

# [***INTERNATIONAL PERSPECTIVE: SAVING A DYING OASIS: UTILIZING THE UNITED NATIONS CONVENTION ON NONNAVIGATIONAL USES OF INTERNATIONAL WATERCOURSES TO PRESERVE AND RESTORE THE COLORADO RIVER DELTA***](https://advance.lexis.com/api/document?collection=analytical-materials&id=urn:contentItem:4JPR-12P0-00SW-500W-00000-00&context=1516831)

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**[\*159]**

I. INTRODUCTION

For thousands of years the ***Colorado*** ***River*** ran unimpeded for fifteen hundred miles from its headwaters in the Rocky Mountains to the Sea of Cortez. [[1]](#footnote-2)1 It formed and flowed through the Grand Canyon, then opened up into the Gulf of California. Before its termination in the Gulf, it created the ***Colorado*** ***River*** Delta, one of the world's largest desert oases. The ***Colorado*** ***River*** Delta consists of three thousand square miles of "vast riparian, freshwater, brackish, and tidal wetlands" in the middle of the Sonoran Desert. [[2]](#footnote-3)2 Water from tributaries and sediment picked up along the ***river***'s journey through the southwest **[\*160]** United States and Mexico feed the Delta. [[3]](#footnote-4)3 During a canoe trip down the lower ***Colorado*** ***River*** in 1922, Aldo Leopold described the Delta as "a hundred green lagoons . . . a verdant wall of mesquite and willow separating the channel from the thorny desert beyond." [[4]](#footnote-5)4

Over 400 species of plants and numerous animal species, including desert pupfish, coyotes, and jaguars made their home in the Delta. [[5]](#footnote-6)5 Native Americans also lived along the Delta, taking refuge from the dry Sonoran desert that surrounded them. [[6]](#footnote-7)6 Natural flow patterns of the ***Colorado*** ***River*** maintained the delta habitats that supported both animals and humans. [[7]](#footnote-8)7 Spring floods are a natural and necessary part of those flow patterns. Historically, the floods brought water out of the "main channel to wash salt from the banks, germinate tree seeds, and create seasonal wetlands." [[8]](#footnote-9)8 Without these floods, salt water tidal flows would have made the land surrounding the Delta sterile and barren. [[9]](#footnote-10)9

The days of ample water and regular flooding are gone. Today, jaguars no longer live in the Delta, [[10]](#footnote-11)10 and many species of animals, once plentiful, no longer reside there. Upstream development in the southwestern United States and Mexico throughout the twentieth century used, diverted, and polluted the water that once fed this fertile ground. [[11]](#footnote-12)11 Decreased and sometimes nonexistent flows have reduced the Delta to 150,000 acres. [[12]](#footnote-13)12 The water that does reach the Delta is "murky brown, salty, and contains pesticides," [[13]](#footnote-14)13 creating a "fissured moonscape of baked mud and desert weeds." [[14]](#footnote-15)14 The ***river*** is now a "mere ditch in the sand." [[15]](#footnote-16)15

The world's most endangered mammal, the vaquita porpoise (Phocoena sinus) still makes its home in the Delta. [[16]](#footnote-17)16 However, by some accounts only a few hundred remain. [[17]](#footnote-18)17 The giant totoaba fish (Totoaba **[\*161]** macdonaldi) has also suffered as a result of habitat decimation. [[18]](#footnote-19)18 The fish once grew as long as seven feet and weighed over three hundred pounds. [[19]](#footnote-20)19 It bred at the mouth of the ***river*** and the tides sent the totoaba's eggs into the Delta, which acted as a nursery for its young. [[20]](#footnote-21)20 The destruction of the Delta reduced the size of the totaba's nursery, and consequently, the totoaba began to die out, significantly affecting the delicate delta ecosystem.

The Delta still provides habitat for other dwindling populations of species including the southwest willow flycatcher (Empidonax traillii extimus) and the yuma clapper rail (Rallus longirostris yumanensis), both listed as endangered species under the Endangered Species Act. [[21]](#footnote-22)21 At least six other species of birds that Mexico lists as threatened or endangered make their home in what remains of the Delta. [[22]](#footnote-23)22 Today, much of the Delta ecosystem remains only because of wastewater releases from water users in Mexico.

A solution to the Delta's problems is not out of reach. The ***Colorado*** ***River***, the Delta's source of life, is an international watercourse flowing through, shared, and used by both the United States and Mexico. Both countries have an interest in and the ability to affect the flow of the ***Colorado***'s water. Thus, protecting and restoring the ***Colorado*** ***River*** Delta ecosystem requires an international solution. Currently, the 1944 treaty with Mexico controls the flow in the ***Colorado*** ***River***, [[23]](#footnote-24)23 but it makes no mention of ecosystem protection. The creation and signing of the United Nations Convention on the Law of the Non-Navigational Uses of International Watercourses and the creation of the Lower ***Colorado*** ***River*** Multi-Species Conservation Program [[24]](#footnote-25)24 now form a framework within which the two countries can amend the 1944 treaty to reflect modern international customary law and provide protection for the Delta ecosystem.

