

The Pacific Salmon Treaty: A Historical Analysis and Prescription for the Future

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Although they share the world's largest unguarded international border, relations between the United States and Canada have not always been cordial in recent years. The United States

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and Canada have a long history of conflict over Pacific salmon management.¹ This conflict, commonly referred to as the Pacific Salmon War, came to a head in the summer of 1997 when roughly one hundred Canadian fishing vessels, outraged over Alaskan harvest of Canadian salmon, blockaded an Alaskan ferry and its three hundred passengers in the Canadian port of Prince Rupert.² In a decidedly undiplomatic response, the U.S. Senate voted eighty-one to nineteen in favor of a resolution calling on then-President Clinton to send the U.S. Navy into Canadian waters to protect the United States' right of innocent passage.³ While the conflict that characterized the summer of 1997 was ultimately defused, the sources of that tension remain today.

Conflict over Pacific salmon often results from the interception⁴ of salmon originating in one another's waters and decision-making that fails to account adequately for risk and uncertainty. While we know that Pacific salmon generally migrate north after entering the Pacific Ocean, thereby creating mixed-stock fisheries and becoming susceptible to interceptions, we know very little about the composition of individual fishers' catches or the status of many Pacific salmon stocks. In an attempt to solve the many disputes over the management and allocation of Pacific salmon, the United States and Canada signed the Pacific Salmon Treaty on January 28, 1985 (1985 Treaty).⁵

Upon the treaty's signing, participants to the negotiation process heralded the 1985 Treaty as "a peace treaty memorializing the end of the Pacific salmon war."⁶ While both parties wel-

¹ Michael C. Blumm & F. Lorraine Bodi, *A Shared Resource: The Tragedy of the Commons*, in *THE NORTHWEST SALMON CRISIS* 274, 274 (Joseph Cone & Sandy Ridlington eds., 1996); see also NAT'L RESEARCH COUNCIL, *UPSTREAM: SALMON AND SOCIETY IN THE PACIFIC NORTHWEST* 268-72 (1996) [hereinafter *UPSTREAM: SALMON AND SOCIETY*].

² Paul L. Evans, *Treaty Past, Treaty Present: An Interdisciplinary Analysis of the Pacific Salmon Treaty Through Examination of the Values, Culture and Political Structures That Provide Definition* 66 (Nov. 14, 2000) (unpublished M.A. thesis, Oregon State University) (on file with Valley Library, Oregon State University).

³ *Id.*

⁴ Interceptions occur when fishers from one country harvest salmon that originate in another country. Thomas C. Jensen, *The United States-Canada Pacific Salmon Interception Treaty: An Historical and Legal Overview*, 16 *ENVTL. L.* 363, 369 (1986).

⁵ Treaty Concerning Pacific Salmon, with Annexes and Memorandum of Understanding, U.S.-Can., Jan. 28, 1985, T.I.A.S. No. 11,091, 1469 U.N.T.S. 358 [hereinafter 1985 Treaty].

⁶ Jensen, *supra* note 4, at 372.

came a new era of cooperative Pacific salmon management, unfortunately, the 1985 Treaty provided a mere ceasefire and failed to bring the lasting peace everyone hoped for.⁷ Within a decade of the Treaty's signing, management of Pacific salmon under the 1985 Treaty became unworkable.⁸ By 1997 the United States and Canada had abandoned the Treaty altogether.⁹

While the Pacific Salmon Treaty was reauthorized in 1999 (1999 Agreement), management of Pacific salmon under the Treaty has remained contentious and many salmon populations have continued to decrease in abundance. Moreover, the long-term fishing arrangements originally established under the 1999 Agreement are nearing expiration.¹⁰ As such, this Note seeks to inform future negotiations on Pacific salmon management through an analysis of past failures and successes, and the identification of possible solutions to foreseeable challenges.

Part I summarizes the historical developments in Pacific salmon management and international agreements leading up to the 1985 Treaty. Part II identifies many of the threats to Pacific salmon. Part III analyzes the circumstances surrounding the 1985 Treaty's signing, as well as its collapse. Part IV discusses the reauthorization of the 1999 Agreement. Finally, part V highlights the current challenges facing Pacific salmon management and outlines possible solutions to the ongoing disputes over salmon in the Pacific Northwest.

I.

HISTORICAL DEVELOPMENTS IN THE MANAGEMENT OF PACIFIC SALMON

A. *Origins of Commercial Fishing*

In the 1830s, barely a quarter-century after Lewis and Clark's exploration of the Pacific Northwest, commercial fishing by non-Indians arrived on the Columbia River.¹¹ Canning technologies

⁷ BRAD M. CALDWELL, *The Pacific Salmon Treaty: A Brief Truce in the Canada/U.S. Pacific Salmon War*, 57 *ADVOC.* 379, 379 (1999).

⁸ See Evans, *supra* note 2, at 61-69.

⁹ See *id.* at 66-68.

¹⁰ See Xanthippe Augerot, *An Environmental History of the Salmon Management Philosophies of the North Pacific* 263 (Apr. 27, 2000) (unpublished Ph.D. dissertation, Oregon State University) (on file with the John E. Jaqua Law Library, University of Oregon). Section IV of this note discusses the 1999 Agreement in further detail.

¹¹ UPSTREAM: SALMON AND SOCIETY, *supra* note 1, at 254.

arrived in the Pacific Northwest in the 1860s and, in response to seemingly inexhaustible salmon resources, commercial fishing and canning industries rapidly grew and expanded at overly optimistic rates.¹² In a statement characteristic of the time, the British Columbia Commissioner of Fisheries noted in 1901 that canneries on both sides of the international boundary not only filled every can they could obtain, but discarded more salmon than they used.¹³ Columbia River catches peaked in the 1880s and again during the middle 1910s.¹⁴ By the end of World War I, barely fifty years after the arrival of canning technology, the effects of overfishing summer Chinook, the preferred species, became apparent in the Columbia River and the summer season was closed.¹⁵

B. Early International Agreements for the Management of Pacific Salmon

Pacific salmon of Canadian origin were not immune from the effects of overfishing and development. The Fraser River is immediately north of the United States-Canada border and, as such, its salmon are exceptionally vulnerable to Washington fisheries as well as those of Canadian origin. In 1913, and again in 1914, blasting associated with railroad construction clogged Hell's Gate, an extraordinarily narrow point in Canada's Fraser River canyon, and prevented the river's valuable sockeye salmon from reaching historic spawning grounds.¹⁶

In response to declining salmon populations in the Fraser River and after protracted negotiations, Canada and the United States signed the United States-Canada Convention for the Protection, Preservation and Extension of the Sockeye Salmon Fishery in the Fraser River System (Fraser River Convention) on May 26, 1930.¹⁷ In this Convention, Canada agreed to allow the United States to harvest fifty percent of Fraser River sockeye stocks in Convention waters¹⁸ in exchange for financial and tech-

¹² See *id.* at 254-55.

¹³ JOHN F. ROOS, RESTORING FRASER RIVER SALMON: A HISTORY OF THE INTERNATIONAL PACIFIC SALMON FISHERIES COMMISSION 1937-1985, at 13 (1991).

¹⁴ UPSTREAM: SALMON AND SOCIETY, *supra* note 1, at 255.

¹⁵ *Id.*

¹⁶ Jensen, *supra* note 4, at 373.

¹⁷ *Id.* at 374.

¹⁸ Convention waters include the Strait of Juan de Fuca, northern Puget Sound, the west coast of Vancouver Island, and the south Georgia Strait. DANIEL D. HUP-

nical assistance reopening Hell's Gate to salmon migration.¹⁹ Thus, Canada and the United States hoped to set aside disputes regarding Washington fisheries' interception of Canadian salmon and focus their efforts on conserving and enhancing the size of the Fraser River fishery to their mutual benefit.²⁰

Due to the apparent success of the original Fraser River Convention, the United States and Canada amended it in 1957 to allow the United States half of the Fraser River pink salmon.²¹ The Fraser River Convention set the stage for subsequent fisheries agreements between the United States and Canada and likely provided some of the impetus for the 1985 Treaty.

Upon this stage, Japanese fisheries began traveling to the north Pacific Ocean to harvest salmon of North American origin.²² Japanese fishers first caught the attention of the United States in 1936 when Japanese fleets began targeting salmon near Bristol Bay in southwest Alaska.²³ After a lull during World War II, Japanese fishing fleets began intercepting salmon of U.S. and Canada origin with increasing regularity.²⁴

Japanese interception of North American salmon allied the United States and Canada out of fear that, if they did not cooperate, Japanese interceptions would set a precedent for additional distant-water countries' interceptions of North American salmon.²⁵ As a result, the 1953 North Pacific Fisheries Convention between the United States, Canada, and Japan imposed an abstention line prohibiting fishing by Japanese fisheries east of 175 degrees west longitude.²⁶ The abstention line is grounded in the premise that foreign countries should not harvest fishes that otherwise are exploited fully by the country of origin, especially

PERT, WHY THE PACIFIC SALMON TREATY FAILED TO END THE SALMON WARS 6-7 (1995).

¹⁹ Jensen, *supra* note 4, at 373-74; *see also* HUPPERT, *supra* note 18, at 6-7; UPSTREAM: SALMON AND SOCIETY, *supra* note 1, at 265-66 (providing further background on the Fraser River Convention).

²⁰ HUPPERT, *supra* note 18, at 7.

²¹ Jensen, *supra* note 4, at 374-75; UPSTREAM: SALMON AND SOCIETY, *supra* note 1, at 267.

²² *See* UPSTREAM: SALMON AND SOCIETY, *supra* note 1, at 262.

²³ *Id.*

²⁴ *Id.*

²⁵ Jensen, *supra* note 4, at 377-78.

²⁶ *Id.* at 376; *see also* WILLIAM T. BURKE, THE NEW INTERNATIONAL LAW OF FISHERIES: UNCLOS 1982 AND BEYOND 157 (1994); UPSTREAM: SALMON AND SOCIETY, *supra* note 1, at 262-65. The abstention line, 175 degrees west longitude, lies west of the Bering Strait and bisects the Bering Sea.

when the country of origin has investments in conservation of the fishes and has restricted its own fisheries to prevent overharvest.²⁷

C. *Expanding Fishery Jurisdictions*

For roughly a quarter-century, Canada and the United States managed Pacific salmon under the North Pacific Fisheries Convention.²⁸ However, U.S. and Canadian interceptions of each other's salmon continued to make Pacific salmon management contentious. In 1957, Canada and the United States entered into the Surf-Line Agreement.²⁹ This agreement sought to reduce salmon interception by placing boundaries on the two countries' expanding domestic net fisheries and eliminating the possible institutionalization of high seas salmon net fisheries.³⁰

In a further attempt to reduce interceptions by foreign fishers, the United States and Canada gradually extended their fisheries jurisdictions beyond their coasts. By 1977, overexploitation of several fish stocks in offshore waters led the United States and Canada to claim exclusive jurisdiction over fisheries resources within 200 miles of their shores.³¹

Following this extension, interception of anadromous fish originating in North America by distant-water fisheries was minimal; however, the United States and Canada continued to intercept each other's Pacific salmon extensively.³² While extended jurisdictions reduced foreign overharvest of marine fish, domestic overfishing often supplanted that of distant-water fisheries.³³

²⁷ See Jensen, *supra* note 4, at 377.

²⁸ See *id.* at 376.

²⁹ *Id.* at 378.

³⁰ *Id.*

³¹ See *id.* at 379. While Canadian domestic law is beyond the scope of this paper, Canada extended its jurisdiction to 200 miles beyond its shore by order in 1977. Fishing Zones of Canada (Zone 4 and 5) Order, C. Gaz., 1977.II.115; Fishing Zones of Canada (Zone 6) Order, C. Gaz., 1977.II.652; see also EUGENE H. BUCK, CONG. RESEARCH SERV., OVERCAPITALIZATION IN THE U.S. COMMERCIAL FISHING INDUSTRY at CRS-1-2 (1995) (providing a history of the overexploitation of United States' fisheries); Rögnvaldur Hannesson, *The Political Economy of ITQs*, in GLOBAL TRENDS: FISHERIES MANAGEMENT, AMERICAN FISHERIES SOCIETY SYMPOSIUM 20, at 237, 237-40 (Ellen K. Pikitch et al. eds., 1997) (discussing the development of property rights in fisheries and the expansion of fisheries' jurisdictions to 200 miles).

³² See BURKE, *supra* note 26, at 158-60; UPSTREAM: SALMON AND SOCIETY, *supra* note 1, at 262-65.

³³ BUCK, *supra* note 31, at CRS-1-2.

