbia River system (Cenderholm et al, 2000).<sup>44</sup> Non-migratory terrestrial wildlife can likewise be internationalized as appears to have happened via acid rain in Eastern Canada and Europe (Munton et al, 1999).

International trade in non-wildlife products can similarly result in second order internationalization. The importation of Brazilian beef by the U.S. is frequently cited as a cause of destruction of Amazonian rainforest and the wildlife contained therein.<sup>45</sup> Shrimp farming to meet export demand has likewise led to the loss of mangrove stands and related wildlife in a range of coastal nations from Guatemala to Vietnam (personal observation). Trade in non-wildlife products has now been tied to wildlife and its habitat through international agreements. For example, the North American Free Trade Agreement between the U.S., Canada and Mexico contains provisions on environment protection and is apparently the world's first "green" international trade agreement (Hurwitz, 1995).

---

<sup>44</sup> Although in this example, the fish will also be internationalized through transboundary and/or open access processes if they successfully spawn and their progeny enter the ocean. This highlights the notion that wildlife can be, and often are, internationalized through a variety of processes, an important consideration in treaty formation.

<sup>45</sup> Though the reality may be more related to Brazilian subsidies to beef production destined for Brazilian markets (Browder, 1988).

In the second form of second order internationalization, the harvest of a domestic species can be associated in some way with another, internationalized, species. Shrimp harvest in the U.S. provides such an example. Since both shrimp and shrimp harvesters in U.S. waters of the Gulf of Mexico are of U.S. origin, the shrimp harvest might in the first instance be thought of as purely domestic. However, current fishing practices involve the by-catch of internationally migratory sea turtles, and so U.S. shrimp harvests are now governed in part through an international agreement concerning the protection of sea turtles.<sup>46</sup> A variation on this concept can be seen in the example of spotted cats such as the ocelot. International trade in all spotted cats is now banned under the Convention on International Trade in Endangered Species<sup>47</sup> (CITES) to assist in enforcement of a trade ban on certain threatened cat species such as the African leopard. As such, ocelot conservation and use is influenced not only by factors directly related to the ocelot's life history strategy within its native countries, but also by the conservation status of other cat species, potentially in other countries.

#### *Internationalization through Direct Trade*

Direct trade in wildlife and wildlife products is an obvious internationalizing process. Historically the issue of international wildlife trade has centered on wildlife as a product or commodity no different than wheat or cars. In this context, trade in wildlife products typically falls under the rubric of general international trade law. Increasingly though, a focus of wildlife trade is not on wildlife as a product but rather on the impact of trade on the long-term sustainability of traded species. Agreements have been signed to directly address wildlife trafficking, in particular the aforementioned CITES agreement which prohibits or restricts the trade in listed wildlife and related products, but trade restricting clauses are also contained within

---

<sup>46</sup> 1996 WTS 1

<sup>47</sup> 1973 WTS 7

numerous other treaties.<sup>48</sup> The basic premise behind the trade provisions of these agreements is that the prevention or reduction of international commerce in certain species will reduce harvest pressures. While trade-restricting measures are believed to have positive impacts on covered species in some circumstances (Hallagan, 1990), trade restrictions can lower the value of wildlife within the host country, decreasing incentives for long-term habitat and population maintenance (Simmons and Krueter, 1989).

International trade in wildlife and wildlife products can also be influenced through domestic laws as well as outside the legal system. For example, the U.S. Marine Mammal Protection Act<sup>49</sup> banned imports of tuna caught in purse-seine fisheries that kill dolphin, though this action was later found to be illegal under a General Agreement on Trade and Tariffs (GATT) ruling (Boreman, 1992). The same act also imposed trade sanctions on nations that violate International Whaling Convention<sup>50</sup> rules. Because of U.S. economic power, the provision related to whaling, which was upheld under GATT, influences international whale trade which otherwise would not directly involve the U.S. In a similar fashion, a South African law prohibits persons under South African jurisdiction from supplying services and expertise to whalers (Lyster, 1985). Outside the formal legal system, non-governmental organizations can also have clear influence on international wildlife trade. Private groups have organized boycotts of particular wildlife products, e.g. fur (Tilt and Spotila, 1991), some of which would have been imported, and wildlife that has been harvested in a particular manner, e.g. demands for “dolphin free” tuna in the U.S. (Hurwitz, 1995).

---

<sup>48</sup> e.g. 1950 WTS 1, 1979 WTS 4

<sup>49</sup> 16 U.S.C. §1361

<sup>50</sup> 1946 WTS 1

*Wildlife as Intrinsically Valuable or as a Global Common*

The final process of internationalization involves notions of intrinsic species' rights or broad human claims to species. Either concept can be used to justify extra-territorial involvement in wildlife management decisions.<sup>51</sup> Under the first notion, wildlife is considered to have an intrinsic existence value beyond human defined economic or use value (Reagan, 1983). Under this premise, rights are afforded to the wildlife itself, thereby proscribing human ownership and with it the concept of wildlife as a resource. If a species has intrinsic rights, then the international protection of those rights, i.e. defense against human utilization, can be justified using arguments analogous to those employed in the justification of U.N. peacekeeping operations. Under the second notion, wildlife is considered part of a global common in which its value, no matter the location, is shared by the world's citizens. This is a notion of wildlife as *res communes*, rather than *res nullis* as was the case of fisheries on the high seas. Under this concept, international involvement in otherwise domestic wildlife policy is justified, because the wildlife is part of a globally "common heritage" and owned by all, not merely by those in whose country the wildlife resides.<sup>52</sup> Attempts to codify this notion were made in the 1972 World Heritage Convention.<sup>53 54</sup>

Both the intrinsic rights and global commons concepts have been used, at least implicitly, to justify extra-territorial involvement in wildlife management and policy, in particular by North Americans and Europeans in Africa, Asia and South America. At the unofficial level, such arguments have been used advocate a cessation of

---

<sup>51</sup> While these two claims might rightfully be considered to involve separate internationalization processes, they are frequently combined in arguments concerning species protection, in particular elephants and whales, and so are discussed together here.

<sup>52</sup> A related argument can be made that markets fail to adequately value natural amenities. Intervention in wildlife outcomes in other countries can therefore be justified on the pretext of addressing market failure and increasing global welfare. See Krutilla, 1967.

<sup>53</sup> 1972 WTS 16

<sup>54</sup> In a rather peculiar interpretation of these ideas, the U.S. was (and is) unwilling to sign the 1992 Convention on Biological Diversity because of fears that intellectual property rights would not be recognized for products created from bio-resources originating outside of U.S. borders (Bean, 1997).

whaling and the removal of use, including sustainable use, principles in international wildlife law (Sugg and Kreuter, 1994). Organizations such as the Nature Conservancy and the World Wildlife Fund are also heavily involved in this regard, especially via habitat protection programs. At the official level, international lending institutions have encouraged debt-for-environment swaps in which existing debt to some developing nations was retired in exchange for guarantees of habitat protection (Mahony, 1993; Gullison and Losos, 1993). The U.S. has even gone so far as to pass conservation acts for rhinos, tigers and elephants,<sup>55</sup> species clearly outside the normally defined sovereignty of the U.S.

### **Historical Development of International Wildlife Law**

Wildlife management in the international sphere revolves around the question of overlapping rights. In each internationalizing process discussed above, at least two sovereigns or their citizens have, or have asserted, the right to the management and use (broadly defined to include non-consumptive use) of the same wildlife resources. Effective official wildlife management at the international level has traditionally revolved around agreements between nation-states on the allocation of rights of access to and use of these wildlife resources. The principles of such agreements are made explicit through treaties, conventions, protocols and similar arrangements. Knowledge of the breadth of such agreements in the literature is limited and frequently inaccurate. For example, Lyster (1985) and Snape (1996) give unattributed citations of 1886 as the date of the first international wildlife treaty. Lyster also states that "several more" treaties were concluded in the first half of the 20<sup>th</sup> century. Ogundere's (1972) analysis of the development of African environmental law provides 1932 as the origin of international wildlife law in Africa. In fact more than 50 treaties were signed prior to 1886, over 100 treaties were signed between 1900 and 1950, and a wildlife treaty concerning Africa was signed in 1900.<sup>56</sup> Because of the paucity of information on the

---

<sup>55</sup> 16 USC §5301 and 4201-4246

<sup>56</sup> 1900 WTS 1

scope of international wildlife law, analysis of its evolution and composition is difficult. To remedy this problem, a collection of the world's wildlife treaties and related agreements was created.<sup>57</sup> The more than 500 documents in the present collection treat hundreds of species ranging from mollusks and butterflies to cranes and whales, cover the time period from 1351 to the present, and involve nearly 200 separate sovereign entities. The full list of agreements and citations and the location of primary documents is included as an appendix.

### *Early Trends in Wildlife Treaties*

Pre-20<sup>th</sup> century wildlife treaties were overwhelmingly concerned with fisheries, and in fact, the first known wildlife treaty was a fisheries agreement between England and Castile in 1351.<sup>58</sup> The subject of most early treaties was access to fishing grounds in boundary and territorial waters and on the high seas (Dagett, 1934). The need for such agreements, at least with respect to marine fisheries, stemmed initially from the fact that a concept of "territorial seas" had not been devised and later from the lack of general agreement on the extent of territorial seas (Chirsty and Scott, 1965). Geographically, pre-20<sup>th</sup> century wildlife treaties were predominated by European states and the U.S. The disproportionate representation by Western nations in early international wildlife law is likely related in part to the general penchant for Westerners to use treaties to prevent or settle international disputes and the early growth of the nation-state in Europe. In fact, the only known pre-20<sup>th</sup> century wildlife treaties involving non-Western nations were between Japan and Korea<sup>59</sup> and France

---

<sup>57</sup> Treaties, conventions, protocols and soft law documents, whether or not currently or ever in force, are included in the collection. Wildlife was considered to include animals from the taxa insect and above. Lower order animals such as bacteria and viruses, for which treaties do exist, were excluded. The collection only includes agreements with direct relevance to wildlife. Thus treaties defining borders between nation-states were excluded, though border delineation defines zones of access to wildlife resources, unless the treaties were written with specific wildlife issues in mind. Treaties concerning the environment in general were also excluded, unless they contained specific wildlife provisions, as were general trade treaties.

<sup>58</sup> 1351 WTS 1

<sup>59</sup> 1883 WTS 2

and Siam.<sup>60</sup> The Japanese/Korean treaty, concerning fisheries, entered into force in 1883 after the Meiji Restoration when Western models were used to reform Japan's government and administration. Siam was the only nation to remain independent in Southeast Asia throughout the colonial period.

### *Wildlife Treaties since 1900*

After 1900, international wildlife agreements began to change in four fundamental ways. First, the range of treated species began to expand. Prior to 1900, only three non-fishery treaties were signed, each concerned with sealing.<sup>61</sup> The first treaty concerning land mammals entered into force in 1900,<sup>62</sup> and the first avian treaty was signed in 1902.<sup>63</sup> Modern treaties now cover a vast array of species ranging from mollusks to insects, caribou and whales (see Table 2). While the majority of 20<sup>th</sup> century treaties continue to be concerned with fisheries, the proportion of treaties dealing with non-fish wildlife has markedly increased (see Figure 4).

**Table 2. Number of Wildlife Treaties by Species Type**

	Number of Known Treaties	Year of First Known Treaty
Sea Turtles	4	1916 (WTS 385)
Amphibians/Reptiles	6	1973 (WTS 47)
Insects	14	1926 (WTS 393)
Mammals, Land	15	1900 (WTS 142)
Birds	28	1902 (WTS 38)
Mammals, Marine	45	1887 (WTS 232)
Fish, Freshwater/Anadromous	78	1683 (WTS 175)
Molluscs/Crustaceans	62	1923 (WTS 209)
Fish, Marine	293	1351 (WTS 121)

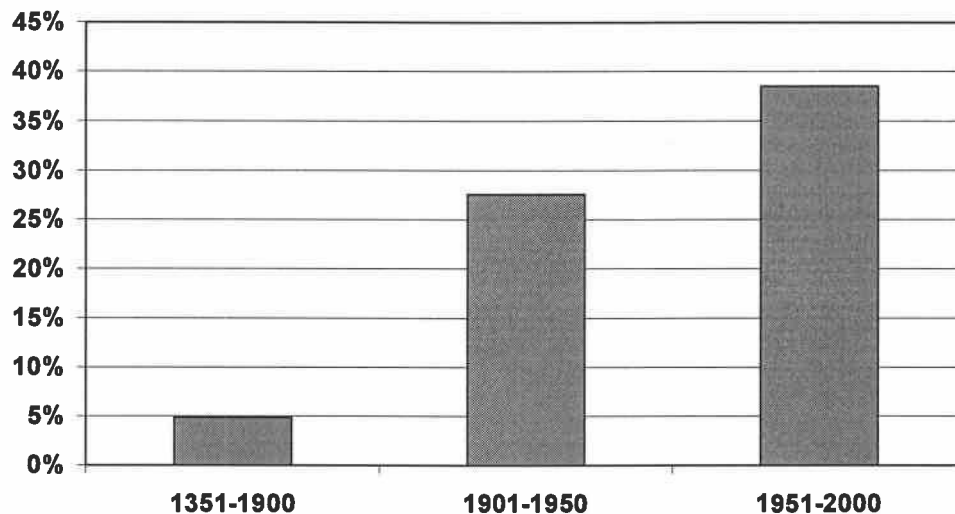
<sup>60</sup> 1870 WTS 1

<sup>61</sup> 1887 WTS 1, 1891 WTS 1, 1892 WTS 2

<sup>62</sup> 1900 WTS 1

<sup>63</sup> 1902 WTS 2

**Figure 5. Non-Fisheries Treaties as a Percent of All Wildlife Treaties**



Second, the number of treaties adopted per year increased (see Figure 6) as did the number of signatories per treaty (see Figure 7). In fact, while multi-lateral treaties were rare before 1900,<sup>64</sup> the proportion of all treaties that are multi-lateral increased substantially in the 20<sup>th</sup> century (see Figure 8).<sup>65</sup> Third, the geographic location of treaty signatories began to expand outside of Europe and North America after 1900 and into Asia, Africa and South America. As of 1900, only a handful of European states and the U.S. dominated involvement in international wildlife law. By the year 2000, more than 200 nations from all inhabited continents had at some time signed at least one wildlife treaty (see Figure 9). The growing global involvement in treaties is at least partially a function of the end of direct Western domination of the world during colonial period. From 1700 until the 1950s, only a small number of non-

<sup>64</sup> 1790 WTS 1, 1875 WTS 1, 1887 WTS 1, 1887 WTS 2, 1887 WTS 3, 1893 WTS 4

<sup>65</sup> The increase is especially notable in the post-war period if observations from the 1970s are excluded. The 1970s saw a large number of bi-lateral treaties designed to cope with a redefinition of many states' territorial seas.

Western nations could enter into wildlife treaties, because only a small number were independent. As a result, the earliest treaty involving African fisheries was between colonial occupiers in North Africa,<sup>66</sup> and the first concerning non-fishery wildlife resources was signed in London.<sup>67</sup> Similarly, the first treaty related to Cambodian wildlife was signed by Siam and the French government in Indo-China.<sup>68</sup>

However, the geographic distribution of treaty membership illustrated in Figure 9 reveals a continuing dichotomy between the number of treaties signed by richer, generally northern nations and those signed by poorer, generally southern nations. In fact, regression analysis shows a clear relationship between income levels and wildlife treaty involvement.<sup>69</sup> A closer examination of this relationship reveals other patterns as well. For example, less than 4% of all wildlife treaties signed since 1900 involve only countries from the bottom 2/3 of the income rankings.<sup>70</sup> Another 34% of treaties involve at least one country from the top 1/3 of the income scale and at least one country from the bottom 2/3. The finding that “developing” country involvement in wildlife treaties is rare without corresponding “developed” country participation, as well as a closer examination of treaty texts, suggests that poorer nations tend to enter into wildlife treaties only at the behest, or at least under the auspices, of wealthier nations or international organizations. In addition, it appears that developing country participation in international wildlife treaties is frequently focused on vague agreements involving statements of principle without requirements for immediate action. Wealthier nations, on the other hand, are more likely to be

---

<sup>66</sup> 1881 WTS 1

<sup>67</sup> 1900 WTS 1

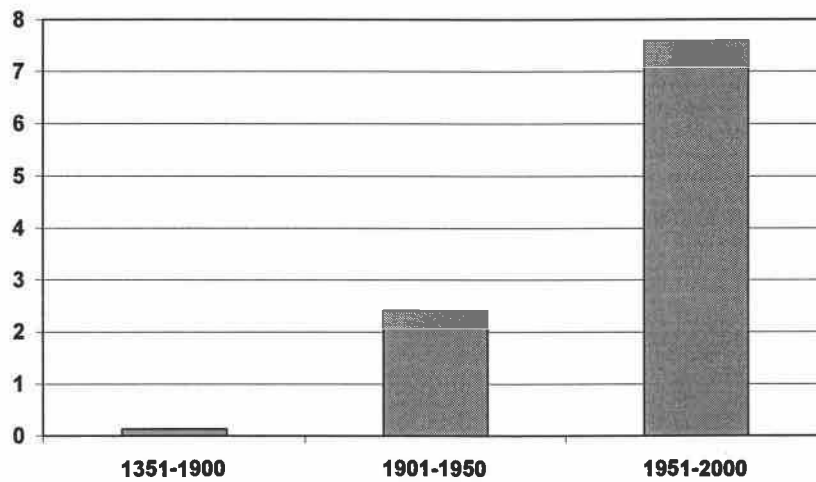
<sup>68</sup> 1870 WTS 1

<sup>69</sup> The regression analysis related the natural log of 1997 per capita GDP to the natural log of the number of treaties signed per country (Adjusted  $R^2 = 0.25$ , coefficient = 0.34, p-value = 0.00, n=144).

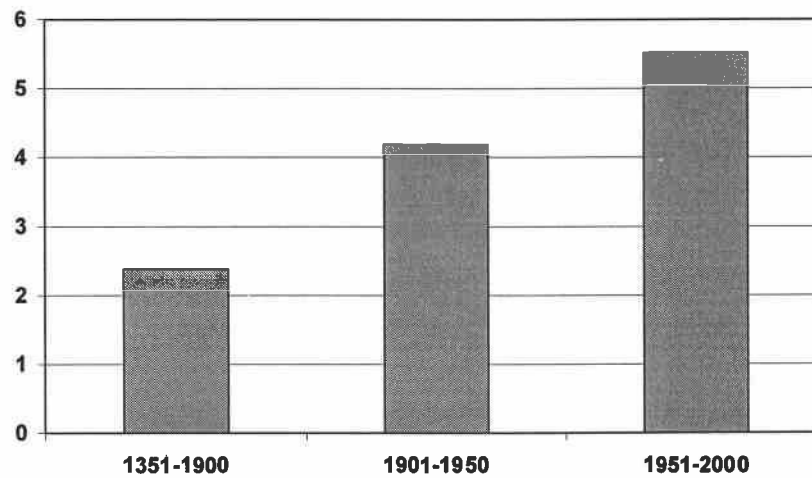
<sup>70</sup> Income levels were determined using 1997 per capita gross domestic product. Though not meeting the standard, Russia was included among the wealthiest nations because most treaties involving the geographic area of modern Russia were signed under the auspices of the Soviet Union when relative income levels were higher than at present.

involved in treaties that manage or allocate specific wildlife stocks. Further discussion of north/south differences in international wildlife law is provided below.