Involvement of non-governmental organizations can also play a role on both sides of the border. Non-governmental organizations **[\*162]** could help provide funding for the improvement of Mexican irrigation systems, which would conserve water to support the Delta. They could also purchase water rights thereby assuring that water will be available to restore and protect the Delta.

This article explores the history of the ***Colorado*** ***River*** Delta and the formation of law surrounding the use of the water of the ***Colorado*** ***River***. The paper concludes by urging a renegotiation of the agreements between the United States and Mexico to insure that the Delta will receive enough water to protect its ecosystem.

II. HISTORY

The ***Colorado*** ***River***, the Delta's lifeblood, is now "the most legislated, litigated, and debated ***river*** in the world." [[25]](#footnote-26)25 Its freshwater flows have been reduced by 75 percent during the twentieth century. [[26]](#footnote-27)26 Both the United States and Mexico use nearly every drop that flows down the ***Colorado*** for purposes ranging from irrigation to municipal uses to power production. Internal agreements in the United States and the treaty between the United States and Mexico govern these uses and allocate more water than has ever flowed in the ***river***. [[27]](#footnote-28)27

The 1922 ***Colorado*** ***River*** Compact and the 1944 Treaty between the United States and Mexico ("1944 Treaty") divided the ***river***. The 1944 Treaty allowed 15 million acre-feet of water to remain in the United States and provided for 1.5 million acre-feet to Mexico. [[28]](#footnote-29)28 Between the 1930s and 1980s, the United States government constructed ten major dams and dozens of irrigation diversions along the ***river***. [[29]](#footnote-30)29 Courts in ***Colorado*** ***River*** states allocated water to farmers, power producers and thirsty municipalities. [[30]](#footnote-31)30 Mexico uses nearly all of its water allocation to irrigate 500,000 acres of farmland in the Mexicali and San Luis ***Colorado*** ***River*** Valleys. [[31]](#footnote-32)31 Growing municipalities use whatever water remains. [[32]](#footnote-33)32 In all, the ***river*** now provides water for twenty five million users in seven states and two countries. [[33]](#footnote-34)33 However, the law of the ***river*** has not allocated water for any uses south of Mexico's Morelos Dam where the Delta ecosystem exists. [[34]](#footnote-35)34 **[\*163]**

The Delta has declined steadily in size and health through the last half of the twentieth century. [[35]](#footnote-36)35 However, El Nino weather patterns and heavy snowpack in the Rocky Mountains during the 1980s and 1990s brought some of the lost Delta back to life. [[36]](#footnote-37)36 Reservoirs swelled and dams released surplus flows in the United States, allowing the Delta to regain some of its former acreage when surplus water passed over the border and through Mexico. [[37]](#footnote-38)37 Several years of drought have now put the Delta in the same precarious position it was in prior to 1980.

During the Delta's rebirth, political interest in the Delta increased. In 1993, Mexico declared two million acres of the Upper Gulf of California and ***Colorado*** ***River*** Delta a "Biosphere Reserve." [[38]](#footnote-39)38 The "Biosphere Reserve" designation protects unique ecosystems in Mexico and promotes sustainable economic activity around those ecosystems. [[39]](#footnote-40)39 In December of 2000, former Secretary of the Interior Bruce Babbitt acknowledged that protecting what remained of the Delta "may be the single most important piece of unfinished business on the ***Colorado*** ***River***." [[40]](#footnote-41)40 In 2000, the Department of Interior of the United States and the Secretariat of Environment, Natural Resources and Fisheries of the United Mexican States signed a joint declaration to improve cooperation in the ***Colorado*** ***River*** Delta. [[41]](#footnote-42)41 Despite this growing recognition, neither country has developed any binding legislation or agreement to protect the Delta.

During the last half of the twentieth century, a new vision and ethic regarding ecosystems and waterways has created a new customary international law. [[42]](#footnote-43)42 The emphasis on unilateral consumption by upstream users switched to equitable use by all riparian countries. [[43]](#footnote-44)43 Nations have also become more interested in protecting ***river*** ecosystems, recognizing that long-term uses of the ***river*** as a commodity required protection of the lands through which it ran. This new ethic, though not fully recognized in all nations, helped spur the passage of the U.N. Convention on the Law of the Non-navigational Uses of International **[\*164]** Watercourses ("U.N. Convention"). The U.N. Convention creates an opportunity to restructure how governments manage the ***Colorado*** ***River*** so that survival of the Delta becomes not just a topic of legal papers, but a reality of international cooperation.