The United States extended its jurisdiction over fisheries to 200 miles beyond its shores through the Magnuson Fisheries Conservation and Management Act of 1976 (Magnuson Act).³⁴ The Magnuson Act established the Pacific Fishery Management Council to oversee management of Pacific fisheries, including salmon.³⁵ Management must comport to standards established in the Magnuson Act requiring the use of the best scientific information available to prevent overfishing and achieve optimum yield.³⁶ Optimum yield is based upon maximum sustainable yield, as modified by social, economic, and ecological considerations.³⁷ Unfortunately, while the Pacific Fishery Management Council has had some success, it regularly has failed to meet escapement goals because it tends to ignore risk in the face of scientific uncertainty and bend to political pressures.³⁸

Pacific salmon of all species have diverse life histories and occupy widely varying habitats throughout their lifecycle and range.³⁹ This diversity, while making Pacific salmon fit for life in the ever-changing north Pacific, also means that a wide array of environmental factors influence Pacific salmon. The uncertain nature of Pacific salmon and the environments in which they live create the need for management decisions that strictly adhere to precautionary approaches in the face of uncertainty if fisheries management is to be sustainable.⁴⁰

³⁴ See Magnuson Fisheries Conservation and Management Act, 16 U.S.C. §§ 1802(11), 1811(a) (2006). Additionally, the United States claimed “exclusive management authority” over anadromous fishes of U.S. origin when they are within the high seas. *Id.* § 1811(b)(1).

³⁵ *Id.* § 1852(a)(1)(F); see UPSTREAM: SALMON AND SOCIETY, *supra* note 1, at 258.

³⁶ 16 U.S.C. § 1851(a).

³⁷ Norma Jean Sands & Jeffrey L. Hartman, *A Simulation Model to Assess Management and Allocation Alternatives in Multi-Stock Pacific Salmon Fisheries*, in SUSTAINABLE FISHERIES MANAGEMENT: PACIFIC SALMON 435, 436 (E. Eric Knudsen et al. eds., 2000); see also Ray Hilborn et al., *State of the World's Fisheries*, 28 ANN. REV. ENV'T & RES. 359, 377-80 (2003), available at <http://students.washington.edu/arnima/pdf/sowf.pdf> (discussing how maximum sustained yield is calculated).

³⁸ UPSTREAM: SALMON AND SOCIETY, *supra* note 1, at 139-40; see also A. A. Rosenberg et al., *Achieving Sustainable Use of Renewable Resources*, 262 SCI. 828, 828-29 (1993) (arguing that risk-prone management decisions made under scientific uncertainty is a principal obstacle to achieving sustainability).

³⁹ See generally PACIFIC SALMON LIFE HISTORIES (C. Groot & Leo Margolis eds., 1991).

⁴⁰ See NAT'L RESEARCH COUNCIL, SUSTAINING MARINE FISHERIES 116 (1999); STUART M. KAYE, INTERNATIONAL FISHERIES MANAGEMENT 461-62 (2001).

In 1982, roughly five years after Canada and the United States each unilaterally extended their jurisdictions over coastal waters through domestic law, the United Nations Convention on the Law of the Sea (UNCLOS) codified in international law a 200-mile exclusive economic zone (EEZ) beyond every coastal State's shores.⁴¹ Throughout a coastal State's EEZ, the State has exclusive "sovereign rights for the purposes of exploring and exploiting, conserving and managing the natural resources" conditioned upon limited rights of other countries.⁴² Additionally, coastal States must determine the maximum sustained yield for all living resources within their EEZ, taking into account the best scientific evidence available to avoid over-exploitation.⁴³ While coastal States have wide discretion in determining a living resources' maximum sustained yield, once a coastal State makes that determination it must promote the optimum utilization of living resources with its EEZ.⁴⁴ If a coastal State does not harvest the entire allowable catch in its EEZ, the State must allow other States access to the surplus allowable catch.⁴⁵

Anadromous fish management figured prominently in negotiations leading up to UNCLOS.⁴⁶ Article 66 gives the State of ori-

⁴¹ United Nations Convention on the Law of the Sea art. 57, Dec. 10, 1982, 1833 U.N.T.S. 397 [hereinafter UNCLOS], available at http://www.un.org/Depts/los/convention_agreements/texts/unclos/unclos_e.pdf. While Canada ratified UNCLOS in November of 2003, the United States has not. See UNITED NATIONS, STATUS OF THE UNITED NATIONS CONVENTION ON THE LAW OF THE SEA, OF THE AGREEMENT RELATING TO THE IMPLEMENTATION OF PART XI OF THE CONVENTION AND OF THE AGREEMENT FOR THE IMPLEMENTATION OF THE PROVISIONS OF THE CONVENTION RELATING TO THE CONSERVATION AND MANAGEMENT OF STRADDLING FISH STOCKS AND HIGHLY MIGRATORY FISH STOCKS (2007), available at http://www.un.org/Depts/los/reference_files/status2006.pdf; see also BURKE, *supra* note 26, at 162 (noting that the move to 200-mile jurisdictional zones occurred through unilateral national actions taken before UNCLOS came into effect); DAVID HUNTER ET AL., INTERNATIONAL ENVIRONMENTAL LAW AND POLICY 681-90 (2d ed. 2002) (discussing UNCLOS and the effects it has had on fisheries management).

⁴² UNCLOS, *supra* note 41, art. 56(1)(a), (2).

⁴³ *Id.* art. 61. This does not impose a duty to undertake scientific investigation when uncertainty exists. It does, however, require that coastal States use existing evidence to establish the allowable catch for all living resources with its EEZ, not just those the coastal State is actively harvesting. KAYE, *supra* note 40, at 102-04.

⁴⁴ UNCLOS, *supra* note 41, art. 52(1). See KAYE, *supra* note 40, at 104-05.

⁴⁵ UNCLOS, *supra* note 41, art. 62(2).

⁴⁶ See BURKE, *supra* note 26, at 162-72 (offering an in-depth discussion of anadromous fishes' impact on negotiations leading up to UNCLOS); KAYE, *supra* note 40, at 137-38 (suggesting that negotiation of the UNCLOS provision relating to anadromous fishes was "assisted by the fact that the States with the greatest interest in harvesting anadromous species were influential developed States, with long histories of international cooperation").

gin the “primary interest in and responsibility for” anadromous stocks of fish.⁴⁷ Because the State of origin has the “primary” interest and responsibility, other States may have secondary interests in, and responsibilities for, anadromous fishes by implication.⁴⁸ Additionally, States of origin must establish regulations ensuring the conservation of anadromous fish originating within their waters.⁴⁹ In doing so, a State may establish total allowable catches for stocks originating in its rivers after consultation with other affected States.⁵⁰ While the State of origin must consult with other States, it is unclear if the signers of UNCLOS intended to have the State of origin bound to the interests of other States. Some UNCLOS analysts have argued that because the State of origin determines the total allowable catch for anadromous fishes “after” consultation and not “in” consultation with other States, the State of origin may disregard the interests of other States after consultation and determine the total allowable catch independently.⁵¹

II.

THREATS TO PACIFIC SALMON

While UNCLOS helped define Canada’s and the United States’ roles in Pacific salmon management, it did not end the conflict surrounding North American salmon. The natural intermingling of Pacific salmon from rivers of both countries in the Pacific Ocean frustrates fisheries management.⁵² While in the

⁴⁷ UNCLOS, *supra* note 41, art. 66(1).

⁴⁸ See BURKE, *supra* note 26, at 166.

⁴⁹ UNCLOS, *supra* note 41, art. 66(2).

⁵⁰ *Id.* art. 66(2).

⁵¹ See BURKE, *supra* note 26, at 168; KAYE, *supra* note 40, at 137-38. The distinction between establishing total allowable catches “after” consultation and “in” consultation may be significant. Canada and the United States have demonstrated a willingness to regulate their respective fisheries in a manner that fails to accommodate the conservation needs of foreign origin fishes. Canadian fisheries continue to harvest imperiled fishes from Washington and Oregon, and U.S. fisheries continue to harvest fishes of Canadian origin regardless of the respective fish population’s health. See HUPPERT, *supra* note 18, at 11. Interpreting UNCLOS to allow a State of origin to establish total allowable catches without regard to other affected States so long as it is “after” consultation encourages and legitimizes a policy that lacks cooperation and collaboration. Because successful Pacific salmon management can only be conducted on a scale commensurate with the range of Pacific salmon, there must be a dedicated commitment to cooperation by all parties.

⁵² Blumm & Bodi, *supra* note 1, at 274; see UPSTREAM: SALMON AND SOCIETY, *supra* note 1, at 268.

ocean, Pacific salmon create a common resource that encourages overharvest while discouraging investments in conservation.⁵³ In this tragedy of the commons, neither country can optimally harvest salmon originating in its rivers through ocean fisheries without incidentally taking salmon originating in the neighboring country.

While all North American Pacific salmon are susceptible to harvest by fisheries throughout the northeast Pacific, predominant interceptions occur through Alaska, Washington, and Oregon fisheries taking large numbers of Canadian-origin Pacific salmon and Canadian fisheries taking Pacific salmon originating in Washington and Oregon.⁵⁴ Because commercial fishing—like recreational and treaty fishing—occurs late in the salmon's life cycle, overharvest has a direct effect on the reproductive capacity of anadromous fish stocks and the population size of future generations.⁵⁵

Overharvest of Pacific salmon combines with other factors—including the impacts of dam building, habitat destruction, and hatcheries—to exacerbate the decline of Pacific salmon populations.⁵⁶ Hatcheries generally lead to the loss of genetic variation between and within populations of all fishes, including Pacific salmon.⁵⁷ Additionally, over-reliance on hatcheries often has led to unrealistic escapement goals, a failure to develop institutional arrangements to accommodate natural fluctuations in salmon abundance, and subsequent overharvest of native Pacific salmon stocks.⁵⁸ Moreover, development has destroyed or extensively

⁵³ See Blumm & Bodi, *supra* note 1, at 274; HUNTER, *supra* note 41, at 677-78; Jensen, *supra* note 4, at 371-72; Rosenberg, *supra* note 38, at 828-29 (1993).

⁵⁴ HUPPERT, *supra* note 18, at 11. It is worth noting that, in addition to Pacific salmon from Washington and Oregon, Canadian and Alaskan fisheries intercept Pacific salmon from Idaho and California. However, because these salmon are less abundant, they account for relatively few interceptions.

⁵⁵ See UPSTREAM: SALMON AND SOCIETY, *supra* note 1, at 254.

⁵⁶ See Jensen, *supra* note 4, at 372; Larry G. Rutter, *Salmon Fisheries in the Pacific Northwest: How are Harvest Decisions Made?*, in PACIFIC SALMON & THEIR ECOSYSTEMS 355, 356 (Deanna J. Stouder et al. eds., 1997) (discussing hatcheries, habitat, hydropower, and harvest as the four "H's" of Pacific salmon decline).

⁵⁷ See JIM LICHTATOWICH, SALMON WITHOUT RIVERS: A HISTORY OF THE PACIFIC SALMON CRISIS 212-19 (1999) (offering an in-depth discussion of hatcheries' effects on Pacific salmon and the history of Pacific salmon in general); UPSTREAM: SALMON AND SOCIETY, *supra* note 1, at 305-14.

⁵⁸ UPSTREAM: SALMON AND SOCIETY, *supra* note 1, at 319-20; see also LICHTATOWICH, *supra* note 57, at 218 (1999) (discussing overharvest of wild salmon stocks and the effects of hatchery enhancement programs).

altered anadromous fish habitat in the Pacific Northwest over the past 150 years.⁵⁹ Habitat loss threatens ninety percent of imperiled Pacific salmon stocks.⁶⁰ A significant contributor to habitat loss is the construction of dams, of varying size, that fail to accommodate the safe passage of adult and juvenile anadromous fishes.⁶¹ Within the Columbia River basin alone, dams block approximately one-third of the habitat historically available to anadromous fishes, some of which extends north of the United States-Canada border.⁶² In addition to restricting access to critical habitat, dams impact migrating juvenile and adult anadromous fishes through direct mortality, increased predation, and modification of natural river flows and time of migration.⁶³ Due to these cumulative impacts, many stocks of Pacific salmon are imperiled and at least 106 major populations of Pacific salmon and steelhead are extinct within the United States alone.⁶⁴

III.

PACIFIC SALMON TREATY

A. *Protracted Negotiations Leading Up to the Pacific Salmon Treaty of 1985*

In a 1975 opinion, the Ninth Circuit affirmed a district court's interpretation of the 1855 Treaty of Medicine Creek between the United States and numerous Puget Sound and Washington coastal Indian tribes.⁶⁵ This treaty included the customary Stevens treaty language which states that "the right of taking fish . . . is further secured to said Indians, in common with all citizens of the territory."⁶⁶ The court interpreted the treaty as guaranteeing those Indians who were a party to the treaty the right to take fifty

⁵⁹ UPSTREAM: SALMON AND SOCIETY, *supra* note 1, at 199.