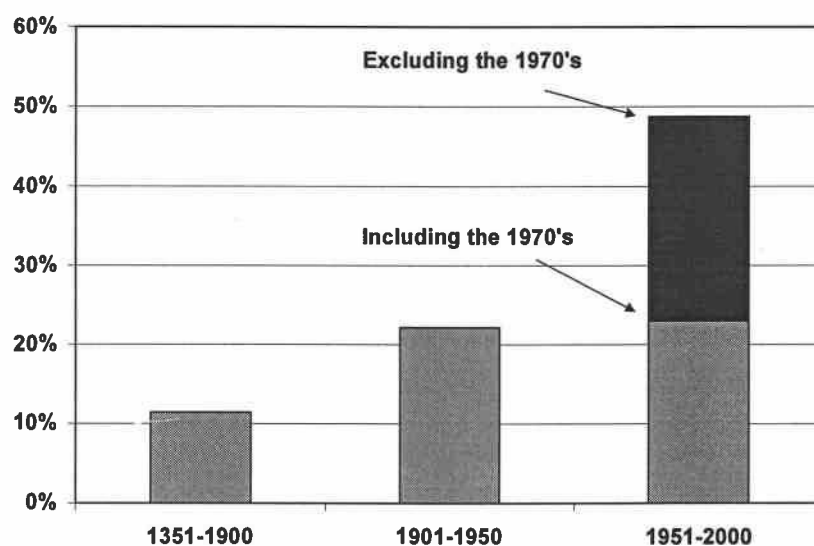
**Figure 6. Average Number of Wildlife Treaties per Year**



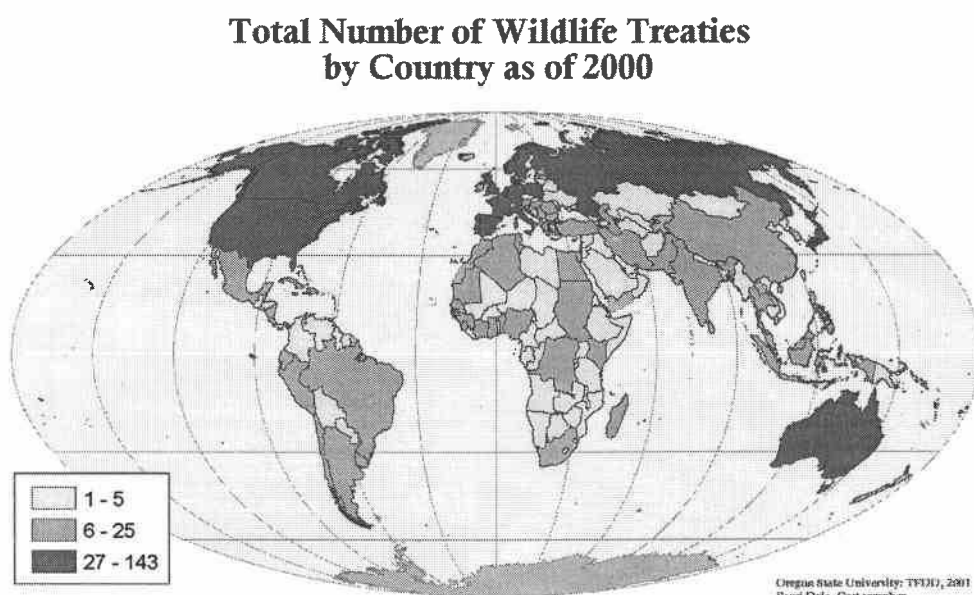
**Figure 7. Average Number of Signatories per Wildlife Treaty**



**Figure 8. Multi-lateral Treaties as a Percent of all Wildlife Treaties**



**Figure 9. International Wildlife Treaties: Number by Country**



The fourth change in wildlife treaties since 1900 has been a fundamental shift in focus. As stated, treaties prior to this date were concerned primarily with a delineation of territorial fishing rights and access to fishing grounds. Changing views on the limits of territorial seas have continued to play a role in the formation of some fisheries treaties in modern times.<sup>71</sup> In addition, issues of access to the Antarctic, its wildlife and its seas have formed an important area of treaty history beginning in the late 1950s. However, wildlife treaties have increasingly focused on wildlife management rather than on simple access to harvest sites. By the 1930s, a growing number of treaties explicitly included provisions for the establishment of management commissions and the international exchange of statistical information to guide commission decisions. The treaties and their commissions were also often given the task of allocating harvest rights, rather than access rights, between signatories. This expansion in focus partially explains the increase in multi-lateral treaties during the 20<sup>th</sup> century. If wildlife is to be effectively managed in an international setting, all nations with access to the wildlife need to be included in management agreements. Related to the shift in focus away from access and towards management was an increasing use of treaty provisions concerning the environment, the introduction and control of exotic species, and the conduct of research useful to management decisions.

A final development in the last half century of international wildlife law has been the conclusion of agreements focused on the construction of general principles for international wildlife management that can be used as guides in later species or geographic specific treaties. Such agreements include the 1958 United Nations Convention on Fishing and Conservation of the Living Resources of the High Seas,<sup>72</sup> the 1979 Convention on International Trade in Endangered Species of Wild Fauna and

---

<sup>71</sup> For example, a large number of treaties were signed in the 1970s in reaction to the expansion of the definition of territorial seas. More recently, an agreement was apparently signed concerning access to and use of fishing grounds in the contentious South China Sea (IWRA Update, 2001).

<sup>72</sup> 1958 WTS 5

Flora,<sup>73</sup> the 1982 United Nations Convention on the Law of the Sea,<sup>74</sup> and the 1995 FAO Code of Conduct for Responsible Fisheries.<sup>75</sup> Upon, and sometimes before, ratification, these agreements have served as guiding forces in the construction of later international wildlife law. For example, the 1958 and 1982 U.N. conventions have been cited in more than 20 other wildlife related agreements. The apparent utility of codifying generalized management principles to be used in later wildlife treaties stands in sharp contrast to the experience of international freshwater management. The international community, despite years of effort, has failed to devise general principles for the management of international freshwater resources that have been widely implemented in river or basin specific treaties (Giordano and Wolf, Forthcoming).<sup>76</sup>

### **Allocation of International Wildlife Through Treaties**

A primary function of international wildlife law is the allocation between nations of broadly defined rights and responsibilities to internationalized wildlife resources. Often underlying this function is the desire to guarantee future wildlife resource availability or particular levels of availability, often defined as Maximum Sustained Yield, for treaty signatories. Three general approaches, often in combination, have been used within wildlife agreements to meet this desire. These approaches focus on access, management and allocation. Access approaches, which dominated in pre-20<sup>th</sup> century treaties, define zones of access to and exclusion from wildlife use. Access agreements serve to reduce congestion in harvest areas and may be especially successful in the modern management of sedentary species such as ground fish and oysters.<sup>77</sup> However, the geographic range of more mobile species is

---

<sup>73</sup> 1979 WTS 5

<sup>74</sup> 1982 WTS 4

<sup>75</sup> 1995 WTS 3

<sup>76</sup> This observation suggests that cross-resource studies may provide useful insights into successful international resource policy development.

<sup>77</sup> They can also be successful for mobile species when the primary issue is congestion and not scarcity.

often larger than the zones of access over which nations can successfully negotiate sovereignty or use rights. For such species, each nation in which the wildlife spends some part of its life cycle will reap the full benefit of wildlife harvest while sharing the costs, in terms of reduced availability, with other nations. As a result, a tendency for over-exploitation will exist in the classic "tragedy of the commons" sense. Treaties concerning wildlife whose life history strategies cannot be ensconced within the sovereign territory of a single nation thus frequently employ management or allocation approaches in an attempt to reduce or eliminate over-exploitation.

Management approaches use rules designed to slow the rate of exploitation or reduce the impact of exploitation on long-term species numbers. Typical management provisions include the establishment of minimum size limits, the prohibition of harvest in sensitive geographic areas including spawning and breeding grounds, the restriction of harvest during particular seasons or times of the day, and the prohibition of particular harvest technologies such as fine-meshed nets or live duck decoys. Restrictions on trade in treated species are also used, either to reduce harvest incentives or to assist in enforcement of other management regulations. For example, trade is frequently prohibited during closed seasons. Similarly, the service of fishing vessels can be proscribed outside of open harvest periods. Other management rules attempt to decrease harvest levels by reducing wastes in harvested wildlife. The International Whaling Convention, for example, instructs signatories not to waste whale products and forbids compensation to gunners based only on harvest numbers in an effort to encourage selective harvests.<sup>78</sup>

Allocation approaches take, at least theoretically, a more direct line to the assignment of wildlife use rights than the access or management approaches just described. Allocation approaches essentially divide internationalized wildlife resources between nations based on some principle or set of principles. At least six such principles have been applied in the division of international wildlife including absolute sovereignty, resource integrity, abstention, historic use, traditional use, and

---

<sup>78</sup> 1946 WTS 1

what might be termed “equitable allocation.”<sup>79</sup> Absolute sovereignty maintains the absolute right of a nation to use the wildlife within its boundaries, irrespective of whether the wildlife may, in the future, move into the territory of another sovereign. The rationale for the principle is that a nation controlling especially important elements of a species’ life history strategy has the best ability to protect and manage those elements and should reap the benefits, or face the costs, of its actions. This principle can be particularly efficient for populations of anadromous salmon in which a single nation controls critically important spawning grounds.<sup>80</sup> The resource integrity principle involves a more comprehensive assessment of contributions to wildlife maintenance than absolute sovereignty and holds that wildlife use rights should in some way be proportional to the amount of time the wildlife stays in a sovereign territory or the proportion a sovereign territory contributes to wildlife production.<sup>81</sup> The abstention principle is related to resource integrity and holds that those states that have “invested time, effort, and money into a stock (Christy and Scott, 1965, 173)” of some living resource should have a right use that stock, the rationale being that a nation’s positive contributions to past management practices should be reflected in its current wildlife use rights. A related interpretation of the abstention principle is that those nations that had the “foresight” not to deplete the resource in the past should benefit from their restraint through future rights to wildlife utilization.<sup>82</sup>

---

<sup>79</sup> A seventh principle, control obligation, is often included in treaties concerning with insects. For example, in the body of treaties concerned with locusts, the parties oblige themselves to take measures to reduce locust populations or outbreaks (e.g 1963 WTS 1, 1965 WTS 2, 1970 WTS 5).

<sup>80</sup> The absolute sovereignty principle was firmly established in the Law of the Sea treaty concerning anadromous fish (1982 WTS 4, Article 66, 1) and has since been applied in the Pacific Salmon Treaty between the U.S. and Canada (1985 WTS 3).

<sup>81</sup> This principle is commonly used in water law but is also included in wildlife treaties. Of particular importance is the inclusion of a version of the principle in the 1958 Convention on Fishing and Conservation of the Living Resources of the High Seas in which “coastal states” are viewed to have “special interests in the maintenance of living resources in any area of the high seas adjacent to its waters (1958 WTS 5, Article 6).” The resource integrity principle has since been included in a number of treaties including the 1982 Convention for the Conservation of Salmon in the North Atlantic Ocean (1982 WTS 2).

The historic use principle maintains that future rights to wildlife use should be based on levels of past usage. This principle is based on the idea that communities and infrastructure have developed around past wildlife usage and that change in use rights would diminish the value of those communities and their infrastructure, thereby inequitably impinging on those with the longest history of use. The traditional use principle is similar to historic use but is confined to particular classes of people, typically those considered indigenous or with special cultural or other non-economic ties to the wildlife in question.<sup>83</sup> Finally, the “equitable allocation” principle uses unspecified criteria, unlike the resource integrity and abstention principles, to distribute shares of harvestable wildlife among nations. For example, the U.S. and Canada simply divided salmon harvests 50-50 in the Frazer River Convention,<sup>84</sup> while the U.S. and Canada obliged themselves to provide fixed percentages of their seal harvests to Russia and Japan in exchange for an end to pelagic sealing.<sup>85</sup>

Of those wildlife treaties which use the allocation principles just described, the majority merely state the principles that should be considered and do not codify exact formulas or methodologies. In fact, many treaties include lists of contradictory allocation principles. For example, the 1982 Convention for the Conservation of Salmon in the North Atlantic Ocean<sup>86</sup> mandates that absolute sovereignty, abstention, resource integrity and traditional use should be employed in calculating salmon allocations between its seven signatories. The application of these principles in the determination of actual allocations is left to a treaty-established commission. The

---

<sup>82</sup> This principle can be found in the the 1978 Convention on Future Multilateral Co-Operation in the Northwest Atlantic Fisheries (1978 WTS 4, Article 11) and the 1993 Convention for the Conservation of Southern Bluefin Tuna (1993 WTS 1, Article 8).

<sup>83</sup> Many treaties designed to limit or eliminate harvest include clauses protecting traditional use. The meaning of traditional use is not clear and been a point of contention. The U.S. has been against Norwegian whaling, which has been conducted for at least 400 years using small scale boats and family operations. At the same time, the Technical Committee of the International Whaling Commission, presumably at U.S. behest, supports whale hunting by native Americans in Alaskan waters (Lyster, 1985).

<sup>84</sup> 1930 WTS 1

<sup>85</sup> 1911 WTS 2

<sup>86</sup> 1982 WTS 2

simple designation in treaties of principles to be considered in allocation and reliance on commissions to later work out exact formulas is common. To ensure that commissions come to allocation agreements, special provisions are sometimes established. For example, while the Migratory Bird Treaty<sup>87</sup> does not indicate particular allocation principles for waterfowl, the U.S. and Canada have agreed to proscribe harvest if no annual allocation is determined. The failure to codify precise allocation methodologies has a number of advantages. For example, the likelihood of treaty formation is improved by pushing the difficult allocation problem out of the highly political treaty-writing process, and flexibility in the allocation system may be better maintained over time. However, the decision making process is left undefined and may therefore require constant monitoring by interested parties, commission members may not have direct political accountability, and the make-up of committees may be slanted towards particular user groups.

### **Lessons for Future International Wildlife Policy**

It has been argued that changes in productivity and technology (Demsetz, 1967) as well as increasing resource scarcity (Anderson and Hill, 1975) prompt the creation of property rights regimes such as those embodied in international wildlife treaties. In the 20<sup>th</sup> century the pace of change in transport and harvest technologies made the exploitation of international wildlife resources increasingly easy and cost effective.<sup>88</sup> The scarcity of many wildlife species also increased in the 20<sup>th</sup> century (Baker, 1999), at least in part as a result of changing technologies. While the construction of law may reflect technology and scarcity, the nature of law “reflect(s) human values” (Houck, xix, 1996), and human values towards wildlife resources will themselves vary by place and time. The growth in the number of wildlife treaties, expansion of species coverage, and change in focus of international wildlife law over

---

<sup>87</sup> 1916 WTS 1

<sup>88</sup> See Gordon (1954) Christy and Scott (1965) for discussions of changes in fishing technology which led to modifications of national and international legal regimes.

the last 100 years are reflections of change in each of the aforementioned factors: technology, scarcity and values.

Unfortunately, many historic and existing treaties were not equipped to adapt to these changes over time. For example, the 1911 Treaty for the Preservation and Protection of Fur Seals<sup>89</sup> envisioned high sustained levels of northern fur seal harvest. The treaty was eventually undermined by declining marine mammal populations and resultant U.S. policy, in particular the 1972 Marine Mammal Protection Act (Bean, 1997). In reaction, many later U.S. fisheries treaties<sup>90</sup> specifically forbid the “harassing, hunting, capturing, or killing” of marine mammals in general within the U.S. fishery conservation zone. Given the renewed expansion of many marine mammal populations, sometimes to the detriment of newly threatened species such as salmon, the efficacy of these blanket protection mandates now appear as dubious as the earlier provisions encouraging indefinite harvest. In another example of anachronous structure, the 1946 International Whaling Convention<sup>91</sup> set out to manage whales only for their direct consumptive use. Human values towards whales have now expanded to encompass non-consumptive uses including recreational observation and the simple satisfaction derived by some from knowing “whales are there.” In part because non-consumptive values and interests are not well cared for in the existing accord, extra-legal action by dedicated anti-whaling activists are now common. It seems clear that technology, wildlife scarcity and human values towards wildlife will continue to change and evolve. In order to avoid biological harm from treaty encouraged over- or under-harvest, however defined, and ensure that treaties recognize the contemporary interests of the parties they are to serve, it is important that future wildlife law take into account the imperative of change.

---

<sup>89</sup> 1911 WTS 2 which was superseded by the 1957 Interim Convention on Conservation of North Pacific Fur Seals (1957 WTS 1) as extended and amended.

<sup>90</sup> e.g. 1977 WTS 5, 1977 WTS 7, 1977 WTS 11, 1977 WTS 12, 1977 WTS 17. The impetus of these agreements was an expansion in the U.S. definition of its territorial sea. The agreements were designed to terminate in 1982, after which the U.S. would not generally allow foreign vessels to fish within its 200 mile territorial limit. At that point, the Marine Mammal Protection Act would forbid the taking of marine mammals for U.S. fishermen.

<sup>91</sup> 1946 WTS 1

While allowance for such change in technology, scarcity and value is an important consideration in the promotion of long-term treaty success, an appreciation of the diversity of these factors across nations is equally vital. Early wildlife treaties were typically signed between pairs of neighboring states. However, treaties are increasingly likely to be multi-lateral in nature with large numbers of signatories (e.g. CITES currently has 153 signatories and the Convention on Biodiversity has 193) from diffuse geographic settings. As the number of parties to a treaty increases, so too does the likelihood that the various signatory states will employ asymmetric technologies, hold opposed interpretations of wildlife scarcity, and maintain differing values towards wildlife utilization. These differences have important implications in the resolution of international wildlife questions, especially in relation to “north/south” issues. For example, there is some evidence from the evolution of U.S. (Bean, 1997) and international wildlife law that the relative value of non-consumptive wildlife use rises over time with national income levels. This temporal trend was also noted by Krutilla (1967) and is evidenced in the growth of Environmental Non-Governmental Organizations disproportionately based in the “developed” world (Porter and Brown, 1991). Income based value differences seem to manifest themselves in rich country desires for the protection of wildlife that poorer countries would prefer to utilize, as their wealthier counterparts have already done, for the economic enrichment of their citizenry.

Creative international agreements could serve to reconcile these and other seemingly conflictive goals by recognizing basic value differences between parties. For example, if treaties were based on an allocation of internationally transferable rights to wildlife use, wealthier nations, or their citizens, could purchase rights to wildlife from poorer nations for the purpose of conservation or preservation. Poorer nations would then have the option of benefiting from the sale of non-consumptive wildlife use rights rather than finding themselves limited to a derivation of wildlife value through extractive means only. This outcome would stand in sharp contrast to that which results from the conservation agendas now frequently promulgated by developed countries in which poorer states are pressured, often through bundled aid

packages (Wilkins and Acquay, 1991), to establish parks and reserves or to cease wildlife utilization. Under these conditions, the developing country as a whole pays the price, in terms of resource use foregone, of meeting developed world wildlife objectives. In addition, many individuals pay high personal prices in terms of homelands forfeited (often by actual or near expropriation), and those living near parks are subject to ongoing economic and human costs from living in proximity to wildlife (Butler, 2000). As a result, these policies at best provide no ongoing incentive for wildlife maintenance in the developing world and at worst result in incentives for wildlife destruction, since wildlife use values have been largely stripped away while the costs of wildlife presence remain.

A move away from such wildlife protection strategies would require a change in thinking on the part of many wildlife policy makers and advocacy groups.<sup>92</sup> Nonetheless, such solutions are clearly possible. For example, there is some evidence that sea turtle conservation schemes in which local harvesters maintain use rights are more effective than strategies taking stricter preservationist approaches or those involving national or international control (Rose, 1991). Furthermore, such strategies do not require agreement at the sovereign level. Zimbabwe devolved wildlife ownership rights to private and communal landholders in the 1970s and 80s. As a result, more land has been set aside for wildlife, and wildlife numbers have expanded in large part because landholders can now derive direct benefits from the sale of use rights to overseas conservation organizations, tourists and hunters.