A. Law Governing The ***Colorado***

The dominant vision of water use worldwide throughout the twentieth century was that of "optimum" development. [[44]](#footnote-45)44 States looked at ***rivers*** as a natural resource and commodity meant for development. [[45]](#footnote-46)45 Mexico and the United States use the ***Colorado*** ***River*** for irrigation, municipal development, and power production, along with other economically beneficial uses. [[46]](#footnote-47)46 Both countries give environmental protection, a non-consumptive, non-economic use, the lowest priority. [[47]](#footnote-48)47

The Law of the ***Colorado*** ***River***, comprised of interstate compacts, statutes, court decisions, and the 1944 Treaty, now governs the ***Colorado*** ***River***. [[48]](#footnote-49)48 The Law of the ***Colorado*** ***River*** reflects the twentieth century vision of international waterways, but the U.N. Convention is a sign that a new twenty-first century vision has evolved.

B. U.N. Convention on the Law of the Non-navigational Uses of International Watercourses

Of the 264 largest watercourses in the world, all cross the borders of more than one nation. [[49]](#footnote-50)49 Throughout the twentieth century, the focus of most nations was "optimum" development where the flows of large ***rivers*** were seen as commodities for nations to develop. [[50]](#footnote-51)50 Customary international law focuses on the benefits of multiple purpose development. Most nations now recognize that the consumptive uses implemented during the twentieth century are often an "inefficient allocation of resources, cause environmental degradation, and are often socially inequitable." [[51]](#footnote-52)51 The United Nations recognized this as well and took up the matter of codifying the modern customary law of international ***rivers*** in an effort to do away with the some of the problems concerning the use and consumption of international waterways.

The need for the convention came about from two conflicting schools of thought: absolute territorial **[\*165]** sovereignty and absolute territorial integrity. [[52]](#footnote-53)52 Absolute territorial sovereignty allows a state to control and develop those resources inside its borders in a way it deems fit, without regard to the consequences in other states. [[53]](#footnote-54)53 In the case of an international watercourse, this theory allows a nation to consume and use a ***river*** system without regard to adverse effects on downstream users in other nations.

Absolute territorial integrity, on the other hand, gives states the right to resources, unaffected by any other states. In the case of international ***rivers*** and watercourses, it gives states the right to an uninterrupted flow of water undiminished in either quantity or quality. [[54]](#footnote-55)54

In disputes over international watercourses, the downstream states most often argue territorial integrity while upstream states argue territorial sovereignty. [[55]](#footnote-56)55 As the world continued to develop through the twentieth century, customary international law adopted limited territorial sovereignty - a balance between the two schools of thought. [[56]](#footnote-57)56

In recognition of this principle, after twenty years of study and drafting by the International Law Commission, the United Nations opened and approved for signature the U.N. Convention on May 21, 1997. [[57]](#footnote-58)57 Both Mexico and the United States signed the agreement. The philosophy at the convention reflected established or emerging customary international law, and therefore the U.N. Convention adopted the principle of limited territorial sovereignty through "equitable utilization." [[58]](#footnote-59)58 The U.N. Convention also represented a change from consumptive and non-consumptive economic uses to an emphasis on cooperative ecosystem management. [[59]](#footnote-60)59

However, the convention itself does not immediately affect any ***river*** system apportioned by prior agreements. Article 3 of the convention states, "in the absence of an agreement to the contrary, nothing in the present Convention shall affect the rights or obligations of a watercourse State arising from agreements in force for it on the date on which it became a party to the present Convention." [[60]](#footnote-61)60 Article 3 also expresses a hope that nations will harmonize the convention with existing agreements. [[61]](#footnote-62)61 To facilitate a gradual harmonization, Article 3 allows **[\*166]** nations to make specific agreements regarding a particular portion of the ***river*** or a particular project. [[62]](#footnote-63)62

Article 10 of the convention addresses how each state may use a ***river***, stating no use enjoys inherent priority over another. [[63]](#footnote-64)63 It makes no reference to the hierarchy of uses previously present along the ***Colorado*** and many of the world's other ***rivers***, nor does it place any emphasis on beneficial uses. The emphasis in Article 10 is on reasonable use of the ***river***. [[64]](#footnote-65)64 The choice of language in Article 10 opens the door for environmental uses and gives states the right to protect both their territorial sovereignty and territorial integrity.

At the convention, a great deal of debate took place as to how much emphasis would be placed upon environmental protection. [[65]](#footnote-66)65 Article 20 is the culmination of those debates and it states quite simply, "watercourse States shall, individually and, where appropriate, jointly, protect and preserve the ecosystems of international watercourses." [[66]](#footnote-67)66 Drafters used the term "ecosystem" deliberately. An earlier International Law Commission report used the word "environment," which many deemed too broad and open to interpretation. [[67]](#footnote-68)67 The Chinese delegation proposed substituting the term "ecological balance." [[68]](#footnote-69)68 In the end, drafters relied on "ecosystem" to serve the interest of protecting "those land areas whose use may affect a watercourse, more or less directly." [[69]](#footnote-70)69

The simple wording of Article 20 creates an obligation on nations to protect international watercourse ecosystems without considering economic interests. [[70]](#footnote-71)70 It allows states to play a preventive role and "requires that preventive and precautionary measures be adopted where there are threats of serious or irreversible damages to a ***river*** ecosystem, even if full scientific certainty about their verification is not attained." [[71]](#footnote-72)71 However, whether Article 20 also creates an obligation to repair those parts of the riparian ecosystem that are already degraded is unclear. [[72]](#footnote-73)72 **[\*167]**

The United States and Mexico agreed to the uses of the ***Colorado*** ***River*** in the 1944 Treaty. The convention creates no legal obligation on either the United States or Mexico to manage the ***river*** any differently. All rights and obligations are static and continue to operate under the ethic of the twentieth century and the 1944 Treaty. The U.N. Convention creates only a framework under which the United States and Mexico could manage the ***Colorado*** differently.