⁶⁰ MICHAEL R. ROSS, FISHERIES CONSERVATION AND MANAGEMENT 298 (1997).

⁶¹ See UPSTREAM: SALMON AND SOCIETY, *supra* note 1, at 231-35.

⁶² *Id.* at 231.

⁶³ *Id.* at 231-35.

⁶⁴ See Willa Nehlsen et al., *Pacific Salmon at the Crossroads: Stocks at Risk from California, Oregon, Idaho, and Washington*, FISHERIES, Mar.-Apr. 1991, at 4, 16.

⁶⁵ See *United States v. Washington (Phase I)*, 520 F.2d 676, 689 (9th Cir. 1975) (acknowledging the district court's power to allocate fish between tribal and non-tribal fishers); see also Jensen, *supra* note 4, at 381-82 (discussing the history of fisheries in the Pacific Northwest).

⁶⁶ See *Washington (Phase I)*, 520 F.2d at 683 (citing Treaty of Medicine Creek, Dec. 26, 1854, 110 Stat. 1132).

percent of the sustainably harvestable Pacific salmon destined to traditional fishing grounds.⁶⁷

While *United States v. Washington* had a major impact on the management of Pacific salmon in the United States, the impact was not immediate or well received by non-treaty fishers.⁶⁸ The original district court opinion underwent a lengthy appeals process before the U.S. Supreme Court ultimately denied certiorari.⁶⁹ Additionally, Washington challenged the ruling unsuccessfully through legislative means.⁷⁰ In an unfortunate and misguided attempt to offset the effects of *United States v. Washington* and secure more salmon for non-treaty fishers, fisheries managers in Washington undertook an ambitious hatchery construction effort that unintentionally proved to further threaten Pacific salmon.⁷¹

United States v. Washington is part of a series of federal court opinions regarding the allocation of Pacific salmon between Pacific Northwest Indian tribes and non-Indian fishers. To this day, the allocation of Columbia River salmon and steelhead is under the continued jurisdiction of U.S. federal courts which continually have reaffirmed the fifty-fifty division promulgated in *United States v. Washington*.⁷²

⁶⁷ *Id.* at 689; see also HUPPERT, *supra* note 18, at 7-8 (appellate courts affirmed tribes' right to fifty percent of returning salmon); SARA SINGLETON, CONSTRUCTING COOPERATION: THE EVOLUTION OF INSTITUTIONS OF COMANAGEMENT 64-69 (1998) (recounting history of the *United States v. Washington* litigation); UPSTREAM: SALMON AND SOCIETY, *supra* note 1, at 255 (discussing the history of fisheries in the Pacific Northwest); Jensen, *supra* note 4, at 381-82. During the second phase of litigation between the various tribes and the State of Washington over salmon fishing rights, the trial court held "that implicitly incorporated in the treaties' fishing clause is the right to have the fishery habitat protected from man-made despoliation. . . . The most fundamental prerequisite to exercising the right to take fish is the existence of fish to be taken." See *United States v. Washington* (Phase II), 506 F. Supp. 187, 203 (W.D. Wash. 1980), *aff'd in part and vacated in part*, 694 F.2d 1374 (9th Cir. 1983), *reh'g granted*, 704 F.2d 1141 (9th Cir. 1983), *aff'd in part and vacated in part*, 759 F.2d 1353 (9th Cir. 1985). Unfortunately, an implied right to have fish present proved unpalatable on appeal. See *id.*

⁶⁸ See SINGLETON, *supra* note 67, at 66-67.

⁶⁹ *Washington v. United States*, 423 U.S. 1086 (1976).

⁷⁰ See SINGLETON, *supra* note 67, at 74.

⁷¹ See Jensen, *supra* note 4, at 382.

⁷² See, e.g., *Washington* (Phase I), 520 F.2d at 689; *United States v. Oregon*, 718 F.2d 299 (9th Cir. 1983); *Sohappy v. Smith*, 302 F. Supp. 899 (D. Or. 1969), *aff'd*, 529 F.2d 570 (9th Cir. 1976); see also Jensen, *supra* note 4, at 381 n.49 (discussing the allocation of Columbia River salmon and steelhead in federal courts).

In addition to the development of Indian treaty rights to Pacific salmon within the United States, interceptions between the United States and Canada continued to complicate relations between the two countries. Concerns regarding interceptions created disincentives for conservation, making the United States and Canada hesitant to initiate salmon restoration and enhancement projects.⁷³ This was especially apparent in relation to Fraser River salmon since the Fraser River Convention allotted half of the sockeye and pink salmon catch from the Fraser River to the United States.⁷⁴ The disincentives for conservation, in combination with overharvest, led to diminishing salmon populations.

By the 1980s, fisheries biologists began to call attention to dwindling populations and the many threats to salmon throughout the Pacific Northwest.⁷⁵ Data indicated that Chinook salmon interceptions by the United States and Canada frustrated escapement levels and threatened some stocks with extinction.⁷⁶ In the face of mounting evidence suggesting overharvest was one of the significant contributors to salmon population decline, and the reluctance of the United States and Canada to initiate meaningful conservation programs, various Indian-treaty tribes sued the U.S. Secretary of Commerce.⁷⁷

Management of Pacific salmon between Canada, the United States, and various Indian-treaty tribes had reached a head. In 1982, the United States and Canada negotiated a Draft Pacific Salmon Treaty (Draft Treaty).⁷⁸ The Draft Treaty established a salmon allocation system and conservation principles, and a bilateral regulatory forum, and set immediate limits on Canadian and Alaskan Chinook harvests in an effort to curtail Chinook salmon interceptions.⁷⁹ In response to fishing industry pressures within Alaska, Alaskan representatives withdrew their support and the Draft Treaty died.⁸⁰

⁷³ See Jensen, *supra* note 4, at 383-84.

⁷⁴ *Id.* at 384.

⁷⁵ *Id.* at 388-89.

⁷⁶ *Id.*

⁷⁷ See Jensen, *supra* note 4, at 389.

⁷⁸ Negotiators' Draft Treaty between the Government of Canada and the Government of the United States of America Concerning Pacific Salmon, Dec. 22, 1982; see also Jensen, *supra* note 4, at 394.

⁷⁹ Jensen, *supra* note 4, at 394.

⁸⁰ Augerot, *supra* note 10, at 261; Jensen, *supra* note 4, at 394-95.

B. The Pacific Salmon Treaty of 1985

Although the Draft Treaty failed, public demand for a comprehensive treaty between the United States and Canada continued to grow and, when threatened with a fifty-fifty sharing rule for Alaskan Indian tribes, negotiators from the United States and Canada came to an agreement on December 15, 1984.⁸¹ In signing the Pacific Salmon Treaty of 1985, the United States wanted to (1) maintain a stable level of Fraser River sockeye and pink salmon harvest for United States' fisheries, (2) conserve salmon from transboundary rivers⁸² for Alaskan fisheries, and (3) obtain Canadian cooperation in conserving and rebuilding depleted Chinook and coho stocks in Washington and Oregon.⁸³ Once the 1985 Treaty was signed and the Fraser River Convention terminated, Canada gained increased control over salmon from the Fraser River and joint management for transboundary rivers in Southeast Alaska in exchange for increased U.S. control over south coast Canadian fisheries' interceptions of salmon from Washington and Oregon.⁸⁴

To effectuate the 1985 Treaty, the United States and Canada established the Pacific Salmon Commission (Commission) which advises and makes recommendations regarding the management of Pacific salmon.⁸⁵ The Commission is comprised of two sections—one from each represented country—and may make decisions or recommendations only with the approval of both sections.⁸⁶ To assist the Commission, the 1985 Treaty created panels representing various geographic areas where Pacific salmon originate.⁸⁷ Like the Commission, each panel is com-

⁸¹ Jensen, *supra* note 4, at 396-400; *see also* Augerot, *supra* note 10, at 261.

⁸² Transboundary rivers originate in one country and flow through another before entering the Pacific Ocean. Numerous transboundary rivers originate in Canada and flow through southeast Alaska.

⁸³ HUPPERT, *supra* note 18, at 9; *see also* M. P. SHEPARD & A. W. ARGUE, THE 1985 PACIFIC SALMON TREATY: SHARING CONSERVATION BURDENS AND BENEFITS 198 (2005) (discussing the treaty's conservation and competition-management objectives).

⁸⁴ Augerot, *supra* note 10, at 261-62.

⁸⁵ 1985 Treaty, *supra* note 5, T.I.A.S. No. 11091, 1469 U.N.T.S. at 358-59 (art. II(1), (8)).

⁸⁶ *Id.* at 359 (art. II(6)).

⁸⁷ *Id.* at 360, 365 (art. II(18), (19), annex I). The original 1985 Treaty created three panels: (1) a southern panel for salmon originating in waters south of Cape Caution, (2) a Fraser River panel for sockeye and pink salmon, and (3) a northern panel for salmon originating in waters between Cape Caution and Cape Suckling. *Id.* at 365 (annex I). When the treaty was reauthorized in 1999, two additional

prised of representatives from both the United States and Canada.⁸⁸ The United States and Canada mutually fund the implementation of the 1985 Treaty.⁸⁹

There are two primary objectives of the 1985 Treaty: (1) to “[p]revent overfishing and provide for optimum production,” and (2) to “provide for each Party to receive benefits equivalent to the production of salmon originating in its waters.”⁹⁰ The 1985 Treaty emphasized reducing interceptions and avoiding undue disruption of existing fisheries, and recognized annual variations in Pacific salmon stocks’ abundance.⁹¹ While the first objective promotes conservation of Pacific salmon stocks, the second objective—the equity principle—was the 1985 Treaty’s answer to rampant interceptions of Pacific salmon by both countries.⁹² Beginning with the abstention principle embodied in the 1953 North Pacific Fisheries Convention that limited Japanese interception of North American salmon, the United States and Canada both had argued that salmon should be harvested only by those countries where the salmon originate.⁹³ However, because total elimination of interceptions by the United States and Canada was impossible without massive economic disruption, the equity principle recognized the inevitability of intercepting intermingled Pacific salmon and sought to return benefits commensurate with each country’s Pacific salmon production.⁹⁴

The Pacific Salmon Treaty is an institutionalization of the ongoing negotiations between the United States and Canada regarding Pacific salmon.⁹⁵ Oregon, Washington, Alaska, and the Indian-treaty tribes have principal responsibility for implement-

panels were added: (1) a transboundary panel for salmon originating in the Asek, Stikine and Taku Rivers which flow from Canada through Alaska before entering the Pacific ocean, and (2) the Yukon River panel for salmon originating in the Yukon River. Treaty Between the Government of Canada and the Government of the United States of America Concerning Pacific Salmon, U.S.-Can., annex I, June 30, 1999, available at <http://www.psc.org/pubs/Treaty.pdf> [hereinafter 1999 Agreement].

⁸⁸ 1985 Treaty, *supra* note 5, T.I.A.S. No. 11091, 1469 U.N.T.S. at 360 (art. II(21)).

⁸⁹ *Id.* at 359 (art. II(11)-(12)).

⁹⁰ *Id.* at 360 (art. III(1)); see BURKE, *supra* note 26, at 182-83.

⁹¹ 1985 Treaty, *supra* note 5, T.I.A.S. No. 11091, 1469 U.N.T.S. at 360 (art. III(3)); see also UPSTREAM: SALMON AND SOCIETY, *supra* note 1, at 272-73.

⁹² See UPSTREAM: SALMON AND SOCIETY, *supra* note 1, at 272-73.

⁹³ Jensen, *supra* note 4, at 376-77; see BURKE, *supra* note 26, at 157; UPSTREAM: SALMON AND SOCIETY, *supra* note 1, at 262-65.

⁹⁴ See Jensen, *supra* note 4, at 400.

⁹⁵ Pacific Salmon Treaty Act of 1985, 16 U.S.C. §§ 3632(g), 3635 (2006).

ing the Pacific Salmon Treaty in the United States, subject to the federal government's right to intercede if the United States is in jeopardy of not fulfilling Indian Treaty obligations.⁹⁶ In Canada, the Department of Fisheries and Oceans has primary responsibility over the Pacific Salmon Treaty, in cooperation with Canada's indigenous people.⁹⁷

C. *The 1985 Treaty's Collapse*

Initially, the 1985 Treaty appeared to solve many of the Pacific salmon management problems. Following the 1985 Treaty's signing salmon populations generally increased, giving the United States and Canada reason for optimism.⁹⁸ However, the abundance was the product of temporary climatic conditions, not changes in fisheries management, and the gains of the late 1980s were followed by a marked downward trend in salmon populations.⁹⁹ In Washington and Oregon, habitat degradation and questionable hatchery practices combined to further stress Chinook and coho populations and led to catastrophic decreases in salmon harvest throughout the 1990s.¹⁰⁰

Both countries narrowly interpreted the authority of the Commission, which largely limited its efforts in the management of Pacific salmon to negotiating various seasonal fishery harvest regimes.¹⁰¹ Typically, the Commission developed maximum annual catch limits, known as "ceilings," for two or four-year periods for the various fisheries.¹⁰² These ceilings were not responsive to annual variations in abundance and, if the Commission was unable to come to agreement upon a new ceiling at the end of the period, the expired agreement simply was extended without modification.¹⁰³ Throughout the 1990s, the Commission had difficulty reaching agreement and typically extended outdated ceilings.¹⁰⁴ Disagreements within the panels made it impossible for the Commission to render decisions.¹⁰⁵ For the United States, the North

⁹⁶ See Rutter, *supra* note 56, at 359; 16 U.S.C. § 3635.