Finally, there is a clear upward trend in the number of internationalizing processes at work on any given wildlife species. It is now not only conceivable but common for a species to be harvested in one nation and exported to another, to be impacted by transnational air or water pollution, to have its habitat changed by forces of the global economy, to be valued for its potential to draw international tourists, and to be claimed as part of a "world heritage" by citizens of countries thousands of miles from its home territory. In addition, there is now an increasing awareness that the

---

<sup>92</sup> In addition, rights to wildlife would need to be well defined within, as well as between nations, for the most efficient and equitable results.

health of the world's biological resources in general is dependent on a complicated interconnection of wildlife and plant species and that managing for a single species' Maximum Sustained Yield or other target level can have unknown consequences on other elements of the biosphere. While early international wildlife management could concern itself simply with control of access to harvest sites or divisions of harvest volume, treaties designed to manage single internationalizing processes will be increasingly likely to fail both in terms of target species maintenance as well as in terms of the broader ecosystem health where the larger long-term value of wildlife and environmental resources resides. As a result, it will be increasingly important for the framers of future wildlife agreements to take into account not only the competing range of claims towards wildlife management and use rights but to also be cognizant of the myriad internationalizing processes a species may face.

## **Conclusion**

The management of internationalized wildlife has traditionally revolved around agreements between nation-states on the allocation of rights to access and use.

The nature of these agreements has changed over time in terms of volume, species coverage, geographic range, and, perhaps most importantly, goals. It is hypothesized that these changes are due to a combination of improving technologies, increasing recognition of wildlife scarcity, and evolving human values towards wildlife.

Technology, scarcity, and human values will continue to change, and the robustness of future international wildlife law could be enhanced by including provisions that take the possibility of such change into account and recognize the variation in these factors across nations. As the world continues to contract, the probability of any particular wildlife species being internationalized will increase as will the number of internationalizing processes to which it is subject. As a result, there will be a concomitant increase in the importance of well-conceived, comprehensive international agreements if we are to avoid degradation of international wildlife resources and equitably address the divergent wildlife values of the world's human populations.

## Chapter 5. Conclusion

This dissertation developed a space and scale explicit theory of the commons problem and applied that theory to an understanding of natural resource outcomes in general and international wildlife management in particular. Solutions to common resource problems have typically revolved around the allocation of property rights to various entities including individuals, communities, and nations. Following an introduction, the second chapter of the dissertation developed a typology of these rights allocation principles in order to examine the ownership regimes in place for water and salmon in the Columbia Basin of North America. Results indicated that the ownership principles employed have varied both by resource type and political scale. More fundamentally, the results suggested that at least some of this variation was due to the spatial nature of the commons problem within which each of the resources was embedded.

Building from this conceptual connection between the spatial attributes of common resources and the rights allocation principles employed in their management, the dissertation's third chapter developed a theory placing, for the first time, the commons problem within a geographic, i.e. spatial, paradigm. The resultant typology classified common resources into one of three basic forms: open access, fugitive, and migratory. The chapter demonstrated that the frequently used dichotomy between "open access" and "private" resources is disingenuous and that there is in reality a continuum of commonality in ownership that depends on the administrative scale (e.g., household, village, or nation-state) at which a resource is assessed. It was further shown that the exact geographic nature of a particular commons problem is in fact dependent on its location along the administrative continuum. As a result, the management of common resources might be improved if their spatial nature, at a given scale, were considered when rights regimes were fashioned.

To more systematically evaluate the connection between rights allocation principles and the spatial nature of the commons, the fourth chapter provided a case study of wildlife allocation at the international scale. The data for the study was

derived from a newly created collection of over 500 wildlife treaties, a bibliography of which is included as an appendix. It was anticipated that a theoretic basis for any connection between the spatial characteristics, as defined in the third chapter, of various wildlife species and the rights allocation principles, delineated in the second chapter, under which they are governed could be developed and used as a tool to guide the construction of future international wildlife law and policy. In fact, it was found that international wildlife treaties frequently include multiple, often contradictory, allocation provisions. To establish actual allocation levels, signatory states more often rely on treaty-sanctioned bodies or other organizations whose decision-making processes are not textually discernable. Furthermore, many international wildlife agreements treat multiple species, each of which may be subject to differing geographic forms of the commons problem, but be nominally governed by the same set of allocation principles. While it is plausible that general patterns do exist between the geographic form of the commons problem to which international wildlife resources are subject and the rights allocation principles that are applied in their management, the detection of such a pattern would require intensive examination of non-documentary decision-making processes beyond the scope of the present work.

Nonetheless, the attempt to understand the relationships between the spatial nature of the commons and rights allocation as applied to international wildlife resulted in a number of original insights. For example, the processes behind the internationalization of wildlife were newly defined and the scope and evolution of international wildlife law was comprehensively described for the first time. From these endeavors, it was found that variation in international wildlife law is influenced as much by the historic evolution of human systems as by non-temporal characteristics of wildlife. This finding in turn led to insights into considerations for future wildlife law as technology, wildlife scarcity and human values towards wildlife continue to change and vary across nations.

The findings presented here also suggest a number of promising directions for further research into the geography of resource use in general and international wildlife law in particular. A clear next step in the research path is further inquiry into

the link between spatial attributes of common resources and the policies most successful, however defined, in their management. Building on the international wildlife concept, this work might include an in-depth examination of the practices of treaty implementation for a subset of currently or historically treated wildlife species. The research scope might also be broadened to include non-wildlife resources, such as water and air, at a variety of political scales or across a range of nations. In this spirit, the resource definition could also be expanded to include “new” common resources such as telecommunications space and the internet.

Moving away from the theoretic realm, the primary data set created for this dissertation, the catalog of the world’s wildlife treaties, also can contribute to our understanding of international wildlife law and management. Histories of the development of international wildlife law for particular species or groups of species, currently rare in the literature at least in part because the historic scope of treaty existence was unknown and documentation was unavailable, can now be more easily undertaken. Cross-species comparisons of international management regimes and resultant “policy lessons” can also now be conducted, allowing wildlife to be more readily included in the cross-resource discussion and literature of international resource management. The treaty collection can clearly also serve as a basis for answering a host of specific questions related to international wildlife management: Are, and should, species be treated separately from their habitat? How does the “endangered species” concept impact treaty formation and does a singular focus on threatened species contribute to or detract from broader conservation or preservation goals? Under what conditions would a value based approach to wildlife allocation in treaties be more appropriate than the simple allocation of wildlife numbers? How has “species” been defined in treaties and how should it be?

In summary, this dissertation made five contributions to geography and resource study. First, it developed a framework with which to analyze the range of principles used to establish rights to resources previously existing under open access conditions. Second, it filled a gap in the commons literature by providing a geographic context to the problem of the “commons.” Third, it created the most comprehensive

catalog in existence of treaties and other agreements on international wildlife.

Fourth, it used the treaty collection to examine the interrelationship between spatial characteristics of international wildlife, international wildlife law, and the geography of the commons, a process that led to original insights into the internationalization of wildlife and the evolution of international wildlife law. Finally, by providing a theoretic basis for examining the commons problem and creating a new collection of wildlife treaties, it provided new directions and resources for research into common resource issues not only for geographers but also for the wider research and policy community.

## Bibliography

- Adams, David A. 1993. *Renewable Resource Policy: The Legal-Institutional Foundations*. Washington: Island Press.
- Allen, Julia C. and Douglas F. Barnes. 1985. The Causes of Deforestation in developing countries. *Annals of the Association of American Geographers*. 75:163-184.
- Anderson, Terry L. and Hill, P.J. 1975. The Evolution of Property Rights: A study of the American West. *The Journal of Law and Economics*, 18:163-179.
- Baker, Joni. 1999. The International Wildlife Conservation Regime and the Convention on International Trade in Endangered Species. *Human Dimensions of Wildlife*. 4:18-39.
- Barrows, Harlan H. 1923. Geography as Human Ecology. *Annals of the Association of American Geographers*. 13: 1-14.
- Bassett, Thomas J. and Donald E. Crummey, eds. 1993. *Land in African Agrarian Systems*. Madison: The University of Wisconsin Press.
- Bastasch, Rick. 1998. *Waters of Oregon: A Source Book on Oregon's Water and Water Management*. Corvallis, OR: Oregon State University Press.
- Bean, Michael J. and Rowland, Melanie J. 1997. *The Evolution of National Wildlife Law*. Praeger. Westport, Connecticut.
- Blomley, Nicholas K. 1994. *Law, Space and the Geographies of Power*. New York: Guilford Press.
- Boreman, Stephen M. 1992. Dolphin-Safe Tuna: What's in a Label? The Killing of Dolphins in the Eastern Tropical Pacific and the Case for an International Legal Solution. *Natural Resources Journal*. 32:425-447.
- Bradley, Michael D and Michael C. Carpenter. 1986. Subsiding land and falling groundwater tables: Public policy, private liability and legal remedy. *Economic Geography*. 62: 241-253.
- Browder, John. 1988. Public Policy and Deforestation in the Brazilian Amazon. In *Public Policies and the Misuse of Forest Resources*. Repetto, Robert and Gillis, Malcolm, eds. Cambridge University Press. Cambridge.

Buck, Susan J., Gregory W. Gleason and Mitchel S. Jofuku. 1998. Institutional Imperative: Resolving Transboundary Water Conflict in Arid Agricultural Regions of the United States and the Commonwealth of Independent States. In *Conflict and Cooperation on Transboundary Water Resources* edited by Richard Just and Sinaia Netanyahu, 193-216. Boston, MA: Kluwer Academic Publishers.

Butler, J.R.A. 2000. The economic cost of wildlife predation on livestock in Gokwe communal land, Zimbabwe. *African Journal of Ecology*. 38:23-30.

Cairo, Richard A. 1998. Dealing with Interstate Water Issues: The Federal Interstate Compact Experience. In *Conflict and Cooperation on Transboundary Water Resources*, edited by Richard Just and Sinaia Netanyahu. Kluwer Academic Publishers, 115-130. Boston, MA.

Cederholm, C.J., D.H. Johnson, R.E. Bilby, L.G. Dominguez, A.M. Garrett, W.H. Graebler, E.L. Greda, M.D. Kunze, B.G. Marcot, J.F. Palmisano, R.W. Plotnikoff, W.G. Percy, C.A. Simenstad, and P.C. Trotter. 2000. *Pacific Salmon and Wildlife-Ecological Contexts, Relationships and Implications for Management*. Special Edition Technical Report, Prepared for D.H. Johnson and T.A. O'Neil (Manag. Dirs.), Wildlife-Habitat Relationships in Oregon and Washington. Olympia, WA: Washington Department of Fish and Wildlife.

Chadwick, Douglas A. 2001. Pursuing the Minke. *National Geographic*. April, 2001: 58-71.

Christy, Francis T. Jr. and Scott, Anthony. 1965. *The Common Wealth in Ocean Fisheries: Some Problems of Growth and Economic Allocation*. The Johns Hopkins University Press for Resources for the Future Inc. Baltimore.

Ciriacy-Wantrup, S.V. and Bishop, Richard C. 1975. "Common Property" as a Concept in Natural Resource Policy. *Natural Resources Journal*. 15: 713-727.

Clark, Gordon L. 1982. Rights, Property, and Community. *Economic Geography*. 58: 120-138.

Coase, Ronald. 1960. The Problem of Social Cost. *The Journal of Law and Economics*. 3: 1-44.

Cohen, F. 1982. *Handbook of Federal Indian Law*. Charlottesville, VA: Michie Bobbs-Merill.

Cohen, Saul. 1991. Global Geopolitical Change in the Post-Cold War Era. *Annals of the Association of American Geographers*. 81: 551-580.

Comrie, Andrew C. 1994. Tracking Ozone: Air-mass trajectories and pollutant source regions influencing ozone in Pennsylvania forests. *Annals of the Association of American Geographers*. 84: 635-651.

Daggett, A.P. 1934. The Regulation of Maritime Fisheries. *The American Journal of International Law*. 28: 694-717.

Dales, J.H. 1968. Land, Water, and Ownership. *Canadian Journal of Economics*. 4: 791-803.

Dasman, Raymond F. 1981. *Wildlife Biology*. John Wiley and Sons. New York.

De Klemm, Cyril. 1989. Migratory Species in International Law. *Natural Resources Journal*. 29: 935-978.

Demsetz, Harold. 1967. Toward a Theory of Property Rights. *American Economic Review*. 57: 347-73.

Dougill, Andrew S., David S.G. Thomas, and A. Louise Heathwaite. 1999. Environmental Change in the Kalahari: Integrated land degradation studies for nonequilibrium dryland environments. *Annals of the Association of American Geographers*. 89: 420-442.

Dzurik, Andrzej. 1996. *Water Resource Planning*. Lanham, MD: Rowman & Littlefield Publishers.

Emel, Jacques L. and Elizabeth Brooks. 1988. Changes in Form and Function of Property rights institutions under threatened resource scarcity. *Annals of the Association of American Geographers*. 78: 241-252.

Emel, Jacques and Rebecca Roberts. 1995. Institutional form and its effects on environmental change: The case of groundwater in the Southern High Plains. *Annals of the Association of American Geographers*. 85: 664-683.

Furubotn, Eirik G. and Pejovich, Svetozar. 1972. Property Rights and Economic Theory; A Survey of Recent Literature. *Journal of Economic Literature*. 10:1137-1162.

General Laws of Oregon. 1915.

Geores, Martha E. 1996. *Common Ground: The Struggle for Ownership of the Black Hills National Forest*. Landham MD: Rowman and Littlefield Publishers, Inc.

Getches, David H. 1983. *Water Law in a Nutshell*. St. Paul, MN: West Publishing Company.

Giordano, Mark and Gordon Matzke. 2001. Classics in Human Geography Revisited. *Progress in Human Geography*. 25: 623-625.

Giordano, Meredith and Wolf, Aaron. Forthcoming. "Incorporating Equity Into International Water Agreements." *Social Justice Research—Special Issue*.

Giordano, Meredith, Mark Giordano and Aaron Wolf. Forthcoming. The Geography of Water Conflict: Internal Pressures and International Manifestations. *The Geographical Journal*.

Goldfarb, William. 1988. *Water Law*. Chelsea, MI: Lewis Publishers.

Gordon, Daniel V. and Klein, K.K. 1999. Sharing Common Property Resources: The North American Atlantic Cod Fishery. In *Environmental Economics: Equity and the Limits to Markets*. Eds. Mohammed H. I. Dore and Timothy D. Mount. Oxford: Blackwell Publishers.

Gordon, H. Scott. 1954. The Economic Theory of a Common Property Resource: The Fishery. *The Journal of Political Economy*. 62: 124-142.

Gullison, Raymond E. and Losos, Elizabeth C. 1993. The Role of Foreign Debt in Deforestation in Latin America. *Conservation Biology*. 7: 140-147.

Hallagan, John B. 1990. Effects of the Regulation of the International Ivory Trade on African Elephant Conservation. *Transactions of the North American Wildlife and Natural Resources Conference*. 423-433.

Hardin, G. 1968. The tragedy of the commons. *Science* 162: 1243-1248.

Hartshorne, Richard. 1939. The Nature of Geography. *Annals of the Association of American Geographers*. 29: 173-658.

Harvey, D. 1977. "Population, resources, and the ideology of science." In *Radical Geography*, ed. R. Peet, 213-242. Maaroufa, Chicago.

Hosier, Richard H. 1988. The economics of deforestation in Eastern Africa. *Economic Geography*. 64: 121-133.

Houck, Oliver A. 1995. Introduction. In *Biodiversity and the Law*. William J. Snape III ed. Island Press. Washington, D.C. pp. xi-xiv.

Hubbert, Daniel D. 1995. *Why the Pacific Salmon Treaty Failed to End the Salmon Wars*. SMA 95-1.

- Hurwitz, Diana. 1995. Fishing for Compromises through NAFTA and Environmental Dispute-Settlement: The Tuna-Dolphin Controversy. *Natural Resources Journal*. 35:501-540.
- IWRA Update. 2001. *Water New: South China Sea Compact*. Newsletter of the International Water Resources Association. April 2001: 5.
- James, P.E. 1952. Toward a Further Understanding of the Regional Concept. *Annals of the Association of American Geographers*. 42: 195-222.
- Jones, Stephan. 1954. A Unified Field Theory of Political Geography. *Annals of the Association of American Geographers*. 49: 111-123.
- Kasperson, Jeanne X., Roger E. Kasperson, and B.L. Turner II, eds. 1995. *Regions at Risk: Comparisons of Threatened Environments*. Tokyo: United Nations University Press.
- Kay, Jeanne. 1979. Wisconsin Indian hunting patterns, 1634-1836. *Annals of the Association of American Geographers*. 79: 402-418.
- Krutilla, John V. 1967. *The Columbia River Treaty: The Economics of an International River Basin Development*. Baltimore, MD: Johns Hopkins University Press for Resources for the Future.
- Krutilla, John. 1967. Conservation Reconsidered. *The American Economic Review*. 57: 777-786.
- League of Nations. July 28, 1937. *Convention Between the United States of America and Canada for the Protection, Preservation and Extention of the Sockeye Salmon Fisheries in the Fraser River*. League of Nations Treaty Series, 184: 305.
- Lyster, Simon. 1985. *International Wildlife Law: An Analysis of International Treaties concerned with the Conservation of Wildlife*. Cambridge: Grotius Publications Limited.
- Mahony, Rhona. 1993. Debt for Nature Swaps: Who Really Benefits? In *Tropical Rainforests: Latin American Nature and Society in Transition*. Susan E. Place, ed. Scholarly Resources Inc. Wilmington, DE.
- Marks, Stewart A. 1984. *The Imperial Lion: Human Dimensions of Wildlife Management in Central Africa*. Boulder, Co: Westview Press.
- Marsh, George Perkins. 1864. *Man and Nature, or Physical Geography as Modified by Human Action*. New York: Charles Scriber (republished, David Lowenthal, ed.; Cambridge, Mass: Harvard University Press, 1965).

Martin, Jim. May 23, 2000. Personal communication. Chief of Fisheries and Oregon Representative to the Oregon-Washington Columbia River fish Compact, Oregon Department of Fisheries and Wildlife (retired). Portland, OR.

McCay, Bonnie M. and Acheson, James M. eds. 1987. *The Question of the Commons: The Culture and Ecology of Communal Resources*. Tucson: The University of Arizona Press.

Menzies, Nicholas K. 1994. *Forest and Land Management in Imperial China*. New York: St. Martin's Press.

Mitchell, Don. 1995. The end of public space? People's Park, definitions of the public and democracy. *Annals of the Association of American Geographers*. 85: 108-133.

Muckleston, Keith W. 1980. *International Management of the Columbia in Conflicts on the Columbia*. Corvallis, OR: Oregon State University Water Resources Institute.

Muckleston, Keith W. 1992. Grand Coulee Dam. In *Geographic Snapshots of North America: Commemorating the 27th congress of the geographic union and assembly* edited by Donald G. Janelle, 384-387. New York, NY: Guilford Press.

Muckleston, Keith W. March 14, 2000. *The Columbia River Treaty*. Draft of speech presented at the 10th World Water Congress of the International Water Resources Association. Melbourne, Australia.

Munton, Don, Soroos, Marvin, Nikitina, Elena, and Levy, Marc A. 1999. Acid Rain in Europe and North America. In *The Effectiveness of International Environmental Regimes: Causal Connections and Behavioral Mechanisms*. Oran R. Young, ed. The MIT Press. Cambridge, Massachusetts.

National Science and Technology Council-Committee on Environment and Natural Resources. 2000. *From the Edge: Science to Support the Restoration of Pacific Salmon*. Washington, D.C.: Office of Science and Technology Office.

Netanyahu, Sinaia. 1998. Bilateral Water Policy Coordination Under Uncertainty. In *Conflict and Cooperation on Transboundary Water Resources* edited by Richard Just and Sinaia Netanyahu, 363-379. Boston: Kluwer Academic Publishers.

Netting, Robert. 1976. What Alpine Peasants Have in Common: Observations on Communal Tenure in a Swiss Village. *Human Ecology*. 4:135-146.

Ogundere, J.D. 1972. The Development of International Environmental Law and Policy in Africa. *Natural Resources Journal*. 12: 252-270.

Omernik, James M. 1987. Ecoregions of the Conterminous United States. *Annals of the Association of American Geographers*. 77: 118-125.

Omernik, James M. and Bailey, Robert. 1997. Distinguishing Between Watersheds and Ecoregions. *Journal of the American Water Resource Association*. 33: 935-949. ORS 507.010. *The Oregon-Washington Columbia River Fish Compact*.