To understand the evolution of ***river*** management, one must know how the modern ethic of management differs from historical ***river*** management. That history began with settlers of the western United States.

C. The ***Colorado*** ***River*** Compact

Settling the arid western United States in the late 1800s required access to fresh water. As more and more Americans arrived, conflicts developed, and the need became apparent for a clear vision of how the ***Colorado*** and other ***rivers*** would be apportioned between states and between users.

Between 1905 and 1907, a series of floods beset the Lower Basin states of California, Nevada and Arizona along the banks of the ***Colorado***. [[73]](#footnote-74)73 Out of fear of more flooding and a desire to develop the ***river*** basin, a vision for controlling the ***river*** evolved and gained momentum; most notably in California which was experiencing rapid population growth. [[74]](#footnote-75)74 California began pressing Congress for the right to create various storage projects along the ***river*** to feed its development. [[75]](#footnote-76)75

At that time, the rule of prior appropriation governed the use of the ***Colorado*** ***River***. [[76]](#footnote-77)76 The Upper Basin states of ***Colorado***, Wyoming, Utah and New Mexico feared they would lose their rights to any water should California be successful in its efforts to hold and use the amount of water it was requesting. [[77]](#footnote-78)77 The states made various attempts to come to an agreement on the apportionment of waters, but were unsuccessful. [[78]](#footnote-79)78

Congress eventually stepped in and created the ***Colorado*** ***River*** Compact Commission. [[79]](#footnote-80)79 Congress and the states agreed to group the states into the Upper Basin and the Lower Basin. [[80]](#footnote-81)80 Ultimately, the compact apportioned 7.5 million acre-feet of water from the ***Colorado*** to the Upper Basin states, 7.5 million to the Lower Basin states, and left **[\*168]** 1.5 million for Mexico. [[81]](#footnote-82)81 Respective commissioners of the ***Colorado*** ***River*** Basin States signed the compact on November 24, 1922. [[82]](#footnote-83)82 The compact, which is still the basis for dividing water in the ***Colorado***, reflects the dominant vision of water use of the twentieth century - it dedicates water to consumptive and economic uses. [[83]](#footnote-84)83

D. Mexican Treaty and Protocol of 1944

Despite the existence of the ***Colorado*** ***River*** Compact, Mexico and the United States operated for the first half of the twentieth century without a formal agreement assuring water in the ***Colorado*** would reach the Mexican border. Both countries were developing other shared ***rivers*** without agreement as well. At the beginning of the century, governments on both sides of the border were concerned about apportionment of waters in the ***Colorado*** and Tijuana ***Rivers***, as well as the Rio Grande. [[84]](#footnote-85)84 In the late 1920s, Mexico and the United States, through the International Water Commission (IWC), began formal negotiations with the goal of coming to a permanent agreement as to the division of the various watercourses. [[85]](#footnote-86)85 In regard to the ***Colorado*** ***River***, Mexico asked for a guaranteed delivery of 4.5 million acre-feet per year. [[86]](#footnote-87)86 The United States offered 750,000 ace-feet per year. [[87]](#footnote-88)87 Many interests inside the United States opposed compromise with the Mexican government. [[88]](#footnote-89)88 California vigorously opposed a compromise fearing any such compromise would impair the allotment of water guaranteed to the state in the Boulder Canyon Act - legislation that gave California the right to construct and hold water in Lake Mead. [[89]](#footnote-90)89 Both sides of the border also disagreed over the proper division of water in the Rio Grande. [[90]](#footnote-91)90 As a result, the two countries did not quickly come to a solution to the water concerns.