⁹⁷ Rutter, *supra* note 56, at 358-59.

⁹⁸ See SHEPARD & ARGUE, *supra* note 83, at 199.

⁹⁹ See *id.*

¹⁰⁰ *Id.* at 203.

¹⁰¹ See *id.*

¹⁰² Rutter, *supra* note 56, at 356.

¹⁰³ *Id.* at 356, 363.

¹⁰⁴ See Rutter, *supra* note 56, at 360; see also Evans, *supra* note 2, at 61-69 (providing additional background on barriers to Commission decision making).

¹⁰⁵ See Rutter, *supra* note 56, at 361.

and South panels often were unable to come to an agreement because of concerns over Alaska fisheries' Chinook salmon interceptions.¹⁰⁶ Proposed reform rarely was able to overcome incentives for the status quo.¹⁰⁷

The disparagement between U.S. interception of Canadian salmon and Canadian interception of U.S. salmon roughly doubled between 1985 and 1998.¹⁰⁸ Traditionally, Alaskan and Washington fisheries intercept significant numbers of Canadian salmon while Canadian fisheries intercept significant numbers of Washington and Oregon salmon.¹⁰⁹ However, declining salmon populations in Oregon and Washington have reduced Canada's opportunity to intercept salmon of U.S. origin.¹¹⁰ Because of the disparate rates of interceptions, Canada was unwilling to agree to fishery regimes unless the United States reduces its interception of Canadian salmon by Alaskan fisheries.¹¹¹

These issues of equity have been at the center of most disagreements and have compromised the Commission's ability to manage Pacific salmon.¹¹² An initial difficulty has been in the valuation of interceptions by the United States and Canada. Little data exist on the quantity of salmon the two countries intercept and, even when data are available, the United States and Canada often are unable to come to terms on a monetary value for the interceptions or appropriate compensation.¹¹³

One solution to problems associated with interceptions is single-stock management. While both countries advocate single-stock management of Pacific salmon resources, both also recognize the difficulties of eliminating mixed-stock management.¹¹⁴ Those difficulties arise through the natural mingling of Pacific salmon stocks in the ocean environment and Alaska's unwillingness to move toward stock-selective fisheries due to the relative abundance of Alaskan salmon.¹¹⁵ However, while Alaskan

¹⁰⁶ *See id.*

¹⁰⁷ *See id.*

¹⁰⁸ *See* SHEPARD & ARGUE, *supra* note 83, at 214.

¹⁰⁹ HUPPERT, *supra* note 18, at 11.

¹¹⁰ *Id.* at 11-12.

¹¹¹ Rutter, *supra* note 56, at 362; *see also* Evans, *supra* note 2, at 63 (discussing the pressures Alaskan interception fisheries have created on Pacific salmon management).

¹¹² Rutter, *supra* note 56, at 362.

¹¹³ *See* BURKE, *supra* note 26, at 182.

¹¹⁴ SHEPARD & ARGUE, *supra* note 83, at 203-04.

¹¹⁵ *See id.* at 204.

salmon are relatively abundant, fisheries in southeast Alaska also harvest large numbers of salmon from transboundary rivers that originate in Canada and flow through Alaska before entering the Pacific Ocean, as well as the incidental salmon from the remainder of British Columbia, Oregon, and Washington.¹¹⁶ Moreover, there are no direct opportunities for Canada, Washington, or Oregon fisheries to share in Alaskan salmon.¹¹⁷ As a result, Canada has been unwilling to reduce its interception of Washington and Oregon salmon without Alaskan fisheries curtailing their interceptions.¹¹⁸ Alaska's reliance on mixed-stock fisheries, and the related interceptions, has been a major road block to the successful implementation of the Pacific Salmon Treaty.¹¹⁹

Alaska's reliance on interception fisheries, and its unwillingness to alter its fisheries to accommodate the legitimate interests of the rest of the Pacific Northwest, has caused significant problems for United States-Canada relations, as well as relations between Alaska and other Pacific Northwest states.¹²⁰ When combined with increasingly diminished Pacific Salmon populations, the effects of interceptions are even greater.

It wasn't long before it became obvious the 1985 Treaty was failing.¹²¹ In 1993, the equity issue was taken out of the Commission's hands and dealt with on a "government-to-government" level.¹²² Yet, the United States and Canada still could not come to an agreement regarding the equitable allocation of Pacific salmon. Within the next year, negotiations collapsed and both governments reverted to managing their fisheries independently, without consultation or cooperation.¹²³

In 1995, various Indian-treaty tribes in Washington, Oregon, and Idaho filed suit in U.S. district court seeking redress for

¹¹⁶ See *id.*

¹¹⁷ See *id.*

¹¹⁸ *Id.* at 204-05.

¹¹⁹ See *id.* at 206. The problem does not lie in Alaska's careless management of its fisheries. In fact, "Alaska possesses an efficient management system that provides for rapid responses to changing abundance levels for the large stock aggregates that the system is designed to manage and conserve." *Id.* at 205. However, Alaska "place[s] little emphasis on conservation needs of Canadian stocks and gave no consideration at all to the equity provisions of the Pacific Salmon Treaty." *Id.*

¹²⁰ See *id.* at 205-06.

¹²¹ See Evans, *supra* note 2, at 61-69 (providing an in-depth discussion of the events leading up to the collapse of the 1985 Treaty).

¹²² Rutter, *supra* note 56, at 362.

¹²³ See Evans, *supra* note 2, at 61-69.

Alaskan fisheries' salmon interceptions.¹²⁴ Out of concern over interceptions and because of failures in Alaska's participation in the Commission's Chinook rebuilding program, the federal court issued an injunction banning commercial fishing for Chinook salmon in southeast Alaska for the remainder of the year.¹²⁵

At one point, Canada imposed a US\$1,050 transit fee on all U.S. vessels traveling between Washington and Alaska, irrespective of whether or not the vessel was contributing to interceptions of Canadian salmon.¹²⁶ Additionally, competition between Canadian fisheries and U.S. fisheries led to increased overharvest of salmon. In an attempt to preempt Washington fisheries from harvesting sockeye in the San Juan Islands and Bellingham Bay areas, Canadian fisheries off Vancouver Island increased salmon harvests.¹²⁷ In 1995, a neutral mediator, Ambassador Beeby, was appointed to resolve the escalating Pacific salmon dispute.¹²⁸ After recommending that the United States either curtail catch rates or pay Canada compensation for the excess Pacific salmon of Canadian origin that it caught, the United States dismissed Ambassador Beeby and refused to comply with his recommendations.¹²⁹

The Pacific Salmon War came to a head in the summer of 1997. On July 19, about 100 Canadian fishing vessels blockaded the Alaskan Marine Highway ferry, M/V *Malaspina*, and its 300 passengers in the port of Prince Rupert, British Columbia, for three days demanding the concessions outlined by Ambassador Beeby.¹³⁰ In response, the U.S. Senate voted eighty-one to nineteen in favor of a resolution calling on President Clinton to send the U.S. Navy to protect our right of innocent passage through Canadian waters.¹³¹ Additionally, Alaska Governor Tony Knowles threatened suit against the Canadian government, and the fishers and revoked the thirty-six-year-old lease routing Alaskan ferries through Prince Rupert.¹³² The U.S. and Canadian governments sought to head off the dispute and appointed

¹²⁴ See *Confederated Tribes and Bands of Yakama Indian Nation v. Baldrige*, 898 F. Supp. 1477, 1491 (W.D. Wash. 1995), *aff'd*, 95 F.3d 1157 (9th Cir. 1996).

¹²⁵ *Id.* at 1491.

¹²⁶ See HUPPERT, *supra* note 18, at 4.

¹²⁷ *Id.*

¹²⁸ Evans, *supra* note 2, at 63-64.

¹²⁹ See *id.*

¹³⁰ *Id.* at 66.

¹³¹ *Id.*

¹³² *Id.* at 66-67.

Dr. David Strangway and William Ruckelshaus to resume negotiations.¹³³ While the Strangway-Ruckelshaus Initiative did not come to a resolution, it did defuse the crisis and pave the way for the Pacific Salmon Treaty's successful reauthorization in 1999.¹³⁴

IV.

REAUTHORIZATION OF THE PACIFIC SALMON TREATY

After tumultuous beginnings and several years of protracted negotiations, the United States and Canada reauthorized the Pacific Salmon Treaty in June of 1999.¹³⁵ While the future of the 1999 Agreement remains uncertain, it offers fishers and fisheries managers some stability.¹³⁶ There are three new elements to the 1999 Agreement. First, the 1999 Agreement established long-term fishing arrangements of ten to twelve years for all shared stocks.¹³⁷ The 1999 Agreement replaced fixed harvest quotas with "abundance-based management" strategies that are designed to promote conservation and reduce overfishing through the incorporation of in-season monitoring.¹³⁸ These long-term arrangements attempt to reduce mixed-stock fisheries and take a slightly more cautious approach that affords increased protection for dwindling stocks.¹³⁹

Second, the 1999 Agreement emphasizes individual stock management where appropriate.¹⁴⁰ Fisheries are divided and man-

¹³³ *Id.* at 67-68.

¹³⁴ *Id.* at 68-69.

¹³⁵ See 1999 Agreement, *supra* note 87, annex IV.

¹³⁶ See David W. Narver, *Review of Salmon Management in British Columbia: What Has the Past Taught Us?*, in SUSTAINABLE FISHERIES MANAGEMENT: PACIFIC SALMON 67, 68 (E. Eric Knudsen et al. eds., 2000).

¹³⁷ See 1999 Agreement, *supra* note 87, annex IV; SHEPARD & ARGUE, *supra* note 84, at 209; Augerot, *supra* note 10, at 263. Similar long-term fishing arrangements, commonly referred to as management procedures, have had success in several other fisheries. See D. S. Butterworth et al., *Management Procedures: A Better Way to Manage Fisheries? The South African Experience*, in GLOBAL TRENDS: FISHERIES MANAGEMENT, AMERICAN FISHERIES SOCIETY SYMPOSIUM 20, *supra* note 31, at 83-89; G. P. Kirkwood, *The Revised Management Procedure of the International Whaling Commission*, in GLOBAL TRENDS: FISHERIES MANAGEMENT, AMERICAN FISHERIES SOCIETY SYMPOSIUM 20, *supra* note 31, at 91, 91-98; see also Hilborn, *supra* note 37, at 359, 388 (explaining that a salmon management regime's success is directly related to the simplicity of its decision-making system).

¹³⁸ See 1999 Agreement, *supra* note 87, annex IV; Augerot, *supra* note 10, at 263; Evans, *supra* note 2, at 76.

¹³⁹ SHEPARD & ARGUE, *supra* note 83, at 209.

¹⁴⁰ See 1999 Agreement, *supra* note 87, annexes I, IV.

aged as (1) those that occur in large areas and that affect mixed-stocks, and (2) those managed based on the status of an individual or group of affected stocks.¹⁴¹ The 1999 Agreement sets limits on Canadian harvest of pink salmon and Alaskan harvest of sockeye salmon, as well as limiting harvest of certain Chinook stocks by both Canadian and U.S. fisheries.¹⁴² Additionally, the agreement modified the Commission to include a Panel on Transboundary Rivers and a Committee on Scientific Cooperation.¹⁴³ While these changes are improvements over the prior system, many fisheries, including those in Alaska, still are managed as mixed-stock fisheries without a complete understanding of the harvest composition or affected stocks' status.¹⁴⁴

Third, the U.S. government funded two endowments that Canada and the United States manage jointly for investment in scientific approaches to better Pacific salmon management and habitat recovery in both countries.¹⁴⁵ The endowment funds are designed to allow more flexible fishery assessments, a clearer scientific understanding of the relationship between river and oceanic conditions for specific salmon stocks, and the enhancement of wild stocks through habitat enhancement.¹⁴⁶

A realization that stable salmon populations and predictable commercial fisheries depend upon cooperative Pacific salmon management characterized events leading up to the successful reauthorization of the Pacific Salmon Treaty in 1999. Undoubtedly, the court-ordered closure of southeast Alaska's commercial-fishing harvest of Chinook salmon during the 1995 season weighed heavily on Alaska—a state otherwise reluctant to negotiate—during the search for certainty.¹⁴⁷ Additionally, Pacific salmon listings under the Endangered Species Act (ESA) threatened to close U.S. fisheries if negotiations under the Pacific Salmon Treaty failed.¹⁴⁸ While U.S. fisheries were under threat

¹⁴¹ See *id.*; SHEPARD & ARGUE, *supra* note 83, at 210.