Ostrom, Elinor. 1990. *Governing the Commons: The evolution of institutions for collective action*. Cambridge: Cambridge University Press.

Ostrom, Elinor. 1997. Private and Common Property Rights. Published on the electronic Encyclopedia of Law and Economics.  
<http://encyclo.findlaw.com/lit/2000art.html>

Pacific Fisheries Management Council. May 25, 2000. Web page:  
<http://pcouncil.org/operate/involved.html>.

Pacific Northwest River Basins Commission. 1970. *Columbia-North Pacific Region Comprehensive Framework Study Appendix Vol. 1, V, Water Resources*. Vancouver, WA.

Pattison, William D. 1964. "The Four Traditions of Geography." *Journal of Geography*. 63: 211-216.

Peuquet, Donna J. 1988. Representations of geometric space: Toward a conceptual synthesis. *Annals of the Association of American Geographers*. 78: 375-394.

Price, Edward T. 1995. Dividing the land: Early American Beginnings of our private property mosaic. *University of Chicago Research Paper No. 238*. Chicago: University of Chicago Press.

Price, Monroe and Robert Clinton. 1983. *Law and the American Indian: Readings, Note and Cases*. Charlottesville, VA: The Mitchie Company.

Reagan, T. 1983. *The Case for Animal Rights*. University of California Press. Berkley.

Reed, Maureen G. 1995. Cooperative management of environmental resources: A case study from Northern Ontario, Canada. *Economic Geography*. 71: 132-149.

Reiser, Marc. 1986. *Cadillac Desert*. New York: Viking Press.

Richey, Jeffery E. 2000. Spatial Techniques for Understanding Commons Issues. In *Protecting the Commons: A Framework for Resource Management in the Americas* eds. Burger, Joanna et al. Washington. Island Press.

Roberts, Rebecca S. and Jacque Emel. 1992. Uneven development and the tragedy of the commons: Competing images for nature-society analysis. *Economic Geography*. 68: 249-272.

Rose, Debra. 1991. International, National and Local Management for Sustainable Development: Sea Turtles as Common Property Resources. In *Public Policy Issues in Wildlife Management*. William R. Mangun, ed. Greenwood Press. New York.

Runge, C. Ford. 1983. Common Property and Collective Action in Economic Development. In *Common Property and Resource Management* prepared by Panel on Common Property Resource Management Board on Science and Technology for International Development Office of International Affairs National Research Council, 31-60. Washington, D.C.: National Academy Press.

Sack, Robert D. 1983. Human Territoriality: A theory. *Annals of the Association of American Geographers*. 73: 55-74.

Sack, Robert David. 1973. A concept of physical space in geography. *Geographical Analysis*. V: 16-34.

Saff, Grant. 1996. Claiming a space in a changing South Africa: The "squatters" of Marconi Beam. *Annals of the Association of American Geographers*. 86: 235-255.

Sampson, Don. May 10, 2000. Personal communication. Executive Director, Columbia River Intertribal Fish Commission. Portland, OR.

Sauer, C.O. 1925. The Morphology of Landscape. *University of California Publications in Geography*. Berkley and Los Angeles: University of California Press. 2: 19-53.

Schaefer, Fred K. 1953. Exceptionalism in Geography: A Methodological Examination. *Annals of the Association of American Geographers*. 43: 226-249.

Schlager, Edella and Elinor Ostrom. 1992. Property Rights Regimes and Natural Resources: A Conceptual Analysis. *Land Economics*. 68: 249-62.

Schlager, Edella and Elinor Ostrom. 1993. Property Rights Regimes and Coastal Fisheries: An Empirical Analysis. In *The Political Economy of Customs and Culture* edited by Terry Anderson and Randy Simmons, 13-41. Lanham: Rowman and Littlefield Publishers.

Schroeder, Richard A. 1997. "Re-claiming" land in The Gambia: Gendered property rights and environmental intervention. *Annals of the Association of American Geographers*. 87: 487-508.

Semple, Ellen Churchill. 1903. *American history and its geographic conditions*. Boston: Houghton and Mifflin.

Simmons, Randy T. and Krueter, Urs P. 1989. *Herd Mentality: Banning Ivory Sales is No Way to Save Elephants*. Policy Review. 50:46.

Snape, William J. III. 1995. International Protection: Beyond Human Boundaries. In *Biodiversity and the Law*. William J. Snape III ed., 81-91. Island Press. Washington, D.C.

Spatte, O.H.K. 1960. Quantity and quality in geography. *Annals of the Association of American Geographers*. 50 (4).

Sugg, Ike C. and Kreuter, Urs P. 1994. Elephants and Whales as Resources from the Noosphere. In *Elephants and whales: resources for whom?* Milton M.R. Freeman and Urs P. Kreuter eds, 17-37. Gordon and Breach Science Publishers. Basel, Switzerland.

Swainson, Neil A. 1986. The Columbia River Treaty-Where Do We Go From Here? *Natural Resources Journal* 26: 243-259.

Taffe, Edward J. 1974. The Spatial View in Context. *Annals of the Association of American Geographers*. 64: 1-16.

Teclaff, Ludwik A. 1996. Evolution of the River Basin Concept in National and International Water Law. *Natural Resources Journal*. 36: 359-391.

Tietenberg, Tom. 1992. *Environmental and Natural Resource Economics*. New York: HarperCollins Publishers.

Tilt, Whitney and Spotila, Jennifer. 1991. Wildlife Management or Animal Rights-Lessons from the Harp Seal. *Transactions of the North American Wildlife and Natural Resources Conference*. 409-422.

United Nations. December 10, 1982. *Convention on the Law of the Sea*. UN Doc. A/CONF.62/122 (1982), reprinted in United Nations, Official text of the United Nations Convention on the Law of the Sea with Annexes and Index, UN Sales No. E.83.V.5 (1983).

United Nations. March 18, 1985. *Treaty between the Government of Canada and the Government of the United States of America Concerning Pacific Salmon*. United Nations Treaty Series, 496: 357.

United Nations. September 16, 1964. *Treaty between the United States and Canada Relating to Cooperative Development of Water Resources of the Columbia River Basin*. United Nations Treaty Series 542: 244.

Watts, Michael. 1983. *Silent Violence: Food, Famine and Peasantry in Northern Nigeria*. Berkeley: University of California Press.

Wilkins, Bruce T. and Acquay, Herbert. 1991. Industrialized Fishery Policy Implications for Developing Countries' Structural Adjustment Programs. In *Public Policy Issues in Wildlife Management*. William R. Mangun, ed. Greenwood Press. New York.

Wilson, James, Robert Costanza, Bobbi S. Low, and Elinor Ostrom, Elinor. 2001. Scale misperceptions and the spatial dynamics of a social-ecological system. In *Institutions, Ecosystems, and Sustainability* edited by Robert Costanza, Bobbi S. Low, Elinor Ostrom and James Wilson. Boca Raton: Lewis Publishers.

Wolf, A. 1998. Conflict and Cooperation Along International Waterways. *Water Policy*. 1: 251-265.

Wolf, Aaron T. 1999. Criteria for equitable allocations: the heart of international water conflict. *Natural Resources Forum* 23: 3-30.

Wolf, Aaron, Shira Yoffe, and Mark Giordano. Forthcoming. Basins at Risk: The Determinants of Conflict and Cooperation over International Transboundary Waters. *Water Policy*.

Wolf, Aaron. February 12, 2001. Personal Communication.

Young, Emily. 2001. State Intervention and Abuse of the Commons: Fisheries Development in Baja California Sur, Mexico. *Annals of the Association of American Geographers*. 91: 283-306.

Young, Oran. 1996. Rights, rules, and resources in international society. In *Rights to Nature: Ecological, Economic, Cultural, and Political Principles of Institutions for the Environment* edited by Susan S. Hanna, Carl Folke, and Karl-Göran Mäler. Washington, D.C: Island Press.

Zimmerman, Erich. 1933. *World Resources and Industries*. Harper and Brothers. New York.

**Appendix: Wildlife Treaty Series**

WTS #	Treaty Name	Date	Citation
1351 WTS 1	Treaty between England and Castile	8/1/1351	5 Rymer, Foedera, p. 712
1353 WTS 1	Treaty between England and Portugal	10/20/1353	5 Rymer, Foedera, p. 763
1403 WTS 1	Treaty between England and France	6/27/1403	8 Rymer, Foedera p. 305
1407 WTS 1	Treaty between England and Burgandy	3/10/1407	8 Rymer, Foedera p. 469
1656 WTS 1	Treaty of Commerce between Great Britain and Sweden	7/17/1656	1901 ATS 100
1683 WTS 1	Treaty between France and Spain concerning the River Bidossoa	10/19/1683	4 F. Leonard, Recueil des traités de paix
1713 WTS 1	Treaty between Britain and France concerning Access Rights to the American North Atlantic	4/11/1713	1 De Clercq, Recueil des traités de la France, p.7
1751 WTS 1	Norwegian-Swedish Agreement Regarding Laplanders	10/2/1751	Codicil I, Recueil des traités de la Norvège, p. 584
1763 WTS 1	Treaty between Britain and France Concerning Access Rights to the American North Atlantic	2/10/1763	1 De Clercq, Recueil des traités de la France, p. 89
1783 WTS 1	Treaty between Britain and France Concerning Access Rights to the American North Atlantic	10/3/1783	1 De Clercq, Recueil des traités de la France, p. 126
1783 WTS 2	Treaty between Great Britain and the U.S. Concerning Access Rights to the American North Atlantic	10/3/1783	8 U.S. Stat. At L., . p. 80
1790 WTS 1	Nootka Sound Convention	10/28/1790	1 SP 385
1802 WTS 1	Treaty between Britain and France Concerning Access Rights to the American North Atlantic	3/27/1802	7 Martens, Recueil des principaux traités, p. 404
1814 WTS 1	Treaty between Britain and France Concerning Access Rights to the American North Atlantic	5/30/1814	1 SP 151
1815 WTS 1	Treaty between Britain and France Concerning Access Rights to the American North Atlantic	10/20/1815	3 SP 280
1818 WTS 1	Convention Respecting Fisheries, Boundary, and the Restoration of Slaves	10/20/1818	8 U.S. Stat. 248; TS 112; 12 Bevans 57
1824 WTS 1	Convention Regarding Navigation, Fishing, and Trading on the Pacific Ocean and along the Northwest Coast of America	4/17/1824	8 U.S. Stat. At L., p. 302; TS 298; 11 Bevans 1205
1825 WTS 1	Treaty between the U.K. and Russia Following the Ukase	2/16/1825	12 SP 38
1826 WTS 1	Convention between England and France Concerning Fishing in the English Channel	1/26/1826	13 SP 3

<b>WTS #</b>	<b>Treaty Name</b>	<b>Date</b>	<b>Citation</b>
1351 WTS 1	Treaty between England and Castile	8/1/1351	5 Rymer, Foedera, p. 712
1353 WTS 1	Treaty between England and Portugal	10/20/1353	5 Rymer, Foedera, p. 763
1403 WTS 1	Treaty between England and France	6/27/1403	8 Rymer, Foedera p. 305
1407 WTS 1	Treaty between England and Burgandy	3/10/1407	8 Rymer, Foedera p. 469
1656 WTS 1	Treaty of Commerce between Great Britain and Sweden	7/17/1656	1901 ATS 100
1683 WTS 1	Treaty between France and Spain concerning the River Bidossoa	10/19/1683	4 F. Leonard, Recueil des traités de paix
1713 WTS 1	Treaty between Britain and France concerning Access Rights to the American North Atlantic	4/11/1713	1 De Clercq, Recueil des traités de la France, p. 7
1751 WTS 1	Norwegian-Swedish Agreement Regarding Laplanders	10/2/1751	Codicil I, Recueil des traités de la Norvège, p. 584
1763 WTS 1	Treaty between Britain and France Concerning Access Rights to the American North Atlantic	2/10/1763	1 De Clercq, Recueil des traités de la France, p. 89
1783 WTS 1	Treaty between Britain and France Concerning Access Rights to the American North Atlantic	10/3/1783	1 De Clercq, Recueil des traités de la France, p. 126
1783 WTS 2	Treaty between Great Britain and the U.S. Concerning Access Rights to the American North Atlantic	10/3/1783	8 U.S. Stat. At L., p. 80
1790 WTS 1	Nootka Sound Convention	10/28/1790	1 SP 385
1802 WTS 1	Treaty between Britain and France Concerning Access Rights to the American North Atlantic	3/27/1802	7 Martens, Recueil des principaux traités, p. 404
1814 WTS 1	Treaty between Britain and France Concerning Access Rights to the American North Atlantic	5/30/1814	1 SP 151
1815 WTS 1	Treaty between Britain and France Concerning Access Rights to the American North Atlantic	10/20/1815	3 SP 280
1818 WTS 1	Convention Respecting Fisheries, Boundary, and the Restoration of Slaves	10/20/1818	8 U.S. Stat. 248; TS 112; 12 Bevans 57
1824 WTS 1	Convention Regarding Navigation, Fishing, and Trading on the Pacific Ocean and along the Northwest Coast of America	4/17/1824	8 U.S. Stat. At L., p. 302; TS 298; 11 Bevans 1205
1825 WTS 1	Treaty between the U.K. and Russia Following the Ukase	2/16/1825	12 SP 38
1826 WTS 1	Convention between England and France Concerning Fishing in the English Channel	1/26/1826	13 SP 3

WTS #	Treaty Name	Date	Citation
1351 WTS 1	Treaty between England and Castile	8/1/1351	5 Rymer, Foedera, p. 712
1353 WTS 1	Treaty between England and Portugal	10/20/1353	5 Rymer, Foedera, p. 763
1403 WTS 1	Treaty between England and France	6/27/1403	8 Rymer, Foedera p. 305
1407 WTS 1	Treaty between England and Burgandy	3/10/1407	8 Rymer, Foedera p. 469
1656 WTS 1	Treaty of Commerce between Great Britain and Sweden	7/17/1656	1901 ATS 100
1683 WTS 1	Treaty between France and Spain concerning the River Bidossoa	10/19/1683	4 F. Leonard, Recueil des traités de paix
1713 WTS 1	Treaty between Britain and France concerning Access Rights to the American North Atlantic	4/11/1713	1 De Clercq, Recueil des traités de la France, p. 7
1751 WTS 1	Norwegian-Swedish Agreement Regarding Laplanders	10/2/1751	Codicil I, Recueil des traités de la Norvège, p. 584
1763 WTS 1	Treaty between Britain and France Concerning Access Rights to the American North Atlantic	2/10/1763	1 De Clercq, Recueil des traités de la France, p. 89
1783 WTS 1	Treaty between Britain and France Concerning Access Rights to the American North Atlantic	10/3/1783	1 De Clercq, Recueil des traités de la France, p. 126
1783 WTS 2	Treaty between Great Britain and the U.S. Concerning Access Rights to the American North Atlantic	10/3/1783	8 U.S. Stat. At L., p. 80
1790 WTS 1	Nootka Sound Convention	10/28/1790	1 SP 385
1802 WTS 1	Treaty between Britain and France Concerning Access Rights to the American North Atlantic	3/27/1802	7 Martens, Recueil des principaux traités, p. 404
1814 WTS 1	Treaty between Britain and France Concerning Access Rights to the American North Atlantic	5/30/1814	1 SP 151
1815 WTS 1	Treaty between Britain and France Concerning Access Rights to the American North Atlantic	10/20/1815	3 SP 280
1818 WTS 1	Convention Respecting Fisheries, Boundary, and the Restoration of Slaves	10/20/1818	8 U.S. Stat. 248; TS 112; 12 Bevans 57
1824 WTS 1	Convention Regarding Navigation, Fishing, and Trading on the Pacific Ocean and along the Northwest Coast of America	4/17/1824	8 U.S. Stat. At L., p. 302; TS 298; 11 Bevans 1205
1825 WTS 1	Treaty between the U.K. and Russia Following the Ukase	2/16/1825	12 SP 38
1826 WTS 1	Convention between England and France Concerning Fishing in the English Channel	1/26/1826	13 SP 3

WTS #	Treaty Name	Date	Citation
1351 WTS 1	Treaty between England and Castile	8/1/1351	5 Rymer, Foedera, p. 712
1353 WTS 1	Treaty between England and Portugal	10/20/1353	5 Rymer, Foedera, p. 763
1403 WTS 1	Treaty between England and France	6/27/1403	8 Rymer, Foedera p. 305
1407 WTS 1	Treaty between England and Burgandy	3/10/1407	8 Rymer, Foedera p. 469
1656 WTS 1	Treaty of Commerce between Great Britain and Sweden	7/17/1656	1901 ATS 100
1683 WTS 1	Treaty between France and Spain concerning the River Bidossoa	10/19/1683	4 F. Leonard, Recueil des traités de paix
1713 WTS 1	Treaty between Britain and France concerning Access Rights to the American North Atlantic	4/11/1713	1 De Clercq, Recueil des traités de la France, p. 7
1751 WTS 1	Norwegian-Swedish Agreement Regarding Laplanders	10/2/1751	Codicil I, Recueil des traités de la Norvège, p. 584
1763 WTS 1	Treaty between Britain and France Concerning Access Rights to the American North Atlantic	2/10/1763	1 De Clercq, Recueil des traités de la France, p. 89
1783 WTS 1	Treaty between Britain and France Concerning Access Rights to the American North Atlantic	10/3/1783	1 De Clercq, Recueil des traités de la France, p. 126
1783 WTS 2	Treaty between Great Britain and the U.S. Concerning Access Rights to the American North Atlantic	10/3/1783	8 U.S. Stat. At L., p. 80
1790 WTS 1	Nootka Sound Convention	10/28/1790	1 SP 385
1802 WTS 1	Treaty between Britain and France Concerning Access Rights to the American North Atlantic	3/27/1802	7 Martens, Recueil des principaux traités, p. 404
1814 WTS 1	Treaty between Britain and France Concerning Access Rights to the American North Atlantic	5/30/1814	1 SP 151
1815 WTS 1	Treaty between Britain and France Concerning Access Rights to the American North Atlantic	10/20/1815	3 SP 280
1818 WTS 1	Convention Respecting Fisheries, Boundary, and the Restoration of Slaves	10/20/1818	8 U.S. Stat. 248; TS 112; 12 Bevans 57
1824 WTS 1	Convention Regarding Navigation, Fishing, and Trading on the Pacific Ocean and along the Northwest Coast of America	4/17/1824	8 U.S. Stat. At L., p. 302; TS 298; 11 Bevans 1205
1825 WTS 1	Treaty between the U.K. and Russia Following the Ukase	2/16/1825	12 SP 38
1826 WTS 1	Convention between England and France Concerning Fishing in the English Channel	1/26/1826	13 SP 3

WTS #	Treaty Name	Date	Citation
1351 WTS 1	Treaty between England and Castile	8/1/1351	5 Rymer, Foedera, p. 712
1353 WTS 1	Treaty between England and Portugal	10/20/1353	5 Rymer, Foedera, p. 763
1403 WTS 1	Treaty between England and France	6/27/1403	8 Rymer, Foedera p. 305
1407 WTS 1	Treaty between England and Burgandy	3/10/1407	8 Rymer, Foedera p. 469
1656 WTS 1	Treaty of Commerce between Great Britain and Sweden	7/17/1656	1901 ATS 100
1683 WTS 1	Treaty between France and Spain concerning the River Bidossoa	10/19/1683	4 F. Leonard, Recueil des traités de paix
1713 WTS 1	Treaty between Britain and France concerning Access Rights to the American North Atlantic	4/11/1713	1 De Clercq, Recueil des traités de la France, p.7
1751 WTS 1	Norwegian-Swedish Agreement Regarding Laplanders	10/2/1751	Codicil I, Recueil des traités de la Norvège, p. 584
1763 WTS 1	Treaty between Britain and France Concerning Access Rights to the American North Atlantic	2/10/1763	1 De Clercq, Recueil des traités de la France, p. 89
1783 WTS 1	Treaty between Britain and France Concerning Access Rights to the American North Atlantic	10/3/1783	1 De Clercq, Recueil des traités de la France, p. 126
1783 WTS 2	Treaty between Great Britain and the U.S. Concerning Access Rights to the American North Atlantic	10/3/1783	8 U.S. Stat. At L., p. 80
1790 WTS 1	Nootka Sound Convention	10/28/1790	1 SP 385
1802 WTS 1	Treaty between Britain and France Concerning Access Rights to the American North Atlantic	3/27/1802	7 Martens, Recueil des principaux traités, p. 404
1814 WTS 1	Treaty between Britain and France Concerning Access Rights to the American North Atlantic	5/30/1814	1 SP 151
1815 WTS 1	Treaty between Britain and France Concerning Access Rights to the American North Atlantic	10/20/1815	3 SP 280
1818 WTS 1	Convention Respecting Fisheries, Boundary, and the Restoration of Slaves	10/20/1818	8 U.S. Stat. 248; TS 112; 12 Bevans 57
1824 WTS 1	Convention Regarding Navigation, Fishing, and Trading on the Pacific Ocean and along the Northwest Coast of America	4/17/1824	8 U.S. Stat. At L., p. 302; TS 298; 11 Bevans 1205
1825 WTS 1	Treaty between the U.K. and Russia Following the Ukase	2/16/1825	12 SP 38
1826 WTS 1	Convention between England and France Concerning Fishing in the English Channel	1/26/1826	13 SP 3