The attack on Pearl Harbor and the United States' entry into World War II served as the final push for the execution of a treaty with **[\*169]** Mexico. [[91]](#footnote-92)91 Leadership in the United States feared that Japan would attempt an invasion of the west coast and contemplated that they could easily defend California, Oregon, and Washington, but Mexico could not itself offer any serious resistance to an invasion that started on its shores. [[92]](#footnote-93)92 As a result, the United States wished to station troops on Mexico's western shores, an idea that Mexico was hesitant to embrace. [[93]](#footnote-94)93 However, Mexico was worried that increased development in the southwestern states would eventually choke off the supply of water to Mexico from the ***Colorado*** ***River*** and Rio Grande. [[94]](#footnote-95)94 As no agreement had ever been reached between the two countries, Mexico was concerned that the United States could effectively deplete the ***Colorado*** ***River*** before it ever reached the border, leaving its farmers with nothing. [[95]](#footnote-96)95

On February 3, 1944, the two sides executed the Mexican Treaty and Protocol. [[96]](#footnote-97)96 The treaty remains in effect today. Articles 10-15 of the treaty guarantee Mexico an annual delivery of 1.5 million acre-feet and up to 200,000 additional acre-feet during times of surplus. [[97]](#footnote-98)97 However, Mexico does not acquire any right beyond the 1.5 million acre-feet as a result of any surplus deliveries. [[98]](#footnote-99)98 Article 10 also allows the United States, in times of "extraordinary drought or serious accident to the irrigation system in the United States," to reduce the required amount of water allocated to Mexico in proportion to the amount that consumptive uses inside the United States are reduced. [[99]](#footnote-100)99 To this day, the United States has never delivered less than the 1.5 million acre-feet promised in the treaty. [[100]](#footnote-101)100

The treaty creates a hierarchy of uses along the ***river***. [[101]](#footnote-102)101 The agreement gives priority to uses starting with domestic and municipal, then to agriculture and raising stock, electric power, other industrial uses, navigation, fishing and hunting, and finally, any other beneficial uses which may be determined. [[102]](#footnote-103)102 The treaty does not envision a beneficial use of water for the purpose of species or ecosystem preservation. Historical documents provide no indication of any debate or discussion of the environment at the time the countries negotiated the treaty. [[103]](#footnote-104)103 **[\*170]**

E. Dam Construction in the United States

Mexico was using approximately half of its allotment of water when it signed the 1944 Treaty. [[104]](#footnote-105)104 However, at the time, the United States had not developed uses for all of its water, so a regular surplus flow reached the border, and the Delta never did without. The ***Colorado*** ***River*** Compact [[105]](#footnote-106)105 and the successful effort by California to construct the Hoover Dam finally brought the surplus flows to an end. [[106]](#footnote-107)106

Before agreeing to apportionment of ***river*** waters between the Lower Basin states, California insisted on a storage project to ensure enough water was available for its agricultural and municipal needs. [[107]](#footnote-108)107 Congress acquiesced by signing the Boulder Canyon Project Act in 1928, which provided for the construction of Hoover Dam and created Lake Mead near the California and Nevada border. [[108]](#footnote-109)108 Lake Mead became the largest reservoir in the United States, and after closing the gates on the Hoover Dam, the reservoir took six years to fill. [[109]](#footnote-110)109 During that time, no surplus water beyond the promised 1.5 million acre-feet passed over the border to Mexico, and virtually no fresh water reached the Delta. [[110]](#footnote-111)110 Those six years were the beginning of the destruction of the Delta.

Congress signed the ***Colorado*** ***River*** Storage Project Act into law in 1956, [[111]](#footnote-112)111 creating the framework for the Glen Canyon Dam in Arizona, the Flaming Gorge Dam in Utah, the Navajo Dam in New Mexico, and the Curecanti Dams in ***Colorado***. [[112]](#footnote-113)112 In all, the ***Colorado*** ***River*** Storage Act created thirty million acre-feet of storage capacity inside the United States. [[113]](#footnote-114)113 This storage capacity increased the ability of the United States to hold water north of the border and prevent it from reaching the Delta.

The Glen Canyon Dam at Lake Powell accounts for the largest percentage of the storage as well as serving as a spigot for the Lower Basin. [[114]](#footnote-115)114 The Bureau of Reclamation completed the dam in 1963, and at **[\*171]** that time, the reservoir was capable of storing twenty-seven million acre-feet of water. [[115]](#footnote-116)115 Silt and sediment buildup since 1963 has reduced that amount to just under twenty-six million acre-feet. [[116]](#footnote-117)116 It took eighteen years for Lake Powell to fill once the Glen Canyon Dam closed in 1963. [[117]](#footnote-118)117 During that period, the Delta again saw virtually no fresh water - another obstacle to survival of the Delta. [[118]](#footnote-119)118

F. Salinity Agreement

Between 1960 and 1961, salinity in the water reaching Mexico increased to a point that crop yields suffered and farmers could no longer plant salt-sensitive crops. [[119]](#footnote-120)119 Salinity increased largely because of the commencement of operations at Arizona's Wellton-Mohawk Irrigation and Drainage District and the filling of Lake Powell behind the Glen Canyon Dam. [[120]](#footnote-121)120 Filling Lake Powell drastically reduced the amount of water flowing downstream and the Wellton-Mohawk Irrigation and Drainage District system began returning brackish water to the ***river***. [[121]](#footnote-122)121 Salinity increased nearly 100 percent after the Wellton-Mowhawk system went online. [[122]](#footnote-123)122