¹⁴² 1999 Agreement, *supra* note 87, annex IV; Evans, *supra* note 2, at 76.

¹⁴³ Augerot, *supra* note 10, at 263; see 1999 Agreement, *supra* note 87, annexes I, IV.

¹⁴⁴ See SHEPARD & ARGUE, *supra* note 83, at 210.

¹⁴⁵ Augerot, *supra* note 10, at 263; Evans, *supra* note 2, at 71-72.

¹⁴⁶ See Augerot, *supra* note 10, at 263.

¹⁴⁷ See *Confederated Tribes and Bands of Yakama Indian Nation v. Baldrige*, 898 F. Supp. 1477, 1490-91 (W.D. Wash. 1995).

¹⁴⁸ Evans, *supra* note 2, at 70-71. When faced with the possible closure of commercial salmon seasons, the political leadership in the Pacific Northwest took on a renewed and more visible role. For instance, Oregon Governor John Kitzhaber then

of closure, Canadian fisheries had additional problems. In response to declining Skeena River coho salmon populations, Canada had scaled back fisheries and ultimately closed many commercial fisheries in 1998, forgoing the catch of millions of salmon of other species.¹⁴⁹

Ultimately, successful reauthorization of the Pacific Salmon Treaty in 1999 occurred because, in the face of failed prior agreements and continually declining salmon populations, an agreement providing some certainty became worth the costs of compromise. With the reauthorization of the Pacific Salmon Treaty in 1999 came a new recognition of the shared economic need for healthy and sustainably managed fisheries.¹⁵⁰

V.

CURRENT CHALLENGES AND THE FUTURE OF PACIFIC SALMON MANAGEMENT

A. *Current Challenges*

Despite the progress made during negotiations leading up to the 1999 Agreement and the mending of relations between the United States and Canada, many of the foundational problems that led to the 1985 Treaty's collapse remain unresolved. Most notably, the Pacific Salmon Treaty remains unable to distribute equitably the benefits of Pacific salmon between the United States and Canada and fails to guarantee habitat conservation.

Interception of Pacific salmon by mixed-stock fisheries continues to be a thorn in the side of Pacific salmon management.¹⁵¹ Fishers from the United States disproportionately intercept salmon of Canadian origin while Canadian fishers intercept a large number of salmon originating in Washington and Oregon waters—salmon that are becoming increasingly rare as the ad-

became involved personally in the negotiations and was a major driving force behind the 1999 Agreement's success. *See id.* at 73-74.

¹⁴⁹ *See* SHEPARD & ARGUE, *supra* note 83, at 205. The Skeena River enters the Pacific Ocean just south of the Alaska-British Columbia border. As such, Skeena River salmon are vulnerable to British Columbia fisheries, as well as interceptions by southeast Alaskan fisheries. *See id.* at 139-40.

¹⁵⁰ *See* Evans, *supra* note 2, at 74-75.

¹⁵¹ *See supra* Parts I, III; *see also* Ted L. McDorman, *The 1999 Canada-United States Pacific Salmon Agreement: Resolved and Unresolved Issues*, 15 J. ENVTL. L. & LITIG. 1, 5-6, 11-14 (2000) (assessing the 1999 Agreement's limited effectiveness at solving problems associated with the equitable distribution of Pacific salmon resources).

verse effects of habitat modification and destruction, dams, and hatcheries take their toll.

The challenges associated with Pacific salmon interceptions and the equitable allocation of salmon are further exacerbated by many stocks' continued spiral toward extinction.¹⁵² Unfortunately, neither the United States nor Canada has interpreted the Pacific Salmon Treaty as an affirmative mandate for habitat protection or to require the curtailment of activities that adversely affect Pacific salmon habitat.¹⁵³ If salmon populations continue to decline and the rates of interceptions continue to increase, renewed conflict over Pacific salmon may be inevitable.

Finally, another significant challenge to management under the Pacific Salmon Treaty is the treaty's failure to embrace fully the precautionary principle. The current Pacific salmon regime emphasizes a maximum sustained yield system.¹⁵⁴ A precautionary approach would afford numerous advantages over the maximum sustained yield concept.¹⁵⁵ Among those, a precautionary approach generally would lead toward fishing levels that help stabilize salmon populations by reducing current overfishing trends and the likelihood of overfishing vulnerable stocks. Additionally, precautionary management would manage Pacific salmon using a broad ecosystem approach, whereas the current maximum sustained yield system focuses solely on reproductive capacity and escapement goals while failing to account for many of the ecological and biological variations of anadromous fishes. If the Pacific Salmon Treaty thoroughly incorporated the precautionary principle, the potential adverse effects that result from natural and human-induced irregularities, variability in salmon abundance, and the ocean environment also would be minimized and be more predictable.

B. Solving the Equity Problem

There is a long history of rampant interceptions of Pacific salmon, both on the part of the United States and Canada. In response to these interceptions, the equity principle was first established in the 1985 Treaty. This principle remains in its original form in Article III of the current Pacific Salmon Treaty, which

¹⁵² See *supra* Part II.

¹⁵³ See Blumm & Bodi, *supra* note 1, at 276.

¹⁵⁴ UNCLOS, *supra* note 41, art. 61.

¹⁵⁵ See KAYE, *supra* note 40, at 461-62.

“[p]rovide[s] for each Party to receive benefits equivalent to the production of salmon originating in its waters.”¹⁵⁶ Beyond this statement, an accompanying call for cooperation,¹⁵⁷ and a general statement encouraging the reduction of interceptions,¹⁵⁸ the Pacific Salmon Treaty says little regarding how the United States and Canada will accomplish the equity principle’s goals.¹⁵⁹

Amazingly, the equity principle remains substantially unchanged from its original form in the current Pacific Salmon Treaty. Despite the Pacific salmon wars of the 1990s and the 1985 Treaty’s collapse, specific measures for the achievement of the equity principle’s promise failed to make it into the 1999 Agreement. Through the Pacific Salmon Treaty’s silence, the equity principle’s promise remains unfulfilled and the disproportionate interception of Pacific salmon continues.

Data indicate that during the years between 1985 and 1998—the years that span from the 1985 Treaty’s adoption to its collapse—interceptions by U.S. fishers became increasingly disproportionate to the interceptions by Canadian fishers.¹⁶⁰ This disproportionate rate of interceptions has led at least one observer to conclude that “Canada has been forced for the time being to abandon its position regarding the development of fishing patterns that would result in an equitable sharing of the benefits from harvests of the resources.”¹⁶¹ It is anyone’s guess as to how long it will be before Canada reasserts its claim to an equitable distribution of Pacific salmon.

Pacific salmon managers have at least two obvious options for solving Pacific salmon management’s equity problems. First, Pacific salmon managers could do away with the current mixed-stock fishery regime and the accompanying incidental harvest of salmon of unknown origin, and restructure the commercial fishing industry for stock-specific harvest. This most likely could occur through the development of stock-specific terminal fisheries

¹⁵⁶ 1999 Agreement, *supra* note 87, art. III(1)(b).

¹⁵⁷ *Id.* (art. III(2)).

¹⁵⁸ *Id.* (art. III(3)(a)).

¹⁵⁹ See SHEPARD & ARGUE, *supra* note 83, at 211-12. Besides the stated equity principle in Article III, the only explicit mention of reducing disproportionate interceptions occurs in relation to Fraser River sockeye. The 1999 Agreement specifies that the U.S. catch of sockeye salmon in the Fraser Panel Area was to drop from 22.4% in 1999 to 16.5% in 2002, and remain there through 2010. 1999 Agreement, *supra* note 87, annex IV, ch. 4(2); see also McDorman, *supra* note 151, at 12-14.

¹⁶⁰ See SHEPARD & ARGUE, *supra* note 83, at 212-14.

¹⁶¹ *Id.* at 214.

that target salmon for harvest later in their life cycle, when salmon are near their origin waters. In doing so, managers could regulate individual fishers' harvest of individual stocks and effectively minimize salmon interceptions. While terminal fisheries allow stock-specific management and more informed decision-making, obstacles to the implementation of terminal fisheries may make them impractical. Because the quality of a salmon's flesh deteriorates as it nears fresh water and prepares to spawn, salmon harvested from terminal fisheries are less marketable and may fetch a dramatically lower price at market. Additionally, because fishing techniques are quite different when salmon are targeted near or in freshwater as compared to harvest in mixed-stock fisheries, a shift to terminal fisheries likely would require a significant recapitalization of fisheries resources—an expense already-struggling fishers likely could not afford.

Second, while it may be impractical to implement terminal fisheries or eliminate mixed-stock harvest of Pacific salmon, the United States and Canada should implement market-based mechanisms to compensate one another for those interceptions that fishers from both countries are unable to avoid. While the United States has been reluctant to acknowledge the disproportionate interceptions of Canadian salmon by United States' fishers,¹⁶² a compensation program that allows Pacific salmon fishers to purchase the rights to harvest the salmon they intercept may prove more palatable. Properly implemented and enforced individual transferable quota (ITQ) programs have proven beneficial in allocating the benefits of fish harvest among competing fishers of non-anadromous fishes. Analyzing these ITQ programs, and adopting relevant principles to Pacific salmon management, may help solve the Pacific Salmon Treaty's equity problems and succeed where previous measures under the 1985 Treaty and the 1999 Agreement have failed.

Under an ITQ program, each fisher is subject to fishing quotas.¹⁶³ Each quota permits the limited harvest of a specific stock and is permanent, perfectly divisible, and freely transferable.¹⁶⁴

¹⁶² See *supra* Part III.C.; see also SHEPARD & ARGUE, *supra* note 83, at 212-14 (discussing the disproportionate rate at which U.S. fishers intercept Pacific salmon that originate in Canadian waters).

¹⁶³ For additional discussions of ITQs, see generally GLOBAL TRENDS: FISHERIES MANAGEMENT, AMERICAN FISHERIES SOCIETY SYMPOSIUM 20, *supra* note 31.

¹⁶⁴ See Ragnar Arnason, *The Icelandic Individual Transferable Quota System: Motivation, Structure, and Performance*, in GLOBAL TRENDS: FISHERIES MANAGE-

Each ITQ holder pays a minimal annual fee to fund the program's implementation and enforcement costs.¹⁶⁵

Successful ITQ programs define the permitted harvest as a percentage of the total allowable catch. Thus, the amount allotted to an individual fisher under an ITQ program will fluctuate with the affected stock's abundance.¹⁶⁶ Allowable harvest would decrease if the target stock's population declined, and increase if the stock's population is rebuilt.¹⁶⁷ Under such a system, permitted fishers would have a direct and quantifiable interest in fish abundance creating incentives within the fishing community for conservation and protection.

Quotas are permanent, perfectly divisible, and freely transferable.¹⁶⁸ This allows markets to develop for the purchase and sale of ITQs and provides a mechanism for compensating for interceptions. When applied to Pacific salmon, if U.S. fishers wish to harvest salmon of Canadian origin, the U.S. fishers would purchase quotas originally allocated by Canada for the intercepted salmon. Additionally, Canadian fishers harvesting salmon of Oregon and Washington origin would have the opportunity to purchase quotas originally issued by Oregon and Washington. Thus, while market-based mechanisms like those found in an ITQ program will not ensure that fishers from each country actually harvest salmon at a rate proportional to each country's salmon production, market-based mechanisms could help ensure that each party receives compensation—either in the form of harvestable fish or from the sale of quotas—for the salmon it produces.

Unlike current fishing regimes that rely heavily on mixed-stock fisheries, properly implemented ITQ programs are stock-specific

MENT, AMERICAN FISHERIES SOCIETY SYMPOSIUM 20 *supra* note 31, at 225, 229 (explaining the essential features of the current Icelandic ITQ program).

¹⁶⁵ *See id.*

¹⁶⁶ *See* Lee G. Anderson, *Efficiency and Distribution Issues During the Transition to an ITQ Program*, in GLOBAL TRENDS: FISHERIES MANAGEMENT, AMERICAN FISHERIES SOCIETY SYMPOSIUM 20 *supra* note 31, at 213, 219-20 (discussing the application of ITQs to overfished stocks). However, because Pacific salmon are declining due to factors beyond mere overfishing, it is unlikely that an ITQ program will benefit from increasing salmon abundance until the additional factors causing the Pacific salmon's decline are addressed.