WTS #	Treaty Name	Date	Citation
1826 WTS 2	Norwegian-Russian Agreement Regarding Laplanders		6 Martens, Nouveau recueil de traités, p. 1014
1831 WTS 1	Belgium-Netherlands Scheldt Agreement	11/15/1831	18 SP 645
1834 WTS 1	Norwegian-Russian Agreement Regarding Laplanders		Recueil des traités de la Norvège, p. 536
1839 WTS 1	Belgium-Netherlands Scheldt Agreement	4/19/1839	27 SP 990
1839 WTS 2	Convention between England and France Concerning Fishing in the English Channel	8/2/1839	27 SP 983
1843 WTS 1	Agreement between England and France Concerning a Three Mile Limit	5/24/1843	31 SP 165
1843 WTS 2	Convention between England and France Concerning Fishing in the English Channel	6/26/1843	31 SP 190
1843 WTS 3	Belgium-Netherlands Scheldt Agreement	5/20/1843	37 SP 1248
1845 WTS 1	Convention between England and France Concerning Fishing in the English Channel	12/1/1845	8 Martens, NRG, 1 sér., p. 658
1854 WTS 1	Treaty between Great Britain and the U.S. Concerning Access Rights to the American North Atlantic	6/5/1854	10 U.S. Stat. At L., p. 108
1856 WTS 1	Convention of the Pyrennes	12/2/1856	47 SP 765
1857 WTS 1	Newfoundland Fisheries Convention	1/14/1857	47 SP 12
1859 WTS 1	Franco-Spanish Bidassoa Agreement	3/31/1859	50 SP 1006
1867 WTS 1	Agreement between England and France Concerning a Three Mile Limit	11/11/1867	
1869 WTS 1	Convention Concerning Fishing in the Rhine between Constance and Basel	12/9/1869	20 Martens (1er) 166
1870 WTS 1	Additional Article re the Fishery in the Great Lake of Cambodia	7/17/1870	70 SP 291
1871 WTS 1	Treaty between Great Britain and the U.S. Concerning Access Rights to the American North Atlantic	5/8/1871	17 U.S. Stat. At L., p. 863
1875 WTS 1	Convention Concerning Fishing in the Rhine and its Influxes as well as in Lake Constance	3/25/1875	2 Martens (2e) 60
1878 WTS 1	Spanish-Portuguese Treaty on Spanish Fishing Access	7/14/1878	7 Olivart, Colección de los tratados, p. 387
1878 WTS 2	Treaty between Italy and Austria-Hungary Concerning Commerce and Navigation on the Dalmatian Coast	12/27/1878	69 SP 1270
1880 WTS 1	Convention to Regulate Fishing in the Frontier Waters	12/28/1880	12 De Clercq 619
1880 WTS 2	Convention Concerning the Furtherance of Uniform Regulations for the Protection and Promotion of Fisheries	1/19/1880	12 Martens (3e) 83

WTS #	Treaty Name	Date	Citation
1881 WTS 1	Treaty between Italy and France Concerning Access Rights to Algerian Waters	10/3/1881	8 Martens, NRG, 2 sér., p 525
1882 WTS 1	Convention to Regulate Fishing in the Frontier Waters	11/3/1882	9 Martens (2e) 564
1882 WTS 2	International Convention for Regulating the Police of the North Seas Fishery	5/6/1882	73 SP39; Martens, NRG, 2d 9:556; Fleischmann 178; Strupp 2:219; Busschere 2:63
1883 WTS 1	Convention to Regulate Fishing in Lake Garda	8/9/1883	11 Martens (2e)
1883 WTS 2	Japan-Korea Fishing Agreement	7/27/1883	74 SP 151
1883 WTS 3	Spanish-Portuguese Treaty on Spanish Fishing Access	12/12/1883	74 SP 328
1884 WTS 1	Treaty between Italy and Austria-Hungary Concerning Commerce and Navigation on the Dalmatian Coast	5/11/1884	Imbart de Latour, La Mer Territoriale, p. 163
1885 WTS 1	Spanish-Portuguese Treaty on Spanish Fishing Access	10/2/1885	77 SP 1181
1886 WTS 1	Franco-Spanish Bidassoa Agreement	2/18/1886	77 SP 1037
1887 WTS 1	Treaty Concerning Regulation of High Seas Fisheries	10/18/1887	79 SP 894
1887 WTS 2	Treaty Concerning the Jan Mayen Seal Fishery		73 SP 282; 70 SP 368
1887 WTS 3	Convention with Protocol Concerning Regulation of Fishing in the Rhine and its Tributaries including Lake Constance	5/18/1887	14 BSBGV (Schw.) 225
1888 WTS 1	Declaration modifying the Convention of Dec. 28, 1880, Regulating the Frontier Fisheries, and Abrogating the Arrangement of Dec. 9, 1884	4/14/1888	14 Martens NRG 2d Series 410
1888 WTS 2	Franco-Spanish Bidassoa Agreement	1/19/1888	3 Martens, NRG, 3 sér., p. 253
1891 WTS 1	Treaty between Italy and Austria-Hungary Concerning Commerce and Navigation on the Dalmatian Coast	12/6/1891	83 SP 588
1891 WTS 2	Bilateral Treaty to Protect Northern Fur Seals		
1892 WTS 1	Convention Concerning the Regulation of Fishing in the Boundary Waters	11/5/1892	24 Martens (2e)
1892 WTS 2	Convention Concerning Fur Seals in Bering Sea	2/29/1892	84 SP 48
1893 WTS 1	Regulations for Fishing in the Mino River, Drawn up by a Mixed Spanish-Portuguese Commission Pursuant to Article 5 of Appendix 6 to the Treaty of Commerce and Navigation between Spain and Portugal of 27.3.1893	5/15/1893	

WTS #	Treaty Name	Date	Citation
1893 WTS 2	Spanish-Portuguese Treaty on Spanish Fishing Access	10/27/1893	F. López y Medina, Colección de tratados internacionales, ordenanzas, y reglamentos de pesca, p. 487
1893 WTS 3	Spanish-Portuguese Treaty on Spanish Fishing Access	3/27/1893	85 SP 416
1893 WTS 4	Convention Decreeing Uniform Regulations for Fishing in Lake Constance	7/5/1893	14 BSBGV (Schw.) 218
1893 WTS 5	Bering Sea Arbitration		
1894 WTS 1	Franco-Spanish Bidassoa Agreement	10/4/1894	7 Martens, NRG, 3 sér., p. 421
1897 WTS 1	Convention Concerning Fishing in Lower Lake Constance and the Rhine, with Regulations	7/3/1897	14 BSBGV 9S(Schw.) 225
1899 WTS 1	Convention between Denmark and Sweden Concerning Fisheries in the Sound	7/14/1899	104 SP 912
1900 WTS 1	Convention for the Preservation of Wild Animals, Birds and Fish in Africa	5/19/1900	Martens NRG 2d Series 30:430;94 BFSP 715
1901 WTS 1	Convention between the Governments of Denmark and the United Kingdom for Regulating the Fisheries of Their Respective Subjects Outside the Territorial Waters in the Ocean Surrounding the Faroe Islands	6/24/1901	94 SP 29; 23 Hertslet Commercial Treaties 425; De Martens, deuxième serie, tome 33, p. 268.
1901 WTS 2	Russian-Romanian Treaty on the Pruth and Danube	2/22/1901	30 Martens, NRG, 2 sér., p. 487; 101 SP 569
1902 WTS 1	Convention for the Protection of Birds Useful to Agriculture	3/19/1902	
1904 WTS 1	Treaty between Britain and France Concerning Access Rights to the American North Atlantic	4/8/1904	97 SP 31
1904 WTS 2	Convention for the Regulation of Fishing in Frontier waters	3/9/1904	33 Martens (2e)
1905 WTS 1	Agreement between Britain and France Concerning New Foundland Fisheries	4/7/1905	98 SP 49
1906 WTS 1	Franco-Spanish Bidassoa Agreement	6/9/1906	7 Martens, NRG, 3 sér., p. 422
1906 WTS 2	Treaty between Italy and Egypt Concerning Access Rights to Egyptian Waters	7/14/1906	100 SP 867
1906 WTS 3	Agreement between Great Britain and the U.S. Concerning New Foundland Fisheries	10/8/1906	1 Malloy U.S. Treaties 805
1906 WTS 4	Convention Concerning Uniform Regulations of Fishing in Frontier Waters	6/13/1906	14 BSBGV (Schw.) 263

WTS #	Treaty Name	Date	Citation
1906 WTS 5	Treaty between Italy and Austria-Hungary Concerning Commerce and Navigation on the Dalmatian Coast	2/11/1906	35 Martens NRG, 2 sér., p 30
1907 WTS 1	Convention between Denmark and Sweden Concerning Fisheries in the Sound	10/5/1907	6 Martens, NRG, 3 sér., p. 586
1907 WTS 2	Treaty between Japan and Russia Concerning Access Rights to Siberia	7/28/1907	101 SP 453
1907 WTS 3	Russian-Romanian Treaty on the Pruth and Danube	10/29/1907	101 SP 569
1907 WTS 4	Agreement Effected by Exchange of Note Concerning the Newfoundland Fishery	10/4/1907	100 SP 588
1908 WTS 1	Japan-Korea Fishing Agreement	10/31/1908	101 SP 1032
1908 WTS 2	Treaty between Sardinia and Corsica Delimiting Fisheries	1/18/1908	101 SP 1059
1908 WTS 3	Franco-Spanish Bidassoa Agreement	4/6/1908	3 Martens, NRG, 3 sér., p. 256
1908 WTS 4	Fisheries Agreement between Great Britain and The U.S.	4/11/1908	101 SP 210
1908 WTS 5	Special Agreement on Arbitration of Disputes Concerning Fisheries on the North Atlantic Coast	1/27/1909	102 SP 145
1908 WTS 6	Convention between Rumania and Serbia Concerning Danube Fisheries	3/11/1908	102 SP 791
1911 WTS 1	Treaty for the Preservation and Protection of Fur Seals	2/7/1911	37 U.S. Stat. At L., p. 1538
1911 WTS 2	Convention Respecting Measures for the Preservation and Protection of Fur Seals in the North Pacific Ocean	7/7/1911	37 U.S. Stat. At L., p. 1542
1912 WTS 1	Agreement Adopting, with Certain Modifications, the Rules and Method of Procedure Recommended in the Award of September 7, 1910, of the North Atlantic Coast Fisheries Arbitration	7/20/1912	37 Stat. 1634; TS 572; 12 Bevans
1913 WTS 1	Franco-Spanish Bidassoa Agreement	10/27/1913	France, Bulletin des lois, 129 Nouveau serie, no.
1916 WTS 1	Convention for the Protection of Migratory Birds	8/16/1916	39 Stat. 1702, TS 628, 12 Bevans
1916 WTS 2	Treaty on Turtle Fishing in Nicaraguan Waters by Cayman	4/29/1916	Great Britain Treaty Series 1917 No. 8 (Cd. 8586)
1920 WTS 1	Convention Regarding the Organization of the Campaign Against Locusts	10/31/1920	164 LNTS 85
1920 WTS 2	Exchange of Notes Constituting an Agreement on the Subject of Adoption of Rules for the Fisheries at the Tana Watercourse		1 LNTS 326
1920 WTS 3	Treaty Concerning Fishing in the Spitzbergen	2/9/1920	2 LNTS 8
1921 WTS 1	Agreement Concluded between the Delegates of the Kingdom of Italy and the Kingdom of the Serbs, Croats and Slovenes, Regarding a Draft Convention for the Regulation of Fishing in the	9/14/1921	19 LNTS 14

WTS #	Treaty Name	Date	Citation
1921 WTS 2	Danzig-Poland Interim Treaty Concerning Salmon	10/24/1921	
1922 WTS 1	Agreement regarding Common Fishery Rights in the Flensburg	4/10/1922	10 LNTS 72
1922 WTS 2	Convention between the Republic of Finland and the Russian Socialist Federal Soviet Republic Concerning the Maintenance of River Channels and the Regulation of Fishing on Water Courses Forming Part of the Frontier between Finland and Russia	10/28/1922	19 LNTS 194
1922 WTS 3	Convention between the Republic of Finland and the Russian Socialist Federal Soviet Republic Regarding Fishing Regulations in the Gulf of Finland	9/20/1922	19 LNTS 144
1922 WTS 4	Agreement Between Finland and the U.S.S.R. Concerning Fishing and Sealing		
1922 WTS 5	Convention between Finland and Russia Regarding Fishing and Sealing in the Territorial Waters of Both Countries, in the Arctic Ocean	9/21/1922	29 LNTS 198
1922 WTS 6	Treaty Concerning Fishing in the Waters off East Greenland	10/21/1922	29 LNTS 197
1922 WTS 7	German-Danish Treaty Concerning Fishing in North Schleswig	1/25/1922	10 LNTS 73
1922 WTS 8	Convention between Finland and Russia in Regard to Fishing and Sealing on Lake Ladoga	10/28/1922	29 LNTS 212
1922 WTS 9	Agreement between Italy and the Kingdom of Serbs, Croates and Slovenes Concerning Fishing in the Adriatic	7/14/1922	19 LNTS 13
1923 WTS 1	Convention between the United States of America and Canada for the Preservation of the Halibut Fisheries of the Northern Pacific Ocean	3/2/1923	32 LNTS 94
1923 WTS 2	Declaration by the British and French Governments Respecting Oyster Fisheries Outside Territorial Waters in the Seas Lying between the Coasts of Great Britain and Those of France	9/29/1923	21 LNTS 138
1924 WTS 1	Franco-Spanish Bidassoa Agreement	6/2/1924	France, Journal Officiel, June 4, 1926
1924 WTS 2	Treaty between Italy and Albania Concerning Access Rights to Albanian Waters	1/20/1924	44 LNTS 359
1924 WTS 3	Convention between Denmark and Norway Concerning East Greenland	9/7/1924	27 LNTS 203
1925 WTS 1	Agreement between Italy and the Kingdom of Serbs, Croates and Slovenes Concerning Fishing in the Adriatic	7/20/1925	83 LNTS 87
1925 WTS 2	Convention between the United States of America and Mexico to Prevent Smuggling and for Certain Other Objects	12/23/1925	48 LNTS 443
1925 WTS 3	Convention between Estonia and Latvia for the Protection of Fish and the Regulation of Fishing	10/28/1925	54 LNTS 231
1925 WTS 4	Germany-U.S.S.R. Agreement	10/12/1925	53 LNTS 7
1925 WTS 5	Treaty between Japan and Russia Concerning Access Rights to Siberia	1/20/1925	15 Martens, NRG, 3 sér., p. 323

<b>WTS #</b>	<b>Treaty Name</b>	<b>Date</b>	<b>Citation</b>
1926 WTS 1	Agreement between Iraq, Palestine, Syria, Transjordan and Turkey, Concerning the Creation of an International Office for Information Regarding Locusts	5/20/1926	109 LNTS 121
1926 WTS 2	Treaty between Italy and Greece Concerning Access Rights to Greek Waters	11/24/1926	63 LNTS 91
1926 WTS 3	Convention between French Indo-China and Siam Concerning the Relations between the Two Nations	8/25/1926	69 LNTS 313
1926 WTS 4	Exchange of Notes between the German and Danish Governments, Relating to the Fishing in the Flensborg Fjord, Established in Pursuance of articles 3 and 4 of the agreement of April 10, 1922	1/25/1926	44 LNTS 389
1927 WTS 1	Convention between the Republic of Finland and the Kingdom of Sweden Concerning the Joint Exploitation of the Salmon Fisheries in the Tomea (Tomio) and Muonio Rivers	5/10/1927	70 LNTS 201
1927 WTS 2	Agreement between Germany and Poland, Regarding the Regulation of Fishing in Boundary Waters	12/10/1927	120 LNTS 299
1927 WTS 3	Agreement between Persia and the Union of Soviet Socialist Republics Regarding the Exploitation of the Fisheries on the Southern Shore of the Caspian Sea	10/1/1927	112 LNTS 297
1928 WTS 1	Treaty between Japan and Russia Concerning Access Rights to Siberia	1/23/1928	80 LNTS 341
1928 WTS 2	Convention between the German Reich and the Lithuanian Republic Relating to Fishing in the Kurische Haff, the Skirwieth, Russ and Memel Rivers and in the Wystit Lake, the Lepone, Schirwidt and Scheschuppe Rivers	1/29/1928	89 LNTS 309
1928 WTS 3	Arrangement Respecting the Status of Serana and Quita Sueño Banks and Roncador Cay	4/10/1928	TS 760.5; 6 Bevans 904
1928 WTS 4	Convention between the Polish Republic and the Czechoslovak Republic Regarding Fishing and the Preservation of Fish in Frontier Waters and in the Waters of Their Basins	2/18/1928	119 LNTS 385
1928 WTS 5	Agreement between His Majesty's Governments in the United Kingdom and the Irish Free State and the French government, Regarding the Limits of French Fisheries in Granvil Bay	12/20/1928	86 LNTS 429
1929 WTS 6	Agreement Regarding the Regulation of Plaice ("Pleuronectes platessa") and Flounder ("Pleuronectes flesus") Fishing in the	12/17/1929	115 LNTS 93
1930 WTS 1	Convention between the United States of America and Canada for the Protection, Preservation and Extension of the Sockeye Salmon Fisheries in the Fraser River	5/26/30	184 LNTS 305
1930 WTS 2	Temporary agreement between the Governments of the United Kingdom and of the Union of Soviet Socialist Republics, for the Exultation of the Fisheries in Waters Contiguous to the Northern Coasts of the Territory of the U.S.S.R.	5/22/30	102 LNTS 103
1930 WTS 3	Convention between the United States of America and Canada, for the Preservation of the Halibut Fishery of the Northern Pacific Ocean and Bering Sea	5/9/30	121 LNTS 45
1930 WTS 4	Treaty Concerning Fishing in the Otto Sverdrup Islands	11/5/30	24 Martens, NRG, 3 sér., p. 345