Mexico made a formal protest to the United States and the two countries solved the problem when they agreed upon Minute 242 of the International Boundary and Water Commission. [[123]](#footnote-124)123 Mexico and the United States agreed to require the United States to maintain a specified salinity level in waters reaching the Morelos Dam in Mexico. [[124]](#footnote-125)124 The United States bore the entire cost of the construction of a de-salting plant near the border and a diversion canal for brackish water. [[125]](#footnote-126)125

Minute 242 represented another compromise between the two countries. Mexico originally demanded that salinity levels in waters reaching Mexico equal those above the Mohawk-Wellton Irrigation and Drainage District. [[126]](#footnote-127)126 The United States preferred what they called an "equivalent salt balance," which represented little in the way of any **[\*172]** requirements for water quality. [[127]](#footnote-128)127 Other concessions on both sides included limits on the pumping of groundwater and compensation to Mexican farmers. The salinity agreement found its footing somewhere in between what both sides wanted. [[128]](#footnote-129)128

G. El Nino Weather Events

While the United States and Mexico agreed to the quantity and quality of water reaching the Mexican-American border, the death of the ***Colorado*** ***River*** Delta continued. However, El Nino weather events of the 1980s and 1990s that hit the southwestern United States and Mexico changed that. [[129]](#footnote-130)129 The Delta again witnessed surplus flows when heavy rains and snow pack in the Rocky Mountains brought more water to the ***river*** basin. [[130]](#footnote-131)130 As a result, 150,000 acres inside the Delta saw a dramatic improvement. [[131]](#footnote-132)131

This improvement brought a renewed interest in the Delta. Numerous conservation organizations and governmental agencies recognized its importance. Both countries made several agreements to study and cooperate for the protection and restoration of the Delta, but none of these agreements created a bona fide responsibility on either party to do anything. [[132]](#footnote-133)132

H. The Lower ***Colorado*** ***River*** Multi-Species Conservation Program

Federal law prohibits federal agencies inside the United States from authorizing, funding or implementing programs or projects that jeopardize the continued existence of an endangered species or its habitat. [[133]](#footnote-134)133 The Endangered Species Act requires all federal agencies to consult with the Secretary of the Interior before taking any action which may impact endangered species. [[134]](#footnote-135)134

In 1994, the United States Fish and Wildlife Service designated critical habitat along the ***Colorado*** ***River*** for the bonytail chub, razorback sucker, humpback chub, and ***Colorado*** ***River*** squawfish. [[135]](#footnote-136)135 The Lower Basin states raised concern as to how these designations would affect development of the ***river*** at a time when the population and development **[\*173]** in the West were growing at a rate never seen before. [[136]](#footnote-137)136 As a result, the Lower ***Colorado*** ***River*** Multi-Species Conservation Program came to life. [[137]](#footnote-138)137 The participants included the three lower ***Colorado*** ***River*** states (Arizona, Nevada, and California), Indian tribes along the ***river***, non-federal and federal public agencies as well as private organizations. [[138]](#footnote-139)138 The group initiated and continues to implement a planning process that works toward creating a workable multi-species management program along the ***Colorado*** ***River***, taking into account beneficial uses and economic uses as well as protection of the riparian ecosystem. [[139]](#footnote-140)139

The group has three goals when recommending any plans. First, it accommodates current water diversions and power production and optimizes future water and power development opportunities. [[140]](#footnote-141)140 Second, the group conserves habitat and works toward recovery of endangered species. [[141]](#footnote-142)141 Finally, the group attempts to reduce the likelihood of additional threatened and endangered species listings. [[142]](#footnote-143)142

The cooperation between these entities represents "an unprecedented attempt at integrated, basin-wide planning." [[143]](#footnote-144)143 It also represents the changed focus of water users in their recognition of the importance of the ***river*** ecosystem and their commitment to preserve what remains of the riparian environment. However, the plans developed by the Multi-Species Conservation Program (MSCP) end at the United States' border. [[144]](#footnote-145)144 While some participants in the MSCP wish to integrate Mexico in the planning process, as of today, no Mexican participation exists and Mexico alone must implement any plan that crosses over the border. Critics of the MSCP believe the program "fails to take an ecosystem approach, arguing that well accepted principles of conservation biology, watershed planning, sustainable development, and international cooperation demand that the ***River*** north and south of the border be managed as a whole[.]'" [[145]](#footnote-146)145 The critics believe stopping at the Mexican border is the fatal flaw of the program. **[\*174]**

III. ANALYSIS

Looking through the lens of the law, nothing has changed for the ***Colorado*** ***River*** Delta since the passage of Minute 242 in the early 1960s. While the ethic of customary international law has changed a great deal, the principles of prior appropriation and beneficial use still dominate the way the countries utilize and govern the ***Colorado***. [[146]](#footnote-147)146 Both countries continue to use the ***river*** in ways no different from sixty years ago, and the Delta continues in its decline.