¹⁶⁷ *See id.*

¹⁶⁸ While ITQs are permanent, they are not uniform over time. A permit holder may retain the permit in perpetuity subject to the permit's conditions; however, the allowable harvest under an ITQ program is responsive to fluctuations in the permitted stock's abundance. *See* Arnason, *supra* note 164, at 229.

and discourage mixed-stock fisheries. Under such an ITQ program, fishers targeting mixed-stock fisheries must acquire sufficient ITQs for each individual stock they harvest, including those stocks that comprise incidental catch. As such, incorporating some of the principles from a stock-specific ITQ program into Pacific salmon management could create an incentive for fishers to move toward more stock-selective fisheries. Additionally, stock-specific ITQ programs should effect weak-stock management in mixed-stock fisheries. By issuing stock-specific ITQs, a prohibition on the targeted harvest of a weak or depleted stock will extend to mixed-stock fisheries where incidental harvest of the weak stock could occur.

Each party to an ITQ program is responsible for the initial distribution of quotas for the fishes it produces.¹⁶⁹ Generally, an independent allocation body established by the relevant public authority is responsible for the initial distribution of ITQs and allocates quotas in one of two ways.¹⁷⁰ The allocation body may distribute ITQs: (1) according to each fisher's historical catch record, or (2) equally among all fishers regardless of historical catch rates.¹⁷¹ While both methods of allocation have been successful, the implementation of an ITQ program requires broad industry acceptance of the allocation process.¹⁷² Once initially distributed, fishers are free to divide, buy, and sell ITQs according to their actual and changing needs.

Several fisheries have successfully implemented ITQ programs, including the Pacific halibut fisheries in Canada and

¹⁶⁹ See M. Exel & B. Kaufmann, *Allocation of Fishing Rights: Implementation Issues in Australia*, in GLOBAL TRENDS: FISHERIES MANAGEMENT, AMERICAN FISHERIES SOCIETY SYMPOSIUM 20 *supra* note 31, at 246, 252 (examining ITQ implementation lessons learned from fishing rights allocation in Australia).

¹⁷⁰ See Arnason, *supra* note 164, at 229-30; see also Exel & Kaufmann, *supra* note 169, at 249 (discussing the establishment of an ITQ system for the Southern Bluefin Tuna Fishery and the benefits of separating fisheries managers from the allocation process); see also Hannesson, *supra* note 31, at 240-44 (discussing the benefits that individuals already within a fishery receive through the establishment of ITQ systems and the paradoxical resistance individual fishers have toward the establishment of ITQ systems).

¹⁷¹ See Hannesson, *supra* note 31, at 237, 237-43 (discussing the conflict between establishment of an ITQ system that is efficient and one that is socially equitable).

¹⁷² See Exel, *supra* note 169, at 252 (noting that "[i]t is better to continue to manage with dysfunctional input controls than to introduce ITQs in a fishery where industry is strongly opposed to the regime").

Alaska.¹⁷³ In these fisheries, increasingly short and restrictive commercial halibut seasons led to a “race to fish” that was economically inefficient and increasingly dangerous.¹⁷⁴ As a result, in 1991 Canada established an ITQ program for the commercial harvest of Pacific halibut at the request of Canadian fishers.¹⁷⁵ In 1995, Alaska established a similar ITQ system for the commercial harvest of halibut.¹⁷⁶ Additional ITQ programs have had success in Australia, New Zealand, and Iceland.¹⁷⁷

There are several distinct advantages to market-based mechanisms such as an ITQ program. First, ITQ programs promote the efficient utilization of fisheries resources by encouraging the sale and purchase of quotas so an individual fisher can tailor the program to suit his or her particular needs.¹⁷⁸ Second, an individual fisher gains a tangible interest in the health of his or her permitted fish stocks, thereby promoting conservation and allowing fishers to receive some of the benefits of increasing fish populations.¹⁷⁹ Similarly, because quotas are held in perpetuity, they may promote long-term thinking among fishers and can provide a return on investments in conservation.¹⁸⁰ Finally, ITQ programs encourage enforcement of fishing rights. After the establishment of ITQ programs in some fisheries, fishers policed themselves and it became socially unacceptable for a fisher to catch beyond his or her quota because the excess catch adversely affected other fishers in a direct and recognizable way.¹⁸¹

¹⁷³ See Stephen Cunningham, *Overview*, in *SUCCESSFUL FISHERIES MANAGEMENT: ISSUES, CASE STUDIES AND PERSPECTIVES* 9, 13-14 (Stephen Cunningham & Tim Bostock eds., 2005).

¹⁷⁴ *Id.* at 14.

¹⁷⁵ *Id.*

¹⁷⁶ *Id.*

¹⁷⁷ See Exel & Kaufmann, *supra* note 169, at 246 (Australia); Philip Major, *A Government Perspective on New Zealand's Experience with ITQs*, in *GLOBAL TRENDS: FISHERIES MANAGEMENT, AMERICAN FISHERIES SOCIETY SYMPOSIUM 20* *supra* note 31, at 264 (New Zealand); Arnason, *supra* note 164, at 225 (Iceland).

¹⁷⁸ See Major, *supra* note 177, at 265; see also Arnason, *supra* note 164, at 230-36 (discussing the economic advantages and increased economic efficiency resulting from the Icelandic ITQ system).

¹⁷⁹ Under traditional regimes, when harvest quotas are reduced, smaller fishers are susceptible to bankruptcy and total loss of their fishing investment. However, under an ITQ program, fishers holding ITQs can receive an eventual economic gain as fish populations are rebuilt. See Anderson, *supra* note 166, at 219-20; Major, *supra* note 177, at 265.

¹⁸⁰ See Major, *supra* note 177, at 265.

¹⁸¹ See *id.*

While an ITQ program has numerous advantages, it does require extensive monitoring and effective enforcement to be successful. Significantly, proper enforcement of a Pacific salmon ITQ program would require accurate assessments of the stock composition of individual fishers' catches and the relative abundance of the affected Pacific salmon stocks. With the current emphasis on mixed-stock fisheries and the great distances salmon migrate within the Pacific Ocean, obtaining this needed information in a reliable and accurate manner would be difficult and expensive. However, fisheries managers should know individual stocks' abundance and the effect fishers have on those stocks regardless of how the catch is allocated. Allowing harvest without a thorough understanding of this vital information is a classic example of risk-prone management in the face of scientific uncertainty and offends notions of sound fisheries management.

Another disadvantage to ITQ programs when applied to Pacific salmon is that ITQs may create some disincentives for conservation. For example, because Pacific salmon heavily rely on inland habitat, the United States and/or Canada may be less willing to spend resources or incur opportunity costs conserving or restoring Pacific salmon habitat within their borders if those individuals directly benefiting from the salmon's harvest are foreign fishers. While individual fishers with ITQs to a particular salmon stock will have incentives to conserve, the origin country may not have a similar incentive if foreign fishers harvest its salmon.

Adopting some of the market-based strategies found in ITQ programs, if properly implemented and enforced, may effectively solve many of the equity issues with which the Pacific Salmon Treaty has struggled. Additionally, a more complete and thorough understanding of individual salmon stocks and individual fishers' catches, which is necessary for a stock-specific ITQ program, would allow fisheries managers to make more informed decisions regarding Pacific salmon and promote long-term, more sustainable management. If the United States and Canada were able to properly implement and enforce market-based mechanisms for compensation like those found in a stock-specific ITQ program, we may finally extinguish the stubborn spark that continues to reignite the Pacific Salmon Wars.

C. *Habitat Protection*

Neither the United States nor Canada has interpreted the Pacific Salmon Treaty as an affirmative mandate for habitat protection, or to require the curtailment of activities that adversely affect Pacific salmon habitat.¹⁸² If Pacific salmon are to inhabit the waters of the Pacific Northwest into the future indefinitely, we must protect the rapidly diminishing habitat that supports Pacific salmon. At least two options exist for the conservation of Pacific salmon habitat under the Pacific Salmon Treaty. First, the Pacific Salmon Treaty could embrace the habitat protection provisions found within the various migratory bird treaties discussed below. Second, the Pacific Salmon Treaty could incorporate many of the policy objectives found in Canada's Department of Fisheries and Oceans Policy for the Management of Fish Habitat.

1. *Migratory Bird Treaties*

Management of migratory birds and Pacific salmon pose many similar challenges. Migratory birds often nest or breed within a single country while traveling great distances across numerous political boundaries throughout the remaining periods of their life histories. Likewise, Pacific salmon often spawn and rear in freshwater habitats within a single country before crossing numerous political boundaries during oceanic migrations. These similarities create common resources out of both migratory birds and Pacific salmon, making them vulnerable to the tragedy of the commons and dependant upon habitat conservation at the national and international level. By analyzing habitat protection under the migratory bird treaties and their implementing legislation, and by incorporating these protections into the Pacific Salmon Treaty, it may be possible to promote the recovery of dwindling Pacific salmon stocks through habitat conservation and manage Pacific salmon in a more sustainable manner.¹⁸³ The following discussion will begin with a brief chronological overview of the various migratory bird treaties, followed by a discussion of the treaties' implementing legislation.

Before ratification of the various migratory bird treaties and their implementing legislation, migratory birds were managed in

¹⁸² See Blumm & Bodi, *supra* note 1, at 276.

¹⁸³ See generally Scott Finet, *Habitat Protection and the Migratory Bird Treaty Act*, 10 TUL. ENVTL. L.J. 1 (1996) (discussing habitat protection under the Migratory Bird Treaty Act in greater detail than is appropriate in this note).

the United States under the Weeks-McLean Migratory Bird Act of 1913.¹⁸⁴ The Weeks-McLean Act was a Department of Agriculture appropriation rider that subjected migratory game and insectivorous birds which “do not remain . . . the entire year within the borders of any State or Territory” to federal regulation.¹⁸⁵ These birds were “within the custody and protection of the Government of the United States” and could not be destroyed or taken unless in compliance with regulations promulgated by the Department of Agriculture.¹⁸⁶ The Weeks-McLean Act shifted management responsibility over migratory birds from individual state governments to the federal government and sought to remedy the tragedy of the commons that was created when an individual state’s conservation efforts were undone by excessive harvest and mismanagement beyond the state’s bounds.

Five short years after passage of the Weeks-McLean Act, Congress passed the Migratory Bird Treaty Act (MBTA).¹⁸⁷ The MBTA originally was passed to implement the Convention with Great Britain (on behalf of Canada) for the Protection of Migratory Birds;¹⁸⁸ however, it also serves as the implementing legislation for three additional international treaties pertaining to migratory birds. These treaties include the Convention Between the United States of America and the United Mexican States for the Protection of Migratory Birds and Game Mammals,¹⁸⁹ the Convention with Japan for the Protection of Birds and Their Environment,¹⁹⁰ and the Convention with the Union of Soviet Socialist Republics for the Conservation of Migratory Birds and Their Environment.¹⁹¹

¹⁸⁴ Act of Mar. 4, 1913, ch. 145, 37 Stat. 828 (superseded by the Migratory Bird Treaty Act of 1918, 16 U.S.C. §§ 703-12 (2006)).

¹⁸⁵ *Id.* at 847.

¹⁸⁶ *Id.*

¹⁸⁷ 16 U.S.C. §§ 703-12 (2006).

¹⁸⁸ Convention for the Protection of Migratory Birds, U.S.-Gr. Brit., Aug. 16, 1916, 39 Stat. 1702 [hereinafter Great Britain Convention].

¹⁸⁹ Convention for the Protection of Birds and Game Mammals, U.S.-Mex., Feb. 7, 1936, 50 Stat. 1311 [hereinafter Mexico Convention].

¹⁹⁰ Convention for the Protection of Birds and Their Environment, U.S.-Japan, Mar. 4, 1972, 25 U.S.T. 3329 [hereinafter Japan Convention].

¹⁹¹ Convention Concerning the Conservation of Migratory Birds and Their Environment, U.S.-U.S.S.R., May 23, 1972, 29 U.S.T. 4647 [hereinafter Soviet Union Convention].