WTS #	Treaty Name	Date	Citation
1931 WTS 1	Convention for the Regulation of Whaling	9/24/31	155 LNTS 349
1931 WTS 2	Agreement between Denmark and Sweden Regarding Certain Provisions for the Protection of Migratory Game-birds	10/9/31	126 LNTS 255
1931 WTS 3	Convention between Latvia and Lithuania Relating to Fishing in Boundary Waters	1/25/31	118 LNTS 175
1932 WTS 1	Convention between Denmark, Norway and Sweden concerning the Preservation of Plaice in the Skagerak, Kattegat and Sound	12/31/32	139 LNTS 189
1932 WTS 2	Exchange of Notes between His Majesty's Government in the United Kingdom and the Italian Government Constituting an Agreement for the Control of Illicit Traffic in Ivory and Rhino Horn across the Frontiers of Kenya Colony and Italian	11/26/32	136 LNTS 385
1932 WTS 3	Convention between Denmark and Sweden with Regard to Fishing in the Waters Bordering on the Two Countries	12/31/32	139 LNTS 205
1932 WTS 4	Treaty between Japan and Russia Concerning Access Rights to Siberia	8/14/32	
1933 WTS 1	Temporary Fisheries Convention	5/22/33	Great Britain, Treaty Series No. 22 [1933]
1933 WTS 2	Convention Relative to the Preservation of Fauna and Flora in the Nature State	8/10/33	172 UNTS 72
1934 WTS 1	Agreement between His Majesty's Government in the United Kingdom and the Norwegian Government Regarding Claims in Respect of Damage to Fishing Gear	11/5/34	154 LNTS 231
1934 WTS 2	Convention between Finland and the Union of Soviet Socialist Republics Concerning Fishing and Sealing in Lake Ladoga	5/25/34	155 LNTS 207
1934 WTS 3	Agreement between the Kingdom of Hungary and the Czechoslovak Republic Concerning the Fixing of a Uniform General Closed Season for Fishing and the Conditions for the Authorization of Night Fishing in the CzechoslovakHungarian	6/8/34	172 LNTS 61
1935 WTS 1	Agreement between the Government of his Majesty the King of Afghanistan and the Government of the Union of Soviet Socialist Republics Regarding the Campaign against Locusts in the Territories of the Contracting Parties	5/6/35	164 LNTS 338
1936 WTS 1	Convention between the United States of America and the United States of Mexico for the Protection of Migratory Birds and Game Mammals	2/7/36	178 LNTS 309
1937 WTS 2	Protocol of Exchange of Ratifications	7/28/37	184 LNTS 305
1937 WTS 3	International Agreement for the Regulation of Whaling	6/8/37	190 LNTS 79
1937 WTS 4	Convention between Denmark, Norway and Sweden Concerning the Preservation of Plaice and Dab in the Skagerrak, Kattegat and	9/6/37	186 LNTS 419
1938 WTS 1	Convention between Finland and Norway Regarding New Regulations for Fishing in the Tana River (Tanaelva)	4/21/38	188 LNTS 231
1938 WTS 2	Convention between Finland and Norway Regarding New Regulations for Fishing in the Pasvik River (Pasvikelva)	4/21/38	188 LNTS 213

WTS #	Treaty Name	Date	Citation
1939 WTS 1	Agreement between Iceland and Norway Regarding Norwegian Herring Fisheries on the Icelandic Coast and the Importation of Mutton from Iceland into Norway	2/27/39	196 LNTS 377
1940 WTS 1	Convention on Nature Protection and Wild Life Preservation in the Western Hemisphere	10/12/40	161 UNTS 193
1940 WTS 2	Exchange of Notes between the Government of the United States of America and the Government of Canada Constituting an Agreement Concerning the Establishment of an International Board of Inquiry for the Great Lakes Fisheries	2/29/40	203 LNTS 119
1945 WTS 1	Protocol to the International Agreement for the Regulation of Whaling	10/26/45	
1946 WTS 1	International Convention for the Regulation of Whaling	12/2/46	161 UNTS 72
1946 WTS 2	Convention for the Regulation of the Meshes of Fishing Nets and the Size Limits of Fish	4/5/46	UNTS 3221
1948 WTS 1	Agreement between Norway and Sweden Concerning Certain Questions Relating to Fisheries	4/29/48	UNTS 379
1948 WTS 2	Agreement for the Establishment of the Indo-Pacific Fisheries Council	2/26/48	TIAS 1895; UNTS 1615
1948 WTS 3	Agreement for the Establishment of the Asia-Pacific Fishery Commission [as amended]		
1948 WTS 4	Agreement Establishing the South Pacific Commission	2/6/47	ATS 1948 no. 15
1948 WTS 5	Exchange of Notes Constituting an Arrangement to Facilitate the Settlement of Disputes Arising at Sea between Belgian and Danish Fishermen Outside Territorial Waters	12/30/48	UNTS 362
1949 WTS 1	Convention for the Establishment of an Inter-American Tropical Tuna Commission	5/31/49	80 UNTS 3
1949 WTS 2	Agreement for the Establishment of a General Fisheries Commission for the Mediterranean	9/24/49	126 UNTS 237; UNTS 1691
1949 WTS 3	Convention for the Regulation of the Meshes of Fishing Nets and the Size Limits of Fish	4/5/49	
1949 WTS 4	International Convention for the Northwest Atlantic Fisheries	2/8/49	157 UNTS 157; 1 UST 477; UNTS 2053
1949 WTS 5	Agreement between the Government of the Federal People's Republic of Yugoslavia and the Government of the Republic of Italy Regarding Fishing by Italian Fishermen in Yugoslav Waters	4/13/49	UNTS 2232
1949 WTS 6	International Convention for the Permanent Control of Outbreak Areas of the Red Locust	2/22/49	UNTS 1296
1949 WTS 7	Convention between Norway and Sweden Concerning the Establishment of Joint Regulations for Salmon and Sea Trout Fishing etc. in Iddefjord and Svinesund	1/28/49	UNTS 2617
1950 WTS 1	International Convention for the Protection of Birds	10/18/50	638 UNTS 186

WTS #	Treaty Name	Date	Citation
1950 WTS 2	Convention between the United States of America and Canada for the Extension of Port Privileges to Halibut Fishing Vessels on the Pacific Coasts of the United States of America and Canada	3/24/50	200 UNTS 211
1951 WTS 1	Agreement Regarding Claims in Respect of Damage to Fishing	5/7/51	
1951 WTS 2	Agreement between the Government of the United Kingdom of Great Britain and Northern Ireland and the Government of the French Republic Regarding Rights of Fishery in Areas of the Ecrehos and Minquiers	1/30/51	121 UNTS 97; UNTS 1629
1952 WTS 1	Agreement between the Kingdom of Norway and the Kingdom of Denmark Regarding Claims in Respect of Damage to Fishing Gear	1/14/52	UNTS 1618
1952 WTS 2	Exchange of Notes Constituting and Agreement Relating to a Co-operative Program of Locust and Other Insect Control	11/5/52	UNTS 2445
1952 WTS 3	International Convention for the High Seas Fisheries of the North Pacific Ocean	5/9/52	205 UNTS 65
1952 WTS 4	Regulations for Maritime Hunting Operations in the Waters of the South Pacific	8/18/52	1006 UNTS 306
1952 WTS 5	Joint Declaration Concerning Fishing Problems in the South	8/18/52	1006 UNTS 318
1952 WTS 6	Agreement Concerning Measures for the Protection of the Stocks of Deep-Sea Prawns ( <i>Pandalus borealis</i> ), European Lobsters ( <i>Homarus vulgaris</i> ), Norway Lobsters ( <i>Nephrops norvegicus</i> ) and Crabs ( <i>Cancer pagurus</i> )	3/7/52	175 UNTS 205; UNTS 2302
1952 WTS 7	African Migratory Locust Convention	5/15/52	UNTS 10476
1953 WTS 1	Agreement between Norway and Finland Regarding Fishing Regulations for the Fishing Area of the Tana River	5/20/53	173 UNTS 176
1953 WTS 2	Convention for the Preservation of the Halibut Fishery of the North Pacific Ocean and the Bering Sea	3/2/53	222 UNTS 77
1954 WTS 1	Convention between the United States of America and Canada on the Great Lakes Fisheries	9/10/54	238 UNTS 97; UNTS 3355
1954 WTS 2 UNTS	Agreement between the Government of Australia and the Government of Japan on a Provisional Regime to Regulate Pearling by Japanese Nationals Pending the Final Decision ... in the Dispute Concerning the Application to Japanese of the Pearl	5/24/54	1954 ATS 4; 2580
1954 WTS 3	Exchange of Notes Constituting an Agreement Abrogating the Additional Article of the Convention of 24 June 1901 between Denmark and the UK for Regulating the Fisheries of Their Respective Subjects Outside the Territorial Waters in the Faroe Islands	7/23/54	UNTS 2894
1955 WTS 1	Agreement Relating to the International Convention for Regulating the Police of the North Seas Fishery Signed at The Hague on 6 May 1882	6/3/55	UNTS 4491
1955 WTS 2	Additional Clause to the Convention of 18.2.1886 Relating to Fishing in the Bidassca	7/23/55	60 RGDIP 146
1956 WTS 1	Agreement on Fisheries between the USSR and the UK	5/25/56	

WTS #	Treaty Name	Date	Citation
1956 WTS 2	Agreement concerning Water Economy Questions, Together with the State of the Yugoslav-Albanian Economic Commissions and with Protocol Concerning Fishing in Frontier Lakes and Rivers	12/5/56	Leg. Ser. 441
1956 WTS 3	International Convention for the Northwest Atlantic Fisheries	6/25/56	10 UST 59; TIAS 4170; 157 UNTS 157
1956 WTS 4	Protocol to the Convention for the Protection, Preservation and Extension of the Sockeye Salmon Fisheries in the Fraser River System Signed at Washington on 26 May 1930	12/28/56	8 UST 1057; TIAS 3867; TAOI 746; UNTS 4229
1957 WTS 1	Interim Convention on Conservation of North Pacific Fur Seals	2/9/57	8 UST 2283; TIAS 3948
1957 WTS 2	Agreement Concerning Fishing in Frontier Waters	5/25/57	Leg. Ser. 836
1957 WTS 3	Agreement on Measures to Regulate Sealing and to Protect Seal Stocks in the Northeastern Part of the Atlantic Ocean		
1958 WTS 1	Agreement Concerning Common Fishing in the Inner Flensburg Fjord	5/29/58	
1958 WTS 2	Agreement between the Government of the Italian Republic and the Government of the Federal People's Republic of Yugoslavia Regarding Fishing by Italian Fishermen in Yugoslav Waters	11/20/58	UNTS 5433
1958 WTS 3	Convention Concerning Fishing in the Waters of the Danube	1/29/58	339 UNTS 58
1958 WTS 4	Convention between the United States of America and Cuba for the Conservation of Shrimp	8/15/58	UNTS 5124; TIAS 4321
1958 WTS 5	Convention on Fishing and Conservation of the Living Resources of the High Seas	4/29/58	559 UNTS 285
1958 WTS 6	Convention on the Territorial Sea and the Contiguous Zone	4/29/58	516 UNTS 205
1958 WTS 7	Exchange of Notes Constituting an Agreement between the Government of the United Kingdom of Great Britain and Northern Ireland and the Food and Agriculture Organization Establishing an International Desert Locust Information Service	3/26/58	UNTS 9177
1958 WTS 8	Convention on the High Seas	4/29/58	450 UNTS 82
1959 WTS 1	Convention Concerning Fishing in the Bidassoa River and in the Bay of Higer	7/14/59	1080 UNTS 316
1959 WTS 2	Agreement between the Government of the Union of Soviet Socialist Republics and the Government of the Republic of Finland Regarding Fishing and Sealing	2/21/59	338 UNTS 3; UNTS 4830
1959 WTS 3	Convention between the Governments of The People's Republic of Bulgaria, The Romanian People's Republic and the Union of Soviet Socialist Republics Concerning Fishing in the Black Sea	7/7/59	377 UNTS 203; UNTS 5402
1959 WTS 4	Agreement between the Norwegian Government and the Government of the Union of Soviet Socialist Republics Concerning the Handling of Claims in Connection with Damage	12/9/59	361 UNTS 93; UNTS 5173
1959 WTS 5	Amendment to Agreement Between Finland and the U.S.S.R. Concerning Fishing and Sealing		

<b>WTS #</b>	<b>Treaty Name</b>	<b>Date</b>	<b>Citation</b>
1959 WTS 6	Northeast Atlantic Fisheries Convention	1/24/59	486 UNTS 157
1960 WTS 1	Agreement between Norway and Finland Regarding Fishing Regulations for the Fishing Area of the Tana River	11/15/60	383 UNTS 178
1960 WTS 2	Fishery Agreement between the Government of the United Kingdom of Great Britain and Northern Ireland and the Government of the Kingdom of Norway	11/17/60	UNTS 5723
1961 WTS 1	Exchange of Notes Constituting an Agreement Settling the Fisheries Dispute between the Government of Iceland and the Government of the United Kingdom of Great Britain and Northern	11/17/61	
1961 WTS 2	Exchange of Notes Constituting an Agreement between the Government of Iceland and the Government of the Federal Republic of Germany Concerning the Fishery Zone around	7/19/61	UNTS 5877
1961 WTS 3	Exchange of Notes Constituting an Agreement between the Government of the United Kingdom of Great Britain and Northern Ireland and the Food and Agriculture Organization Concerning the Locust Information Service	2/20/61	UNTS 9178
1961 WTS 4	Exchange of Notes Constituting an Agreement between Denmark and Iceland on the Access of Faroese Fishermen to Engage in Hand-line Fishing off Iceland	8/1/61	425 UNTS 191; UNTS 6124
1961 WTS 5	Exchange of Notes Constituting an Agreement between Iceland and the United Kingdom of Great Britain and Northern Ireland Settling the Fisheries Dispute between the Government of Iceland and the U.K. and Iceland	3/11/61	UNTS 5710
1962 WTS 1	Agreement between the Government's of the German Democratic Republic, the Polish People's Republic and the U.S.S.R. concerning Co-operation in Marine Fishing	7/28/62	460 UNTS 219; UNTS 6642
1962 WTS 2	Agreement on Fishing between the Government of the Union of Soviet Socialist Republics and the Government of the Kingdom of Norway	4/16/62	UNTS 6307
1962 WTS 3	Agreement Concerning Protection of the Salmon Stock in the Baltic Sea	12/20/62	955 UNTS 259
1962 WTS 4	Convention of the African migratory Locust Organization	5/25/62	486 UNTS 103
1963 WTS 1	Agreement for the Establishment of a Commission for Controlling the Desert Locust in the Eastern Region of its Distribution Area in South-West Asia	12/3/63	529 UNTS 217
1963 WTS 2	Protocol to the International Convention for the Northwest Atlantic Fisheries Relating to Harp and Hood Seals	7/15/63	17 UST 635; TIAS 6011
1964 WTS 1	Agreed Measures for the Conservation of Antarctic Fauna and	6/2/64	
1964 WTS 2	Exchange of Notes Constituting an Agreement between the United States of America and Japan Relating to the King Crab Fishery in the Eastern Bering Sea	11/25/64	533 UNTS 31; UNTS 7730
1964 WTS 3	Exchange of Notes Constituting an Agreement between the United Kingdom and France Concerning the Status of Previous Fisheries Agreements in Relation to the Fisheries Convention Offered for Signature in London from March 9 to April 10 1964	4/10/64	UNTS 9272

<b>WTS #</b>	<b>Treaty Name</b>	<b>Date</b>	<b>Citation</b>
1964 WTS 4	Fisheries Convention	3/9/64	581 UNTS 57
1964 WTS 5	Agreement between the Republic of Finland and the Kingdom of Norway Regarding Fishing in the Fishing Area of the Näätämö (Neiden) Watercourse	6/9/64	503 UNTS 216
1964 WTS 6	Agreement between the United States of America and the Union of Soviet Socialist Republics Relating to Fishing Operations in the Northeastern Pacific Ocean	12/14/64	531 UNTS 213; UNTS 7705
1964 WTS 7	Agreement as to Transitional Rights between Ireland and Belgium, the Federal Republic of Germany, France, The Netherlands, Spain and the United Kingdom of Great Britain and	3/9/64	UNTS 8434
1965 WTS 1	Agreement on Fisheries between Japan and the Republic of Korea	6/22/65	UNTS 8472
1965 WTS 2	Agreement for the Establishment of a Commission for Controlling the Desert Locust in the Near East	7/2/65	592 UNTS 215
1965 WTS 3	Agreement between the Government of the United States of America and the Government of the Union of Soviet Socialist Republics Relating to Fishing for King Crab	2/5/65	541 UNTS 97
1966 WTS 1	International Convention for the Conservation of Atlantic Tunas	5/14/66	673 UNTS 63
1966 WTS 2	Plan of Operation of United Nations Special Fund Project on Caribbean Fishery Development, with Annex, Work Plan and Plan of Expenditure	4/6/66	19 UST 4938; TIAS 6501
1966 WTS 3	Agreement between Denmark, Norway, and Sweden on Reciprocal Access to Fishing in the Skagerrak and the Kattegat	12/19/66	UNTS 8769
1966 WTS 4	Exchange of Notes Constituting an Agreement between Denmark and Norway on Traditional Norwegian Sprat Fishing in the	12/19/66	UNTS 8770
1966 WTS 5	Exchange of Notes Constituting an Agreement between the United States of America and Japan Relating to the King Crab Fishery in the Eastern Bering Sea	11/25/66	
1967 WTS 1	Exchange of Notes Constituting an Agreement between the United States of America and Mexico on Traditional Fishing in the Exclusive Fishery Zones Contiguous to the Territorial Seas of Both Countries	10/27/67	UNTS 9925
1967 WTS 10	Agreement between Denmark and Norway Concerning the East Greenland Fisheries	4/20/67	UNTS 8747
1967 WTS 11	Exchange of Letters Constituting an Agreement Regarding the Fishing Rights of Belgian Fishermen in the Fishery Zones of Danish Waters	6/29/67	606 UNTS 115; UNTS 8780
1967 WTS 12	Agreement between the Government of Malaysia, the Government of the Republic of the Philippines, the Republic of Singapore, the Kingdom of Thailand and the Republic of Viet-Nam Establishing the Southeast Asian Fisheries Development Center	12/28/67	UNTS 9322
1967 WTS 13	Exchange of Notes Constituting an Agreement between Denmark and Sweden Concerning Swedish Direct Landings of Fish in Denmark	12/5/67	UNTS 8998

<b>WTS #</b>	<b>Treaty Name</b>	<b>Date</b>	<b>Citation</b>
1967 WTS 2	Agreement between the Government of the United States of America and the Government of the Union of Soviet Socialist Republics on Certain Fishery Problems in the Northeastern Part of the Pacific Ocean off the Coast of the United States of America	2/13/67	UNTS 9848
1967 WTS 3	Convention on the Conduct of Fishing Operation in the North Atlantic	6/1/67	TAIO 281; UNTS 15849
1967 WTS 4	Agreement between the Government of the United States of America and the Government of the Union of Soviet Socialist Republics on Certain Fishery Problems on the High Seas in the western Areas of the Middle Atlantic Ocean	11/25/67	UNTS 10057
1967 WTS 5	Agreement on Fisheries between Japan and New Zealand	7/12/67	UNTS 9718
1967 WTS 6	Exchange of Notes Constituting a General Fisheries Agreement between France and Spain	3/20/67	
1967 WTS 7	Exchange of Notes Constituting an Agreement between Denmark and the Federal Republic of Germany Concerning German Fishing Rights in the Danish Fishery Zone	11/30/67	UNTS 9017
1967 WTS 8	Agreement Concerning the Delimitation of the Fishery Areas of Norway and Sweden in the Northeastern Skagerrak	4/5/67	968 UNTS 228
1967 WTS 9	Exchange of Notes Constituting an Agreement between the United States of America and Japan Concerning Salmon Fisheries	5/9/67	UNTS 9765
1968 WTS 1	Exchange of Letters Constituting an Agreement between Denmark and Norway Concerning Fishing Rights with the Danish Fishery	4/26/68	UNTS 9211
1968 WTS 2	Agreement between Japan and the United States of Mexico on Fishing by Japanese Vessels in Waters Contiguous to the Mexican Territorial Sea	3/7/68	UNTS 9723
1968 WTS 3	Exchange of Notes Constituting an Arrangement between Denmark and The Netherlands Concerning Fishing Rights within Danish Fishery Area	5/30/68	UNTS 9233
1968 WTS 4	Agreement on Fisheries between the Commonwealth of Australia and Japan	10/27/68	1969 ATS 22; UNTS 10174
1968 WTS 5	African Convention on the Conservation of Nature and Natural Resources	6/16/68	1001 UNTS 3
1969 WTS 1	Agreement between the Government of the Republic of Finland and the Government of the Union of Soviet Socialist Republics Concerning Fishing and Sealing	6/13/69	739 UNTS 77; UNTS 10606
1969 WTS 2	Convention for the Conservation of the Vicuna	8/16/69	
1969 WTS 3	Agreement between the Government of the United States of America and the Government of the Polish People's Republic Regarding Fisheries in the Western Region of the Middle	6/12/69	719 UNTS 209; UNTS 10335
1969 WTS 4	Amendment to Agreement Between Finland and the U.S.S.R. Concerning Fishing and Sealing		
1969 WTS 5	Convention between Spain and Portugal on Fishing at Sea and Co-operation in Matters of Fisheries	12/9/69	1058 UNTS 190