The 1944 Treaty between Mexico and the United States still controls along the ***Colorado***. The treaty makes no mention or allocation of water for environmental uses. [[147]](#footnote-148)147 As a result, environmental applications still receive the lowest priority among all the uses of the ***river***. [[148]](#footnote-149)148 Even if governments deemed the Delta important enough to warrant protection, there is no more water to appropriate for that purpose. [[149]](#footnote-150)149 Under current agreements, the ***river*** is already over-appropriated. [[150]](#footnote-151)150 Should agreements allocate water under the treaty for Delta rehabilitation purposes, these allocations would take a back seat to all the agricultural, municipal, power production and other uses on the ***Colorado***.

As a result, the only water that can reach the Delta is the excess flow, which Mexico cannot consume, that crosses the border during times of increased precipitation. Mexico was already using approximately half of the water it was allocated in 1944, [[151]](#footnote-152)151 and the 1944 Treaty did not provide for a significant increase in future uses on the Mexican side of the border. That lack of foresight, or lack of power at the bargaining table, leaves no water for Mexico to allocate to the Delta. Currently, the Delta can only wait for the unused excess flows.

During the 1980s and 1990s, El Nino weather patterns allowed part of the Delta to recover and remain viable. Now, however, drought in the western United States and Mexico causes the overused ***river*** to be consumed before it ever reaches the Delta. Western states have tapped into their reservoirs and begun exhaust this resource. [[152]](#footnote-153)152 In the spring of 2004, Lake Powell was at forty-two percent of capacity, a level not seen since the reservoir was filling in 1971. [[153]](#footnote-154)153 Even if the drought ended now, filling Lake Powell to **[\*175]** capacity again may take thirteen years. This would make certain that no more than the agreed 7.5 million **[\*176]** acre-feet would flow to the Lower Basin states, and no more than 1.5 million acre-feet would reach Mexico, placing the Delta last in line for whatever water remained. [[154]](#footnote-155)154 While the U.N. Convention appears to help, its carefully crafted language still supplies no immediate remedy for the Delta's problems.

Article 20 of the Convention states, "watercourse States shall, individually and, where appropriate, jointly, protect and preserve the ecosystems of international watercourses." [[155]](#footnote-156)155 The Convention further elaborates in Article 23:

Watercourse States shall, individually and, where appropriate, in ***co***-operation with other States, take all measures with respect to an international watercourse that are necessary to protect and preserve the marine environment, including estuaries, taking into account generally accepted international rules and standards. [[156]](#footnote-157)156

The Delta is an estuarine ecosystem created by fresh-water ***rivers*** emptying into a body of salt-water create estuaries. [[157]](#footnote-158)157 The U.N. Convention obligates both Mexico and the United States to protect that ecosystem in both Article 20 and Article 23 regardless of the economic impact it may have on either country. [[158]](#footnote-159)158

Unfortunately for the Delta, the U.N. Convention's obligations are not as concrete as they first appear. Article 3 states the Convention does not circumvent any prior agreements. [[159]](#footnote-160)159 Therefore, because the 1944 Treaty now regulates the ***river***, the terms of the convention create no obligations on how countries use and govern the ***Colorado*** ***River***. Article 3 also suggests that states consider harmonizing current agreements with the convention. [[160]](#footnote-161)160 Harmonizing the Convention with the 1944 Treaty would be a Herculean task. In essence, harmonization would require a renegotiation of the 1944 Treaty. Because of existing over-appropriation, the renegotiation would require some users to give up some or all of their water rights. Such a suggestion would surely meet resistance on both sides of the border. Current water users in the United States possess their rights in perpetuity and would likely be reluctant to give them up to save an ecosystem many have never seen or even heard about. Likewise, users in Mexico would be hesitant to sacrifice for an ecosystem that lies downriver from their own interests. **[\*177]**

Article 24 of the Convention concerns the management of a watercourse and its ecosystem. [[161]](#footnote-162)161 It states, in part:

watercourse States shall, at the request of any of them, enter into consultations concerning the management of an international watercourse, which may include the establishment of a joint management mechanism. [[162]](#footnote-163)162

This article obligates the United States to consult with Mexico regarding the protection of the Delta upon Mexico's request. However, while the spirit of Article 24 may force the parties to come to the table, like the rest of the Convention, it does not require either country to actually assist the other when a prior management agreement, like the 1944 Treaty, exists.

Accordingly, the terms of the U.N. Convention as a whole create little obligation for either Mexico or the United States to change the management of the ***Colorado***. It is the spirit of that agreement which creates hope for the Delta.

Agreements made over the last decade, including the U. N. Convention, indicate that both the United States and Mexico recognize the importance of trying to preserve ecosystems like the Delta. While none of those treaties or agreements makes a binding commitment on either country to provide water to the Delta, the act of recognition provides a starting point for protecting and restoring that ecosystem.