While neither the Great Britain Convention nor the Mexico Convention explicitly reference habitat preservation, they do so indirectly by encouraging the establishment of refuges for duck species of special concern and by prohibiting the taking of nests or eggs of migratory birds.¹⁹²

In addition to extending the protections provided under the Great Britain Convention and Mexico Convention, the Japan Convention and Soviet Union Convention explicitly provide for habitat protection, and, in fact, mention as much unambiguously in their title.¹⁹³

The Japan Convention provides that each party “shall endeavor to take appropriate measures to preserve and enhance the environment” of migratory birds.¹⁹⁴ Specifically, the Japan Convention requires the parties to “[s]eek means to prevent damage to such birds and their environment” and “control the importation of live animals and plants” that are determined to be hazardous to migratory birds or their environment.¹⁹⁵ Finally, the Japan Convention “encourage[s] the establishment of joint research programs on, and conservation of, migratory birds and birds in danger of extinction.”¹⁹⁶

As the most recent convention, the Soviet Union Convention provides for the greatest protection of habitat. “To the extent possible,” the Soviet Union Convention requires the parties to “undertake measures necessary to protect and enhance the environment of migratory birds and to prevent and abate the pollution or detrimental alteration of that environment.”¹⁹⁷ The

¹⁹² See Great Britain Convention, *supra* note 188, art. IV-V; Mexico Convention, *supra* note 189, art. II; see also Finet, *supra* note 183, at 9-11 (discussing habitat protection under the Great Britain and Mexico Conventions); Erin R. Flanagan, *It's the "Supreme Law of the Land:" Using the Migratory Bird Treaty Act to Protect Isolated Wetlands Left High and Dry by SWANCC*, 22 PACE ENVTL. L. REV. 175, 184-86 (2005) (discussing habitat protection under the Great Britain and Mexico Conventions).

¹⁹³ See Japan Convention, *supra* note 190; Soviet Union Convention, *supra* note 191.

¹⁹⁴ Japan Convention, *supra* note 190, art. VI; see also Finet, *supra* note 183, at 9-11 (discussing habitat protection under the Japan Convention); Flanagan, *supra* note 191, at 186-88 (discussing habitat protection under the Japan Convention).

¹⁹⁵ Japan Convention, *supra* note 190, art. VI.

¹⁹⁶ *Id.* art. V.

¹⁹⁷ Soviet Union Convention, *supra* note 191, art. IV; see also Finet, *supra* note 183, at 9-11 (discussing habitat protection under the Soviet Union Convention); Flanagan, *supra* note 191, at 187-89 (discussing habitat protection under the Soviet Union Convention).

parties must “[i]dentify areas of breeding, wintering, feeding, and moulting which are of special importance to the conservation of migratory birds.”¹⁹⁸ To the extent possible, the parties must “undertake measures necessary to protect the ecosystems in those special areas . . . against pollution, detrimental alteration and other environmental degradation.”¹⁹⁹ The Soviet Union Convention allows each party, with the mutual agreement of the other party, to “designate areas of special importance to the conservation of migratory birds outside the areas under their jurisdiction.”²⁰⁰ The Soviet Union Convention also requires each party to “[u]ndertake measures necessary for the control of the import, export and establishment in the wild of live animals and plants that may be harmful to migratory birds or their environment.”²⁰¹ Each party is required to promote scientific research, exchange scientific information and publications, and warn each other about substantial anticipated or existing damage to migratory birds or their habitat.²⁰² Finally, the Soviet Union Convention requires that “[e]ach Contracting Party shall, to the maximum extent possible, undertake measures necessary to establish preserves, refuges, protected areas, and also facilities intended for the conservation of migratory birds and their environment, and to manage such areas so as to preserve and restore the natural ecosystems.”²⁰³

The MBTA and Migratory Bird Conservation Act (MBCA)²⁰⁴ serve as the implementing legislation for the aforementioned conventions. The MBTA begins with the premise that migratory birds should not be harmed. It states:

Unless and except as permitted by regulations . . . it shall be unlawful at any time, by any means or in any manner, to pursue, hunt, take, capture, kill, . . . possess, offer for sale, sell, . . . purchase, ship, export, import, . . . transport or cause to be transported, . . . any migratory bird, or any product, . . . of any such bird . . . or any part, nest, or egg thereof.²⁰⁵

¹⁹⁸ Soviet Union Convention, *supra* note 190, art. IV.

¹⁹⁹ *Id.*

²⁰⁰ *Id.*

²⁰¹ *Id.*

²⁰² *Id.* art. IV, VI.

²⁰³ *Id.* art. VII.

²⁰⁴ 16 U.S.C. §§ 715, 715a, 715c-k, 715n-q (2006).

²⁰⁵ *Id.* § 703 (2006).

While taking migratory birds generally is prohibited, the Secretary of the Interior has the authority to create regulations allowing the restricted take of migratory birds.²⁰⁶ This general prohibition is in stark contrast to the Pacific Salmon Treaty which generally allows the harvest of Pacific salmon unless specifically prohibited.²⁰⁷

In addition to the MBTA, the MBCA effectuates migratory bird management under the various conventions. The MBCA provides a procedure whereby the Secretary of the Interior may acquire lands and waters “suitable for use as an inviolate sanctuary . . . for migratory birds.”²⁰⁸ The Secretary of the Interior may purchase lands and waters or acquire them through gift.²⁰⁹ If acquired by purchase, the Migratory Bird Conservation Commission—which consists of the Secretary of the Interior, Administrator of the Environmental Protection Agency, Secretary of Agriculture, two members of the Senate, and two members of the House of Representatives—must recommend the lands and waters for purchase.²¹⁰ Finally, no lands or waters may be purchased or rented unless the Secretary of the Interior determines that the area is “necessary for the conservation of migratory birds” and “has consulted with the county or other unit of local government . . . and with the Governor or the [affected] State.”²¹¹

In sum, the various migratory bird conventions and their implementing legislation provide for habitat preservation through four basic means. First are the structure and procedural assumptions of migratory bird management. Migratory bird management is conducted at the federal level, based upon the assumption that the take of migratory birds generally will be prohibited unless specifically allowed.²¹² Second, there is an affirmative requirement to identify habitat essential to migratory birds and, to the extent possible, protect and restore habitat and natural ecosystems of special importance to the conservation of migratory birds.²¹³ Additionally, the MBCA provides a procedure

²⁰⁶ *Id.* § 704(a).

²⁰⁷ Compare 1999 Agreement, *supra* note 87, and 16 U.S.C. §§ 703-04.

²⁰⁸ 16 U.S.C. § 715d.

²⁰⁹ *Id.*

²¹⁰ *Id.* § 715a.

²¹¹ *Id.* § 715c.

²¹² See, e.g., Migratory Bird Treaty Act, 16 U.S.C. §§ 703-04 (2006).

²¹³ See, e.g., Soviet Union Convention, *supra* note 190, art. IV, VII.

whereby the Secretary of the Interior may acquire lands and waters necessary for the conservation of migratory birds.²¹⁴ Specific threats to the environment addressed in the various conventions include: pollution, detrimental habitat alteration, environmental degradation, and introduction of exotic species.²¹⁵ Additionally, while the various migratory bird conventions encourage the establishment of migratory bird refuges, the Soviet Union Convention requires that “[e]ach contracting party shall to the maximum extent possible, undertake measures necessary to establish preserves, refuges, protected areas, and also facilities intended for the conservation of migratory birds and their environment, and to manage such areas so as to preserve and restore the natural ecosystems.”²¹⁶ The Soviet Union Convention also provides a procedure whereby either party may establish reserves beyond their jurisdictional reach with the mutual agreement of the other party.²¹⁷ Third, there is an affirmative requirement to prevent the importation of exotic species that may be harmful to migratory birds or their habitat.²¹⁸ Finally, the various convention parties are required to cooperatively manage migratory birds by promoting research, sharing and publishing information, warning other affected parties of potential risks to migratory birds, and identify habitat of special importance to the conservation of migratory birds.²¹⁹

Unlike the various migratory bird treaties and their implementing legislation, the Pacific Salmon Treaty and its implementing legislation fail to provide for adequate habitat protection. As of yet, the Pacific Salmon Treaty has not been interpreted to restrict habitat-degrading practices or promote habitat conservation.²²⁰ There is no mechanism for acquiring habitat of special importance to the conservation of Pacific salmon and the structure of the Pacific Salmon Treaty generally allows harvest unless specifically disallowed, a premise opposite to that taken by the MBTA. By incorporating habitat protections similar to those af-

²¹⁴ See 16 U.S.C. §§ 715a, 715c, 715d.

²¹⁵ See, e.g., *id.* §§ 715a, 715c, 715d; see also Japan Convention, *supra* note 190, art. VI.

²¹⁶ Soviet Union Convention, *supra* note 190, art. VII.

²¹⁷ See *id.* art. IV(3).

²¹⁸ See *id.* art. IV(2)(b); Japan Convention, *supra* note 190, art. VI.

²¹⁹ See Soviet Union Convention, *supra* note 190, art. IV, VI; Japan Convention, *supra* note 190, art. V.

²²⁰ See Blumm & Bodi, *supra* note 1, at 276.

forded under the various migratory bird treaties, the MBTA, and the MBCA, management of Pacific salmon under the Pacific Salmon Treaty can provide for greater habitat protection and conservation of Pacific salmon.

2. *Canada's Fisheries Habitat Policy and the No Net Loss Principle*

While the various migratory bird treaties and their implementing legislation could provide a foundation for the conservation of Pacific salmon habitat on an international level, incorporating into the Pacific Salmon Treaty many of the habitat-protection provisions provided under Canadian domestic law could advance habitat protection even further.

In 1986, Canada revamped the way it managed Pacific salmon habitat when the Canadian Department of Fisheries and Oceans (Department) published *The Department of Fisheries and Oceans Policy for the Management of Fish Habitat* (Habitat Policy).²²¹ This Habitat Policy applies to all fish habitats that sustain commercial, recreational, or native fishing activities of benefit to Canadians, including the habitats of Pacific salmon.²²²

The Habitat Policy's long-term objective is to achieve an overall net gain in the natural productive capacity of fish habitats for the benefit of present and future generations of Canadians.²²³ The Habitat Policy accomplishes this through the following three goals.

First, the Department seeks to conserve the current productive capacity of fish habitats.²²⁴ This goal is a preventative measure guided by the no net loss principle. Under the no net loss principle, "the Department will strive to balance unavoidable habitat losses with habitat replacement on a project-by-project basis so that further reductions to Canada's fisheries resources due to habitat loss or damage may be prevented."²²⁵ The no net loss principle is applied on a stock-specific basis for mixed-stock fisheries (including anadromous salmon), and on a geographic basis

²²¹ DEP'T OF FISHERIES AND OCEANS, THE DEPARTMENT OF FISHERIES AND OCEANS POLICY FOR THE MANAGEMENT OF FISH HABITAT (1986), available at http://www.dfo-mpo.gc.ca/oceans-habitat/habitat/policies-politique/operating-operation/fhm-policy/pdf/policy_e.pdf [hereinafter Habitat Policy].

²²² *Id.* at 2.

²²³ *Id.* at 5.

²²⁴ *Id.* at 6.

²²⁵ *Id.* at 7.

for other fishes not subject to mixed-stock fisheries (including most resident freshwater species).²²⁶ However, the no net loss principle is not retroactive and is not a statutory requirement that must be met in all circumstances.²²⁷

The Habitat Policy outlines a series of procedural steps for implementing the no net loss principle.²²⁸ First, the Department receives notification that a project may potentially affect fish habitat through an established interagency referral system, by the project proponent, by concerned citizens, or by other means.²²⁹

Second, the Department undertakes an examination of the potential impacts the project may have on fisheries and habitat resources, and an assessment of the compensation required according to the following preferences.²³⁰ When a development project threatens fish habitat, the Department will prefer to maintain the natural productive capacity of the threatened habitat in an undisrupted state by encouraging project proponents to modify the project in an effort to minimize adverse fisheries affects.²³¹ If maintaining the natural productive capacity of the threatened habitat without disruption is “impossible or impractical,” the Department may allow the proponent to compensate for their development by replacing the degraded fish habitat with new natural habitat at or near the site.²³² However, if on-site or near-site compensation is not feasible, the Department may allow compensation through off-site replacement habitat or increases in the productivity of existing habitat if reliable techniques are available.²³³ As a last resort, if it is “not technically feasible” to maintain the natural productive capacity of the threatened fish habitat or to compensate for decreases in productivity through replacement habitat, the Department will consider proposals to compensate for the loss in natural productivity through artificial production if: (1) the proposal is “in accordance with the objectives established in the local fisheries management plan, assuming one is available,” (2) “genetic and other biological factors are satisfied,” (3) “practical and proven techniques are

²²⁶ *Id.*

²²⁷ *Id.*

²²⁸ *Id.* at 22.

²²⁹ *Id.*

²³⁰ *Id.*

²³¹ *Id.* at 21.