WTS #	Treaty Name	Date	Citation
1969 WTS 6	Exchange of Letters Constituting an Agreement Concerning the Free Passage of Salmon in Vanern Lake	7/22/69	968 UNTS 252
1969 WTS 7	Convention on the Conservation of the Living Resources of the Southeast Atlantic	10/23/69	801 UNTS 101; UNTS 11408
1970 WTS 1	Agreement on the Regulation of North Pacific Whaling	12/16/70	UNTS 11247
1970 WTS 2	Agreement between the Government of the United States of America and the Government of the Union of Soviet Socialist Republics on Certain Fishery Problems on the High Seas in the Western Areas of the Middle Atlantic Ocean	12/11/70	777 UNTS 3
1970 WTS 3	Agreement between the Government of the United States of America and the Government of Canada on Reciprocal Fishing Privileges in Certain Areas off Their Coasts	4/24/70	752 UNTS 3
1970 WTS 4	Agreement between the Government of the Polish People's Republic and the Government of the Kingdom of Sweden Concerning Permission for Swedish Fishing Vessels in the	10/5/70	UNTS 11877
1970 WTS 5	Agreement for the Establishment of a Commission for Controlling the Desert Locust in the Northwest Africa	12/1/70	797 UNTS 97
1970 WTS 6	Benelux Convention Concerning Hunting and the Protection of	6/10/70	847 UNTS 255
1970 WTS 7	Exchange of Notes Constituting an Agreement Regarding King and Tanner Crab Fisheries in the Eastern Bering Sea	12/11/70	776 UNTS 239; UNTS 11063
1970 WTS 8	Exchange of Notes Constituting an Agreement Concerning Fisheries off the Coast of the United States of America and Concerning Salmon	12/11/70	UNTS 11062
1970 WTS 9	Agreement between the Government of the Polish People's Republic and the Government of the United States of America Regarding Fisheries in the Western Region of the Middle	6/13/70	756 UNTS 336
1971 WTS 1	Convention on Wetlands of International Importance, especially as Waterfowl Habitat	2/2/71	996 UNTS 245
1971 WTS 10	Exchange of Notes Constituting an Understanding for the Establishment of a Scheme of Joint Enforcement Regarding Fisheries in the Western Region of the Middle Atlantic Ocean (with Scheme of Joint Enforcement)	12/31/71	UNTS 10335
1971 WTS 11	Agreement between the Government of Canada and the Government of Norway on Sealing and the Conservation of Seal	7/15/71	977 UNTS 442
1971 WTS 2	Agreement on Sealing and the Conservation of Seal Stocks in the Northwest Atlantic		
1971 WTS 3	Agreement between the Government of the United States of America and the Government of the Union of Soviet Socialist Republics Relating to Fishing Operations in the Northeastern	2/12/71	UNTS 11067
1971 WTS 4	Agreement on Certain Fisheries Problems in the Northeastern Part of the Pacific Ocean off the Coast of the United States of	2/12/71	
1971 WTS 5	Exchange of Notes Constituting an Agreement between the Government of Canada and the Government of Norway with Respect to Norwegian Fishing Practices off the Atlantic Coast of Canada	7/15/71	UNTS 12496

<b>WTS #</b>	<b>Treaty Name</b>	<b>Date</b>	<b>Citation</b>
1971 WTS 6	Agreement between the Government of the United States of America and the Government of the Union of Soviet Socialist Republics Relating to Fishing for King and Tanner Crabs	2/12/71	UNTS 11132
1971 WTS 7	Agreement between the Government of Canada and the Government of the Union of Soviet Socialist Republics on Provisional Rules of Navigation and Fisheries Safety in the Northeastern Pacific Ocean off the Coast of Canada	1/22/71	977 UNTS 60
1971 WTS 8	Agreement between the Government of Canada and the Government of the Union of Soviet Socialist Republics on Co-operation in Fisheries in the Northeastern Pacific Ocean off	1/22/71	977 UNTS 42
1971 WTS 9	Agreement between the Government of the Kingdom of Denmark and the Government of the Polish People's Republic on the Mutual Granting of Fishing Rights in Their Respective Fishery	6/1/71	UNTS 11593
1972 WTS 1	Exchange of Notes Constituting an Agreement between the Government of Canada and the Government of the State of Spain Concerning Fisheries Relations between the Two Countries	12/18/72	869 UNTS 171
1972 WTS 10	Agreement between the Government of the Federative Republic of Brazil and the Government of the United States of America Concerning Shrimp	5/9/72	UNTS 12783
1972 WTS 11	Agreement between Canada and France on Their Mutual Fisheries Relations	3/27/72	UNTS 12353
1972 WTS 12	Convention for the Protection of Migratory Birds and Birds in Danger of Extinction, and Their Environment	3/4/72	24 UST 3329; TIAS 7990
1972 WTS 13	Agreement between the United States of America and Japan Concerning an International Observer Scheme for Whaling Operations from Land Stations in the North Pacific Ocean	4/26/72	UNTS 11983
1972 WTS 14	Exchange of Notes Constituting and Agreement between the Government of the Federative Republic of Brazil and the Government of Trinidad and Tobago Concerning Shrimp	5/19/72	908 UNTS 3
1972 WTS 15	Convention for the Conservation of Antarctic Seals	6/1/72	TIAS 8826
1972 WTS 17	Treaty Concerning the Status of Quita Sueño, Roncador and	9/8/72	TAOI 839
1972 WTS 18	Agreement between the Government of the Federative Republic of Brazil and the Government of the Kingdom of the Netherlands Concerning Shrimp	12/13/72	UNTS 12891
1972 WTS 19	Agreement Concerning Fishing in Lake Dojran	3/24/72	GreekOG (10.5.1974)
1972 WTS 2	Exchange of Notes Constituting an Agreement Concerning King and Tanner Crab Fisheries in the Eastern Bering Sea	12/20/72	903 UNTS 39
1972 WTS 20	Exchange of Notes Constituting an Agreement Relating to King and Tanner Crab Fisheries	12/20/72	UNTS 12902
1972 WTS 21	Exchange of Letters Constituting an Agreement between France and Spain Relating to the Supervision of Isolation Zones for Fishing in the Bay of Biscay	8/28/72	UNTS 12180

<b>WTS #</b>	<b>Treaty Name</b>	<b>Date</b>	<b>Citation</b>
1972 WTS 3	Agreement between the Government of the United States of America and the Government of the Republic of Korea Concerning Cooperation in Fisheries	11/24/72	UNTS 12819
1972 WTS 4	Exchange of Notes Constituting an Agreement Relating to Salmon Fisheries	12/20/72	UNTS 12903
1972 WTS 5	Exchange of Notes Constituting an Agreement between the United States of America and Japan Relating to Certain Fisheries off the Coast of the United States of America	12/20/72	UNTS 12901
1972 WTS 6	Exchange of Notes Constituting an Agreement between the Government of Canada and the Government of the United Kingdom Concerning Fisheries Relations between the Two	3/27/72	UNTS 12471
1972 WTS 7	Exchange of Notes Constituting an Agreement on the Limitation of the Catch of Salmon	7/6/72	UNTS 12036
1972 WTS 8	Exchange of Notes Constituting an Agreement between Canada and Portugal Concerning Fisheries Relations between the Two	3/27/72	870 UNTS 135
1972 WTS 9	Exchange of Notes Constituting an Agreement between the Government of Denmark and the Government of Canada with Respect to Danish Fishing Practices off the Atlantic Coast of	3/27/72	UNTS 11904
1973 WTS 1	Agreement between the Government of the United States of America and the Government of the Union of Soviet Socialist Republics on Certain Fisheries Problems in the Northeastern Part of the Pacific Ocean off the Coast of the United States of America	2/12/71	777 UNTS 17; UNTS 11066
1973 WTS 10	Agreement on Reciprocal Fishing Privileges in Certain Areas off the Coasts of the United States and Canada	6/15/73	916 UNTS 237
1973 WTS 11	Exchange of Notes Constituting an Interim Agreement between Iceland and the United Kingdom of Great Britain and Northern Ireland Regarding Fisheries Dispute between these Two	11/13/73	UNTS 12886
1973 WTS 12	Exchange of Notes Constituting an Agreement on Shrimp Fishing	6/29/73	923 UNTS 131
1973 WTS 13	Agreement on Conservation of Polar Bears	10/15/73	13 ILM 13
1973 WTS 14	Agreement between the Government of the United States of America and the Government of the Union of Soviet Socialist Republics Relating to the Fishing for King and Tanner Crabs	2/21/73	UNTS 12996
1973 WTS 15	Agreement between the government of the United States of America and the Government of the Union of Soviet Socialist Republics Relating to Fishing Operations in the Northeastern	2/21/73	912 UNTS 53
1973 WTS 16	Agreement between the government of the United States of America and the Government of the Union of Soviet Socialist Republics on Certain Fisheries Problems in the Northeastern Part of the Pacific Ocean	2/21/73	912 UNTS 63
1973 WTS 17	Agreement between the Government of the United States of America and the Government of the Union of Soviet Socialist Republics Relating to the Fishing for King and Tanner Crabs	2/21/73	912 UNTS 85
1973 WTS 2	Exchange of Letters Constituting an Agreement between the French Republic and the Malagasy Republic Concerning Marine	6/4/73	978 UNTS 310

<b>WTS #</b>	<b>Treaty Name</b>	<b>Date</b>	<b>Citation</b>
1973 WTS 3	Agreement between the Government of the United States of America and the Government of the People's Republic of Poland Regarding Fisheries in the Western Region of the Middle	6/2/73	916 UNTS 185
1973 WTS 4	Agreement between the Government of the United States of America and the Government of the Socialist Republic of Romania Regarding Fisheries in the Western Region of the Middle	12/4/73	UNTS 13366
1973 WTS 5	Convention for the Protection of Migratory Birds and Birds under the Threat of Extinction and on the Means of Protecting Them		
1973 WTS 6	Agreement between the government of the United States of America and the Government of the USSR Relating to the Consideration of Claims Resulting from Damage to Fishing Vessels or Gear and Measures to Prevent Fishing Conflicts	2/21/73	938 UNTS 38
1973 WTS 7	Convention on International Trade in Endangered Species of Wild Fauna and Flora [as ammended]	3/3/73	993 UNTS 243
1973 WTS 8	Convention on Fishing and Conservation of the Living Resources in the Baltic Sea and the Belts	9/13/73	1090 UNTS 54
1973 WTS 9	Exchange of Letters Constituting an Agreement between Iceland and Norway Concerning Permission within the 50 Mile Fishery	7/10/73	UNTS 12673
1974 WTS 1	Memorandum of Understanding between the Government of Australia and the Government of the Republic of Indonesia Regarding the Operations of Indonesian Traditional Fishermen in Areas of the Australian Exclusive Fishing Zone and Continental Shelf (1974)		
1974 WTS 10	Agreement for the Protection of Migratory Birds and Birds in Danger of Extinction and their Environment		
1974 WTS 2	Exchange of Notes Constituting an Agreement Concerning Salmon Fishing	12/24/74	992 UNTS 54
1974 WTS 3	Convention Concerning Maritime Fishing between the Government of the French Republic and the Government of the Republic of Senegal	9/16/74	1062 UNTS 79
1974 WTS 4	Agreement on Fisheries between the Government of the Republic of Indonesia and the Government of the Republic of the	8/8/74	987 UNTS 298
1974 WTS 5	Exchange of Notes Constituting an Agreement between the United States of America and Japan Concerning Certain Fisheries off the Coast of the United States of America	12/24/74	992 UNTS 4
1974 WTS 6	Exchange of Notes Constituting an Agreement Concerning King and Tanner Crab Fisheries in the Eastern Bering Sea	12/24/74	992 UNTS 62
1974 WTS 7	Agreement between the Government of the United Kingdom of Great Britain and Northern Ireland and the Government of the Kingdom of Norway and the Government of the USSR on the Regulation of the Fishing of North-East Arctic (Arcto-Norwegian) Cod	3/15/74	UNTS 13184
1974 WTS 8	Agreement between the Government of Australia and the Government of Japan for the Protection of Migratory Birds in Danger of Extinction and Their Environment	2/6/74	1981 ATS 6

<b>WTS #</b>	<b>Treaty Name</b>	<b>Date</b>	<b>Citation</b>
1974 WTS 9	Arrangement Relating to Fisheries in Waters Surrounding the Faeroe Islands	12/18/73	UNTS 13185
1975 WTS 1	Agreement between the Government of the United States of America and the Government of the Polish People's Republic Regarding Fisheries in the Western Region of the Middle	5/29/75	1006 UNTS 168
1975 WTS 10	Exchange of Notes Constituting an Agreement between Brazil and Barbados on Shrimp Fishing	2/28/75	998 UNTS 46
1975 WTS 11	Exchange of Letters Constituting an Agreement between France and Belgium Concerning the Practice of Seasonal Fishing in Belgian and French Territorial Waters	9/30/75	999 UNTS 151
1975 WTS 12	Exchange of Notes Constituting an Agreement between the Government of the Republic of Finland and the Government of the Kingdom of Sweden Concerning the Right of Fishermen of Each Country to Fish within the Fishing Zone of the Other	11/24/75	999 UNTS 166
1975 WTS 13	Exchange of Notes Constituting an Agreement between the Government of the United Kingdom and the Government of Norway Concerning the Creation of Certain Trawler-free Zones in Areas Adjacent to the Present Norwegian Fishery Limit	1/30/75	981 UNTS 198
1975 WTS 14	Exchange of Letters Constituting an Agreement between France and Norway Concerning Fishing	1/30/75	974 UNTS 155
1975 WTS 15	Exchange of Letters Constituting an Agreement between the Government of the Federal Republic of Germany and the Government of Norway Concerning the Creation of Certain Trawler-free Zones in Areas Adjacent to the Present Norwegian	1/30/75	1016 UNTS 120
1975 WTS 16	Agreement between the Government of the Kingdom of Norway and the Government of the Union of Soviet Socialist Republics on Co-operation in the Fishing Industry	4/11/75	983 UNTS 8
1975 WTS 17	Fishery Agreement between the People's Republic of China and Japan	8/15/75	1103 UNTS 68
1975 WTS 18	Convention on Deep-sea Fishing between the Government of the French Republic and the Government of the Republic of Dahomey	2/27/75	1089 UNTS 77
1975 WTS 19	Agreement between the Government of the United States of America and the Government of the Union of Soviet Socialist Republics Regarding Fishing in the Northeastern Pacific Ocean off the Coast of the United States of America	7/18/75	1027 UNTS 358; UNTS 15726
1975 WTS 2	Agreement between the Government of the Union of Soviet Socialist Republics and the Government of Japan Concerning the Conduct of Fishing Operations	6/7/75	1024 UNTS 397
1975 WTS 20	Agreement Concerning an International Observer Scheme for Whaling Operations from Land Stations in the North Pacific	5/2/75	26 UST 1009
1975 WTS 21	Agreement between the Government of the United States of America and the Government of the Union of Soviet Socialist Republics on Certain Fisheries Problems on the High Seas in the Western Areas of the Middle Atlantic Ocean	2/26/75	992 UNTS 206
1975 WTS 22	Agreement Regarding Fisheries in the Northeastern Pacific Ocean off the Coast of the United States between the U.S. and Poland	12/16/75	

WTS #	Treaty Name	Date	Citation
1975 WTS 23	Agreement between the Government of the United States of America and the Government of the Union of Soviet Socialist Republics Relating to the Fishing for King and Tanner Crabs	7/18/75	UNTS 12996
1975 WTS 24	Agreement Relating to Fishing for King and Tanner Crabs	7/18/75	UNTS 15108
1975 WTS 25	Agreement on Mutual Fisheries Relations between Canada and Norway	12/2/75	1132 UNTS 124
1975 WTS 26	Exchange of Notes Constituting an Agreement between the Government of Canada and the Government of the Union of Soviet Socialist Republics Concerning Fisheries Matters of Mutual	12/22/75	1132 UNTS 132
1975 WTS 3	Convention on Co-operation with Respect to Marine Fishing between the Government of Spain and the Government of the Republic of Senegal	5/16/75	1047 UNTS 45
1975 WTS 4	Agreement between the Government of the Union of Soviet Socialist Republics and the Republic of Guinea-Bissau on Co-operation in Fishing	4/11/75	1024 UNTS 332
1975 WTS 5	Agreement between the Government of the Union of Soviet Socialist Republics and the Government of the Republic of the Gambia on Cooperation in the Field of Fisheries	3/18/75	1024 UNTS 342
1975 WTS 6	Exchange of Notes Constituting an Agreement between Brazil and Trinidad and Tobago on Shrimp Fishing	2/28/75	998 UNTS 28
1975 WTS 7	Agreement between the Government of the United States of America and the Government of the Polish People's Republic Regarding Fisheries in the Northeastern Pacific Ocean off the Coast of the United States	5/30/75	998 UNTS 474
1975 WTS 8	Agreement between the Government of the Federal Republic of Brazil and the Government of the Kingdom of the Netherlands Concerning Shrimp	4/4/75	1120 UNTS 157; UNTS 17412
1975 WTS 9	Agreement between the Governments of the United States of America and the Federal Republic of Brazil concerning shrimp	3/14/75	1049 UNTS 58; UNTS 15806
1976 WTS 1	Convention between the United States of America and the Union of Soviet Socialist Republics Concerning the Conservation of Migratory Birds and their Environment	11/19/76	TAOI 1155
1976 WTS 10	Agreement between the Government of the United States of America and the German Democratic Republic Concerning Fisheries off the Coasts of the United States	10/5/76	TIAS 8527
1976 WTS 11	Agreement between the Government of Finland and the Government of Norway Concerning Fisheries between Finland	12/29/76	1051 UNTS 292
1976 WTS 12	Exchange of Letters Constituting an Agreement between Sri Lanka and India on the Wadge Bank Fisheries	3/23/76	1049 UNTS 34
1976 WTS 13	Exchange of Notes Constituting an Agreement between the Government of the United Kingdom of Great Britain and Northern Ireland and the Republic of Iceland Concerning Fishing in the Icelandic Fisheries Zone	6/1/76	1032 UNTS 148
1976 WTS 14	Agreement between the Government of the Republic of Finland and the Government of the Union of Soviet Socialist Republics on Some Questions Related to Fishing inside the Finnish Fishery	10/11/76	1055 UNTS 215; UNTS 15927