²³² *Id.*

²³³ *Id.*

available,” and (4) all costs are borne by the proponents of the project.²³⁴

Third, the Department will consult with the public, the proponents of the project, and other affected government agencies and provide an opportunity for the public to review and provide input on the project.²³⁵ No project can proceed unless the proponents of the project can fully compensate for affects to fish habitat or there has been public consultation and a thorough review and assessment.²³⁶

Fourth, following a thorough examination of the project and its potential impacts, the Department will decide if the project “is likely to result in a net loss of productive habitat capacity.”²³⁷ If a loss in productivity is likely, the Department must decide if the proponents’ plans for mitigation and compensation are acceptable.²³⁸ The Department may decide to permit the project as proposed, to allow the project subject to conditions, or to reject the project.²³⁹ Any aggrieved person, a proponent of the project or other interested party, or the Minister of the Department may appeal a decision of the Department.²⁴⁰

Finally, the Department will audit and enforce the no net loss principle and the decisions it makes according to these procedures.²⁴¹ The Department also will monitor project compliance and evaluate the effectiveness of this Habitat Policy.²⁴²

In addition to the Department’s first goal of conserving the current productive capacity of fish habitats, the Department’s second goal is to secure economic and/or social benefits for Canadians through the restoration of fish habitat.²⁴³ While the first goal acts as a preventative measure, the second goal is designed to create a net gain in productive capacity. In achieving this second goal, the Department develops fish habitat plans for specific fisheries within specific geographic areas that integrate the various fish management objectives (such as production and

²³⁴ *Id.* at 21-22.

²³⁵ *Id.* at 22.

²³⁶ *Id.*

²³⁷ *Id.* at 24.

²³⁸ *Id.*

²³⁹ *Id.*

²⁴⁰ *Id.*

²⁴¹ *Id.*

²⁴² *Id.*

²⁴³ *Id.* at 8.

allocation).²⁴⁴ The appropriate geographic scope of a particular fish habitat plan depends upon other affected resource uses and the type of fishery.²⁴⁵

Once a fish habitat plan is developed, it is implemented according to eight implementation strategies. The first strategy is to protect fish habitats by administering Canada's Fisheries Act and incorporating habitat protection requirements into activities and projects that affect fish habitat.²⁴⁶ Accordingly, proponents of development affecting fish habitat may have to submit a statement to aid the Department in assessing the potential impacts to fish habitat and pay the costs associated with mitigation of compensation for the impacted habitat.²⁴⁷ Second, the Department will participate in and encourage resource planning and management that incorporates fish habitat priorities.²⁴⁸ Third, the Department will conduct scientific research to inform efforts aimed at satisfying the Habitat Policy's objective.²⁴⁹ Fourth, the Department will consult with the public on major or controversial issues that affect fish habitat issues, including the development of related policies and legislation.²⁵⁰ Fifth, the Department will promote public awareness and educate the public about conservation, restoration, and development of fish habitats.²⁵¹ Sixth, the Department will encourage cooperative involvement by government agencies, public interest groups, and the private sector in meeting the Habitat Policy's objective.²⁵² Seventh, the Department will seek to initiate projects for improving fish habitat and provide advice to other interested groups.²⁵³ Lastly, the Department will monitor habitat to evaluate the effectiveness of decisions taken and techniques used in conserving, restoring, and developing fish habitats.²⁵⁴

The Department's final goal is to secure economic and/or social benefits for Canadians through the improvement and crea-

²⁴⁴ *Id.* at 10-11.

²⁴⁵ *See id.* at 11.

²⁴⁶ *Id.* at 12.

²⁴⁷ *Id.* at 13.

²⁴⁸ *Id.* at 15.

²⁴⁹ *Id.* at 16.

²⁵⁰ *Id.* at 17.

²⁵¹ *Id.*

²⁵² *Id.* at 18.

²⁵³ *Id.*

²⁵⁴ *Id.* at 19.

tion of new fish habitat.²⁵⁵ This may be done through manipulating naturally occurring chemical, physical, and biological factors or through creating or providing access to new spawning, rearing, and food producing areas.²⁵⁶

While, unfortunately, the Habitat Policy does not have full statutory force, it does provide a much-needed framework for minimizing adverse impacts on fish habitat and improving the productive capacity of existing fish habitats. But, just how successful is the no net loss policy at conserving the productivity of fish habitat in Canada? Studies have shown that habitat compensation projects under the Habitat Policy satisfy conservation requirements to varying degrees. In a study of sixteen habitat compensation sites across Canada, only thirty-seven percent achieved the goal of no net loss of habitat productivity.²⁵⁷ Moreover, when a similar study analyzed fifty-two habitat compensation projects for compliance with the physical, biological, and chemical requirements of Canada's Fisheries Act, likely violations of the Fisheries Act were found in half of the projects.²⁵⁸ These shortcomings illustrate the primary difficulties associated with the no net loss principle and habitat compensation projects in general. That is, our limited ability to replicate natural ecosystem functions and institutional failures that lead to a lack of monitoring and enforcement following the adoption of habitat compensation projects.

Unfortunately, many of the obstacles to successful compensation projects under Canada's Habitat Policy also exist within the United States. Under § 404 of the Clean Water Act, the Army Corps of Engineers may issue permits for the discharge of dredge and fill material into specified wetland disposal sites.²⁵⁹ In order to discharge dredge and fill material under a § 404 permit, the permittee must comply with a series of guidelines²⁶⁰—one of

²⁵⁵ *Id.* at 8.

²⁵⁶ *Id.*

²⁵⁷ Jason T. Quigley & David J. Harper, *Effectiveness of Fish Habitat Compensation in Canada in Achieving No Net Loss*, 37 ENVTL. MGMT. 351, 363 (2006).

²⁵⁸ Jason T. Quigley & David J. Harper, *Compliance with Canada's Fisheries Act: A Field Audit of Habitat Compensation Projects*, 37 ENVTL. MGMT. 336, 340-45 (2006). While all the projects met the chemical requirements of the Fisheries Act, only fifty-eight percent of the projects complied with biological requirements. *Id.* at 43. Sixty-seven percent of the projects resulted in a loss of physical habitat area. *Id.* at 342.

²⁵⁹ 33 U.S.C. § 1344(a) (2006).

²⁶⁰ *Id.* § 1344(b)(1).

which is that the discharge must comply with the applicable state or federal antidegradation policy.²⁶¹ When applied to wetlands, and subject to exceptions for certain activities that are economically or socially important, dredge and fill permits may be issued for discharges into wetlands where there is no net loss in the quantity or quality of wetlands.²⁶² Thus, while the filling of wetlands necessarily results in some wetland loss, the discharge may nevertheless be permitted if other wetlands are enhanced or created to compensate for the loss.²⁶³

Mitigation projects made pursuant to § 404 of the Clean Water Act are riddled with problems. While a mitigation project often creates as much wetland habitat as is destroyed, the ecological value of the compensatory wetland typically is far less and often of a different type than the original habitat.²⁶⁴ This often results from the unfortunate practice of using acreage as the metric for a mitigation project's success. While acreage may be the easiest characteristic of a mitigation project to measure, effective conservation is not always a convenient endeavor and acreage is not representative of a project's ecological value.²⁶⁵ Another dis-

²⁶¹ See 40 C.F.R. § 131.12 (defining an antidegradation principle).

²⁶² See Memorandums of Agreement; Clean Air Act Section 404(b)(1); Guidelines; Correction, 55 Fed. Reg. 9210, 9211 (Mar. 12, 1990). Like Canada's Habitat Policy, the antidegradation principle prefers to modify development projects to minimize or eliminate adverse impacts to wetlands. However, dredge and fill permits may be issued even if wetland loss will occur "to accommodate important economic or social development." 40 C.F.R. § 131.12(a)(2); see also *Norman v. United States*, 429 F.3d 1081, 1086 n.1 (Fed. Cir. 2005) (recognizing that "the basic premise of the program is that no discharge of dredged or fill material into waters of the United States is permitted if a practicable alternative exists that is less damaging to the environment") (quoting ENVTL. PROT. AGENCY, SECTION 404 OF THE CLEAN WATER ACT: AN OVERVIEW, available at <http://www.epa.gov/owow/wetlands/facts/fact10.html> (last visited Feb. 22, 2007)).

²⁶³ See 40 C.F.R. §§ 131.12, 257.9(a)(4), 258.12(a)(4) (2006) (requiring no net loss of wetlands as a criteria for the classification of solid-waste disposal facilities and municipal solid-waste landfills).

²⁶⁴ See U.S. GEN. ACCOUNTING OFFICE, WETLANDS PROTECTION: ASSESSMENTS NEEDED TO DETERMINE EFFECTIVENESS OF IN-LIEU-FEE MITIGATION GAO-01-325 at 3-5 (2001), available at <http://www.gao.gov/new.items/d01325.pdf>; NAT'L RESEARCH COUNCIL, COMPENSATING FOR WETLAND LOSSES UNDER THE CLEAN WATER ACT 108-09 (2001) [hereinafter COMPENSATING FOR WETLAND LOSSES]; see also Richard F. Ambrose, *Wetland Mitigation in the United States: Assessing the Success of Mitigation Policies*, 19 WETLANDS 1, 13-20 (2000).

²⁶⁵ See Mark F. Sudol & Richard F. Ambrose, *The U.S. Clean Water Act and Habitat Replacement: Evaluation of Mitigation Sites in Orange County, California, USA*, 30 ENVTL. MGMT. 727, 731-32 (2002); Phillip H. Brown & Christopher L. Lant, *The Effect of Wetland Mitigation Banking on the Achievement of No-Net-Loss*, 23 ENVTL. MGMT. 333, 343 (1999).

turbing problem with mitigation projects is that the wetlands used to compensate for the loss associated with development often end up themselves being converted to other uses.²⁶⁶ A final problem characteristic of mitigation projects is that they often do not comply with their permit conditions.²⁶⁷

Prior applications of the no net loss principle, both in Canada and the United States, largely have failed to prevent habitat loss. Neither Canada's Habitat Policy nor the United States' § 404 dredge and fill permit process have succeeded at conserving habitat quantity or quantity. This failure is attributable to at least three factors. First, neither policy benefits from proper enforcement.²⁶⁸ Second, both policies fail to monitor permitted projects adequately.²⁶⁹ Finally, past failures under the Habitat Policy and § 404 dredge and fill permits illustrate our limited ability to replicate the ecosystem processes and functions of natural habitats.

Institutional adjustments to the way mitigation and compensation projects are implemented and carried out may remedy the first two defects, but the final shortcoming likely is impossible to overcome. However, we may be able to compensate for our limited ability to replicate ecosystem functions by minimizing development projects that rely on mitigation or compensation projects and appropriately utilize the precautionary principle. Using precautionous management, we would overcompensate for lost habitat in an effort to replicate more accurately lost ecological functions.

While it is unlikely that the widespread adoption of a no net loss principle into the Pacific Salmon Treaty will solve the Pacific salmon's habitat woes, it will go a long way toward moving the conservation of Pacific salmon habitat productivity into the public spotlight. Ratifying a properly implemented and enforced no net loss principle will force the United States and Canada to identify actions that have the potential to adversely affect habitat

²⁶⁶ Brown & Lant, *supra* note 265, at 339.

²⁶⁷ See COMPENSATING FOR WETLAND LOSSES, *supra* note 264, at 113-20; Ambrose, *supra* note 264, at 11-13; Sudol & Ambrose, *supra* note 265, at 731-32.

²⁶⁸ Canada's Habitat Policy lacks statutory effect and the United States § 404 permit program allows many mitigation projects that fail to satisfy the conditions of their permit. See *id.*; Habitat Policy, *supra* note 221, at 7.

²⁶⁹ It is unclear how successfully monitored the compensation projects are under the Habitat Policy. However, it is clear that § 404 permits rarely receive adequate monitoring for their effectiveness at mitigating the loss of ecosystem functions. See U.S. GEN. ACCOUNTING OFFICE, *supra* note 264, at 3-5; Ambrose, *supra* note 264, at 21-23.

productivity, promote public discourse and participation in decisions that affect Pacific salmon habitat, and if given the force of law afford concerned citizens recourse when actions adversely affect the productivity of Pacific salmon habitat without adequate compensation. By properly enforcing, monitoring, and incorporating precautionary principles into an international no net loss policy, society will be one step closer toward promoting the conservation of Pacific salmon habitat and make the continued, unmitigated destruction and alteration of habitat less prevalent.

Habitat conservation and cooperation in achieving an equitable distribution of Pacific salmon through reduced interceptions and economic reallocation are two of the keys to achieving sustainable Pacific salmon management.

CONCLUSION

The 1985 Treaty collapsed because the Commission failed to establish an equitable balance of interceptions between the United States and Canada and was unsuccessful in rebuilding depleted salmon stocks.²⁷⁰ When combined, rampant interceptions and crashing salmon populations made Pacific salmon management unworkable. For the Pacific Salmon Treaty to contribute toward sustainable management of Pacific salmon in the future, issues of equity must be resolved and the Pacific Salmon Treaty must be extended to provide for habitat protection and conservation. By properly implementing and enforcing a market-based compensation program, and adopting habitat protection provisions similar to those found in the various migratory bird treaties and Canada's Habitat Policy, the Pacific Salmon Treaty can be a more effective tool for sustainable Pacific salmon management.

²⁷⁰ HUPPERT, *supra* note 18, at 10.