<b>WTS #</b>	<b>Treaty Name</b>	<b>Date</b>	<b>Citation</b>
1976 WTS 15	Agreement between the Government of the United States of America and the Government of the Polish People's Republic Concerning Fisheries off the Coasts of the United States of	8/2/76	TIAS 8524
1976 WTS 16	Agreement between the Government of the United States of America and the Government of the Socialist Republic of Romania Concerning Fisheries off the Coasts of the United States	11/23/76	TAOI 1079
1976 WTS 17	Fisheries Agreement between the United States of America and Mexico	11/24/76	TAOI 997
1976 WTS 18	Agreement between the Government of Spain and the Government of Canada on Mutual Fisheries Relations	6/10/76	1058 UNTS 290
1976 WTS 19	Agreement between the Government of the Union of Soviet Socialist Republics and the Government of the People's Republic of Angola Concerning Co-operation in the Field of Fisheries	5/26/76	1142 UNTS 10
1976 WTS 2	Convention on conservation of North Pacific Fur Seals	5/7/76	
1976 WTS 20	Agreement between the Government of the United States of America and the Government of the Union of Soviet Socialist Republics on Certain Fishery Problems on the High Seas in the Western Areas of the Middle Atlantic Ocean	3/1/76	1069 UNTS 274
1976 WTS 21	Agreement between the Government of the United States of America and the Government of the People's Republic of China Concerning Fisheries off the Coasts of the United States	9/15/76	1076 UNTS 278
1976 WTS 22	Agreement between the Government of the United States of America and the Government of the Union of Soviet Socialist Republics Concerning Fisheries off the Coasts of the United	11/26/76	TIAS 8528
1976 WTS 3	Agreement between the Government of the United States and the Government of the People's Republic of Bulgaria Concerning Fisheries off the Coasts of the United States	12/17/76	1134 UNTS 128
1976 WTS 4	Agreement between the Government of Canada and the Government of the Union of Soviet Socialist Republics on Their Mutual Fisheries Relations	5/19/76	1132 UNTS 140
1976 WTS 5	Convention on Conservation of Nature in the South Pacific	6/12/76	
1976 WTS 6	Agreement between the Government of Canada and the Government of Portugal on their Mutual Fishery Relations	7/29/76	1132 UNTS 376
1976 WTS 7	Agreement between Canada and Poland on Mutual Fisheries Relations	5/14/76	1132 UNTS 324
1976 WTS 8	Agreement between the Government of the United States of America and the Government of the Republic of China Concerning Fisheries off the Coast of the United States	10/15/76	TIAS 8529
1976 WTS 9	Agreement between the Government of the Union of Soviet Socialist Republics and the Government of the People's Republic of Mozambique Concerning Co-operation in the Field of Fisheries	2/12/76	1141 UNTS 258
1977 WTS 1	Agreement between the Government of the Union of Soviet Socialist Republics and the Government of the Kingdom of Norway Concerning Mutual Relations in the Field of Fisheries	10/15/76	1157 UNTS 147

WTS #	Treaty Name	Date	Citation
1977 WTS 10	Agreement on Mutual Fisheries Relations between Canada and Bulgaria	9/27/77	1133 UNTS 252
1977 WTS 11	Agreement between the Government of the United States of America and the Government of Mexico Concerning Fisheries off the Coast of the United States	8/26/77	TAOI 1009
1977 WTS 12	Reciprocal Fisheries Agreement between the Government of the United States of America and the Government of the United Kingdom of Great Britain and Northern Ireland	6/24/77	TAOI 1173
1977 WTS 13	Agreement Concerning Fisheries off the Coasts of the United	4/27/77	TAOI 874
1977 WTS 14	Agreement between the Government of Japan and the Government of the Union of Soviet Socialist Republics Concerning Fishing off the Sea Frontage of the USSR in the North-western Part of the Pacific Ocean in 1977	5/27/77	1103 UNTS 186
1977 WTS 15	Exchange of Notes Constituting an Agreement between the United States and Brazil Concerning Shrimp	5/1/77	1112 UNTS 204; UNTS 17204
1977 WTS 16	Agreement between the Government of Canada and the Government of the German Democratic Republic on Mutual	10/6/77	1133 UNTS 266
1977 WTS 17	Agreement between the Government of the United States of America and the Government of Spain Concerning Fisheries off the Coasts of the United States	2/16/77	TIAS 8523
1977 WTS 18	Agreement on Mutual Fisheries Relations between Canada and Romania	1/17/77	
1977 WTS 19	Exchange of Notes Constituting an Agreement between the Government of Spain and the Government of Norway Relating to Fisheries	6/22/77	1066 UNTS 78
1977 WTS 2	Agreement between the Government of the United States of America and the Government of Cuba Concerning Fisheries off the Coast of the United States	10/26/77	
1977 WTS 20	Exchange of Notes Constituting an Agreement between the United States of America and Japan Relating to Fisheries off the United States Coast	2/10/77	1084 UNTS 30
1977 WTS 21	Agreement on Mutual Fisheries Relations between Canada and	5/12/77	1133 UNTS 238
1977 WTS 22	Agreement between the Government of the U.S.S.R. and the Government of the Republic of Iceland Concerning Scientific and Technical Co-operation and Consultations in the Field of Fisheries and in Studies of the Living Resources of the Sea	4/25/77	1205 UNTS 312
1977 WTS 23	Exchange of Notes Constituting an Agreement between the Government of Denmark and the Government of Sweden Concerning the Extension of the Jurisdiction of Fisheries in the Kattegat	12/29/77	1088 UNTS 206
1977 WTS 24	Agreement between the Government of Denmark and the National Executive of the Faeroe Islands on the One Hand and the Government of the USSR on the Other Hand Concerning Mutual Fishery Relations between the Faeroe Islands and the USSR	11/27/77	1122 UNTS 172

WTS #	Treaty Name	Date	Citation
1977 WTS 25	Agreement between the Government of the Union of Soviet Socialist Republics and the Government of the People's Republic of Benin on Cooperation in the Field of Fisheries	1/24/77	1205 UNTS 304; UNTS 19288
1977 WTS 26	Agreement between the Government of the Union of Soviet Socialist Republics and the Government of the Co-operative Republic of Guyana on Co-operation in the Field of Fisheries	11/20/77	1205 UNTS 321
1977 WTS 27	Agreement between the Government of the Union of Soviet Socialist Republics and the Government of Guyana on Co-operation in the Field of Fisheries	5/17/77	1205 UNTS 321; UNTS 19290
1977 WTS 3	Reciprocal Fisheries Agreement between the Government of the United States of America and the Government of Canada	2/24/77	TIAS 8648
1977 WTS 4	Fisheries Agreement between New Zealand and the Republic of Korea	3/16/77	UNTS 18555
1977 WTS 5	Agreement between the Government of the United States of America and the Government of the Republic of Korea Concerning Fisheries off the Coasts of the United States	1/4/77	TIAS 8526
1977 WTS 6	Agreement between the Government of the United States of America and the European Economic Community Concerning Fisheries off the Coasts of the United States	2/15/77	TIAS 8598
1977 WTS 7	Agreement between the Government of the United States of America and the Government of the German Democratic Republic Concerning Fisheries off the Coasts of the United States	10/5/77	TIAS 8527
1977 WTS 8	Agreement between the Government of the United States of America and the Government of Japan Concerning Fisheries off the Coast of the United States of America	3/18/77	TAOI 937
1977 WTS 9	Agreement Concerning an International Observer Scheme for Whaling Operations from Land Stations in the North Pacific Ocean (amendment)	4/27/77	26 UST 1009; TIAS 8088
1978 WTS 1	Agreement on Fisheries between the Government of New Zealand and the Government of Japan	9/1/78	1167 UNTS 442
1978 WTS 10	Agreement between the government of the USSR and the government of the Polish People's Republic Relating to Fishing in the Areas of the Barents Sea Adjacent to the Sea Frontage of the Union of Soviet Socialist Republics	5/11/78	1151 UNTS 302
1978 WTS 11	Agreement between the Union of Soviet Socialist Republics and the Government of the Polish People's Republic on Mutual Relations in the Field of Fishing in the Baltic Sea	5/11/78	1151 UNTS 314
1978 WTS 12	Agreement between the Government of the Union of Soviet Socialist Republics and the Government of the Socialist Republic of Romania on Co-operation in Fishing	2/3/78	1151 UNTS 212
1978 WTS 13	Agreement between the Government of the Union of Soviet Socialist Republics and the Government of the People's Republic of Bulgaria Concerning Fishing in the Areas of the Barents Sea Adjacent to the Coast of the USSR	10/3/78	1154 UNTS 324
1978 WTS 14	Agreement between the Government of Canada and the Government of the Socialist Republic of Romania on Mutual	1/17/78	1133 UNTS 316

<b>WTS #</b>	<b>Treaty Name</b>	<b>Date</b>	<b>Citation</b>
1978 WTS 15	Agreement between the Government of the Union of Soviet Socialist Republics and the Government of the Socialist Republic of Viet Nam on Co-operation in Respect of Fisheries	12/27/78	1157 UNTS 94; UNTS 18270
1978 WTS 16	Fisheries Agreement between the Government of New Zealand and the Government of the Republic of Korea	3/16/78	1167 UNTS 416
1978 WTS 17	Agreement between the Government of the Federative Republic of Brazil and the Government of Barbados Concerning Joint Ventures in the Fishing Sector	2/15/78	1112 UNTS 165
1978 WTS 2	Treaty between Australia and the Independent State of Papua New Guinea concerning Sovereignty and Maritime Boundaries in the area between the Two Countries, Including the Area Known as the Torres Straight, and Related Matters	12/18/78	ATS 1985 no. 4
1978 WTS 3	Agreement Concerning the Fisheries off the Coasts of the Gilbert Islands between the U.K. and Japan	6/26/78	1108 UNTS 146; UNTS 17188
1978 WTS 4	Convention on Future Multilateral Co-Operation in the Northwest Atlantic Fisheries [as ammended]	10/24/78	UNTS 17779
1978 WTS 5	Agreement between the Government of the Republic of Portugal and the Government of the Kingdom of Spain on Mutual Fisheries Relations	9/22/78	1126 UNTS 26
1978 WTS 6	Agreement on Mutual Fisheries Relations between Canada and	4/28/78	1133 UNTS 130
1978 WTS 7	Agreement between the Government of the Union of Soviet Socialist Republics and the Government of the People's Republic of Bulgaria Concerning Fishing for Anchovies and Sprats in Each Other's Territorial Waters in the Black Sea	10/3/78	1154 UNTS 334
1978 WTS 8	Agreement between the Government of the Union of Soviet Socialist Republics and the Government of Japan on Co-operation in the Field of Fisheries	4/21/78	1154 UNTS 185
1978 WTS 9	Agreement on Fisheries between the Government of the Union of Soviet Socialist Republics and the Government of New Zealand	4/4/78	1151 UNTS 278
1979 WTS 1	Agreement on Fisheries between the Government of Australia and the Government of Japan	10/17/79	1979 ATS 12
1979 WTS 2	South Pacific Forum Fisheries Agency Convention	7/10/79	
1979 WTS 3	Protocol Amending the Convention of August 16 1916 for the Protection of Migratory Birds in Canada and the United States	1/30/79	
1979 WTS 4	Convention for the Conservation and Management of the Vicuna	12/20/79	
1979 WTS 5	Convention on the Conservation of Migratory Species of Wild Animals	6/23/79	
1979 WTS 6	Convention on the Conservation of European Wildlife and Natural Habitats	9/19/79	ETS 104
1979 WTS 7	Council Directive 79/409/EEC of 2 April 1979 on the Conservation of Wild Birds	4/2/79	
1980 WTS 1	Convention on the Conservation of Antarctic Marine Living Resources	5/20/80	19 ILM 841

<b>WTS #</b>	<b>Treaty Name</b>	<b>Date</b>	<b>Citation</b>
1980 WTS 2	Protocol Amending the Interim Convention on Conservation of North Pacific Fur Seals	10/14/80	
1981 WTS 1	Memorandum of Understanding Concerning Implementation of a Provisional Fisheries Surveillance and Enforcement Line		
1981 WTS 2	Agreement Between the Bolivian and Argentinean Governments for the Protection and Conservation of the Vicuna	2/16/81	
1981 WTS 3	Treaty on Pacific Coast Albacore Tuna Vessels and Port	5/26/81	1274 UNTS 247
1982 WTS 1	Subsidiary Agreement between the Government of Australia and the Government of Japan Concerning Japanese Long-Line Fishing	10/28/82	1982 ATS 18
1982 WTS 2	Convention for the Conservation of Salmon in the North Atlantic Ocean	3/2/82	TIAS 10789
1982 WTS 3	Nauru Agreement Concerning Cooperation in the Management of Fisheries of Common Interest		
1982 WTS 4	United Nations Convention on the Law of the Sea	12/10/82	21 ILM 1261
1982 WTS 5	Convention on Future Multilateral Co-operation in North-east Atlantic Fisheries	3/17/82	
1983 WTS 1	Subsidiary Agreement between the Government of Australia and the Government of the Republic of Korea Concerning Squid Jigging by Fishing Vessels of the Republic of Korea	11/24/83	ATS 1989 no. 33
1983 WTS 2	Agreement on Fisheries between the Government of Australia and the Government of the Republic of Korea	11/23/83	1983 ATS 23
1983 WTS 3	Agreement between the United States and Columbia on Certain Fishing Rights in Implementation of the Treaty and Exchange of Notes of September 8, 1972	12/6/83	TIAS 10842
1984 WTS 1	Protocol Amending the Interim Convention on Conservation of North Pacific Fur Seals	10/12/84	
1985 WTS 1	ASEAN Agreement on the Conservation of Nature and Natural Resources	7/9/85	
1985 WTS 2	Agreement for the Establishment of the Intergovernmental Organization for Marketing Information and Technical Advisory Services for Fishery Products in the Asia and Pacific Region	12/13/85	
1985 WTS 3	Treaty between the Government of the United States and the Government of Canada Concerning Salmon	3/17/85	
1985 WTS 4	Treaty concerning Pacific salmon, with Annexes and Memorandum of Understanding	1/28/85	1469 UNTS 357
1985 WTS 5	Agreement between the United States of America and the People's Republic of China Concerning Fisheries off the Coasts of the United States	7/23/85	1443 UNTS 151
1986 WTS 1	Agreement between the Government of Australia and the Government of the People's Republic of China for the Protection of Migratory Birds and their Environment	10/20/86	ATS 1988 no. 22

WTS #	Treaty Name	Date	Citation
1986 WTS 2	Memorandum of Understanding Concerning Salmonid Research and the Enforcement of the International Convention for the High Seas Fisheries of the North Pacific Ocean	4/9/86	
1987 WTS 1	Agreement on the Conservation of the Porcupine Herd	7/17/87	
1987 WTS 2	Agreement among Pacific Island States Concerning the Impelementation and Administration of the Treaty on Fisheries between the Governments of Certain Pacific Island States and the Government of the United States of America	4/2/87	TIAS 11295
1988 WTS 1	Agreement on Fisheries between the Government of Australia and the Government of the People's Republic of China	11/17/88	1988 ATS 39
1988 WTS 2	Exchange of Notes Constituting an Agreement between the Government of Australia and the Government of the United States of America on Access to the Australian Fishing Zone	4/2/87	1988 ATS 44
1989 WTS 1	Subsidiary Agreement between the Government of Australia and the Government of Japan Concerning Japanese Long-Line Fishing	12/15/89	1989 ATS 33
1989 WTS 2	Convention for the Prohibition of Fishing with Long Driftnets in the South Pacific	11/24/89	29 ILM 1454; 1992 ATS 30
1990 WTS 1	Agreement on the Conservation of Seals in the Wadden Sea	10/16/90	
1990 WTS 2	Agreement between the Government of Australia and the Government of the Union of Soviet Socialist Republics relating to Co-operation in Fisheries	2/15/90	ATS 1990 No. 8
1990 WTS 3	Agreement on Fisheries Enforcement	9/26/90	TIAS 11753
1991 WTS 1	Annex II To the Protocol on Environmental Protection to the Antarctic Treaty (Madrid Protocol) , Conservation of Antarctic Fauna and Flora		
1991 WTS 2	Regional Convention on Fisheries Cooperation Among African States Bordering the Atlantic Ocean	7/5/91	
1991 WTS 3	Agreement on the Conservation of Bats in Europe (EUROBATS)	12/4/91	
1991 WTS 4	West Indian Ocean Tuna Organization Convention	6/19/91	
1991 WTS 5	Agreement for the Establishment of the Intergovernmental Organization for Marketing Information and Cooperation Services for Fishery Products in Africa	12/13/91	
1992 WTS 1	Convention on Biological Diversity	6/5/92	
1992 WTS 2	Agreement on the Conservation of Small Cetaceans of the Baltic and North Seas (ASCOBANS)	3/17/92	
1992 WTS 3	Agreement on Cooperation in Research, Management and Conservation of Marine Mammals in the North Atlantic		
1992 WTS 4	Niue Treaty on Cooperation in Fisheries Surveillance and Law Enforcement in the South Pacific Region	7/9/92	1993 ATS 31
1992 WTS 5	Agreement between the Government of Australia and the Government of the Republic of Indonesia Relating to Cooperation in Fisheries	4/22/92	1993 ATS 18

WTS #	Treaty Name	Date	Citation
1992 WTS 6	Convention for the Conservation of Anadromous Stocks in the North Pacific Ocean	2/11/92	TIAS 11645
1992 WTS 7	Agreement between the United States of America and Estonia Concerning Fisheries off the Coasts of the United States	6/1/92	
1993 WTS 1	Convention for the Conservation of Southern Bluefin Tuna	5/10/93	
1993 WTS 2	Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on		
1993 WTS 3	Agreement for the Establishment of the Indian Ocean Tuna Commission	11/25/93	1996 ATS 20
1993 WTS 4	Constitution of the Centre for Marketing Information and Advisory Services for Fishery Products in the Arab Region	6/24/93	
1993 WTS 5	Memorandum of Understanding concerning Conservation Measures for the Siberian Crane		
1994 WTS 1	Constitution of the Centre for Marketing Information and Advisory Services for Fishery Products in Latin America and the	2/18/94	
1994 WTS 2	Convention for the Establishment of the Lake Victoria Fisheries Organization	6/30/94	36 ILM 667
1994 WTS 3	Convention on the Conservation and Management of Pollock Resources Central Bearing Sea	6/16/94	
1994 WTS 4	Memorandum of Understanding concerning Conservation Measures for the Slender-billed Curlew , Numenius tenuirostris		
1994 WTS 5	Federated States of Micronesia Arrangement for Regional Fisheries Access	10/30/94	
1994 WTS 6	Lusaka Agreement Concerning Co-operative Enforcement Operations Directed at Illegal Trade in Wild Fauna and Flora	9/8/94	UNEP doc. No.94/7929
1995 WTS 1	Draft Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 Relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks	8/4/95	34 ILM 1542
1995 WTS 2	Agreement on the Establishment of a Mediation Procedure Regarding the Pacific Salmon Treaty	9/11/95	TIAS 12689
1995 WTS 3	Code of Conduct for Responsible Fisheries		
1995 WTS 4	Agreement on the Conservation of African-Eurasian Migratory Waterbirds (AEWA)		
1996 WTS 1	Inter-American Convention for the Protection and Conservation of Sea Turtles	12/1/96	
1996 WTS 2	Council Regulation (EC) No 338/97 of 9 December 1996 on the Protection of Species of Wild Fauna and Flora by Regulating Trade Therein		
1996 WTS 3	Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and Contiguous Atlantic Area (ACCOBAMS)	11/24/96	36 ILM 777

<b>WTS #</b>	<b>Treaty Name</b>	<b>Date</b>	<b>Citation</b>
1997 WTS 1	Agreement for the Establishment of a General Fisheries Commission for the Mediterranean		
1998 WTS 1	Agreement on the International Dolphin Conservation Program	5/21/98	
1998 WTS 2	Memorandum of Understanding concerning Conservation Measures for the Siberian Crane	12/13/98	
1998 WTS 3	Provisions of the Joint NAMMCO Control Scheme for the Hunting of Marine Mammals	3/29/98	
1999 WTS 1	Protection of Migratory Game and Insectivorous Birds Migratory Treaty		
1999 WTS 2	Memorandum of Understanding Concerning Conservation Measures for Marine Turtles of the Atlantic Coast of Africa	5/29/99	
1999 WTS 3	Agreement between the Government of Iceland, the Government of Norway and the Government of the Russian Federation Concerning Certain Aspects of Cooperation	5/15/99	
1999 WTS 4	Agreement for the Establishment of the Regional Commission for Fisheries		
2000 WTS 1	Agreement for the Establishment of the International Organization for the Development of Fisheries in Eastern and	5/23/00	
2000 WTS 2	Agreement for the Establishment of a Commission for Controlling the Desert Locust in the Western Region		
2000 WTS 3	Convention on the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean	10/5/00	
2000 WTS 4	Palau Arrangement for the Management of Western Pacific Purse Seine Fishery		