IV. RECOMMENDATIONS

While the law does nothing to protect the Delta now, current agreements provide the framework for an international agreement that could, at the least, preserve what is left of the Delta, and at best, help the Delta regain its lost territory. Because only 20-25 percent of the ***Colorado***'s waters reach Mexico as a result of upstream diversions, [[163]](#footnote-164)163 it is necessity that international law help bring about a solution to the Delta's problems. The solutions and subsequent required water allocation to the Delta need not be great in scope. It is estimated that to maintain the Delta at its current size, only 32,000 acre/feet are needed each year along with pulse flows of 260,000 acre/feet every four years to simulate natural flooding. [[164]](#footnote-165)164 This represents only 0.2 percent of the current ***river*** allocations during normal years, and 1.5 percent of allocations during the pulse flow years - levels that are far from impossible to meet. **[\*178]**

Amending the 1944 Treaty to recognize the needs of a new century and new vision of the ***river*** ecosystem is the first and most dramatic step that the two countries must take. By harmonizing the provisions of the U.N. Convention inside a new treaty, the concept of equitable use, development, and ecosystem protection can finally be realized along the ***Colorado*** ***River*** on both sides of the border. While improved efficiency in use of Mexico's allocated waters is a necessary first step, the treaty would likely have to promise Mexico more water. The Delta simply cannot survive if it only receives water in during surplus years.

On the United States side of the border, merely curtailing current water use by less than 1 percent of current allocations and transferring that water downstream to the Delta could provide the necessary amount of water. Cutting usage by 0.5 percent could create enough flow to preserve the Delta at its current size during "normal" years and create enough surplus for storage in United States reservoirs for use in pulse flows every four years. The countries could use additional amounts to actually improve and return the Delta to its original territory.

In the case of an amended treaty, simply promising more water to Mexico could create this surplus allowing some regular flow and some additional flow only during pulse years. Users inside the United States could then determine domestically how to provide that water. While the solution seems simple enough, the implementation of such an agreement is far from easy.

This change of agreement would raise several problems. First, current water users would be reluctant to give up rights to water they currently hold in perpetuity. Should drought continue across the West, those rights will likely become more valuable. As a result, forcing users to give up some of their rights could cause endless litigation and constitutional challenges.

Another concern is that if given a new supply of water for the Delta, Mexico could make a permanent claim for rights to that water even in times of extreme drought. This would necessitate continued flows to Mexico to the direct detriment of upstream users in the United States. However, language indicating that no absolute right is gained in any new agreement could circumvent this problem. Language in the current agreement already addresses extraordinary drought and a renegotiated agreement could extend those concepts to cover water destined for the Delta. Reducing or eliminating the flows to the Delta first in the event of extreme need on either side of the border, would create a buffer for use before either country had to give up waters intended for consumptive or economic use.

The only means of finding those waters inside the United States, outside of drought periods, may be an across-the-board reduction in privately owned water rights. Decreased usage could facilitate reduction and theoretically create a surplus of water, which could be sent **[\*179]** down the ***river***. However, without purchasing those rights, the possibility of further appropriation of that water would always remain.

If owners and users cannot produce enough water through increased efficiency, the government could get some or all the necessary water using their police power or the power of eminent domain. A deprivation by in this manner would more than likely constitute a taking under the United States Constitution, entitling the owners of those water rights to fair market value for the water forcibly sent downstream. Non-governmental conservation and environmental agencies would likely have to play a role raising funds for the purchase of rights through private donations and other means of fundraising.

There is also a possibility that any flows sent to Mexico would not reach the Delta. Instead, Mexico might use the water for further agricultural and municipal development in the valleys surrounding the ***Colorado*** ***River***. While certainly a foreseeable abuse of efforts to preserve the Delta, the renegotiated treaty could easily overcome this problem with language revoking water rights and returning them to users in the United States if water intended for the Delta did not reach the Delta.

Another solution involves funding more efficient irrigation in Mexico. Mexico still irrigates much of its land by flooding fields from earthen ditches. [[165]](#footnote-166)165 By some estimates, this method results in the loss of 65 percent of the water appropriated for irrigation before it ever reaches the crops. [[166]](#footnote-167)166 Reduction of water used and lost while irrigating crops could produce a surplus. The Mexican Constitution dictates the federal government owns all waters within Mexican territory unless given over as private property. [[167]](#footnote-168)167 So long as political will existed, and the Mexican government retained possession of the surplus flows, it could send those waters south of the Morelos Dam to benefit the Delta.

Again, there is a risk the Mexican government would not use excess water for the Delta, and instead direct excess water for increased development. However, non-governmental agencies could purchase the rights to the excess water as private property and hold them in perpetuity for the Delta.

Another, less dramatic measure to preserve the Delta would be inviting Mexico to join the Lower ***Colorado*** ***River*** Multi-Species Conservation Program. The group already provides planning for the ***river*** basin but their work ends at the border between Mexico and the United States. [[168]](#footnote-169)168 By inviting Mexico into the planning process, the MSCP could extend those plans already underway to the additional ninety miles ending at the Gulf of California. In doing so, both countries**[\*180]** could work to preserve the habitat for species that each country is trying to protect. If one country provides protected habitat for a species in need across the border, the reciprocal can be done; a concept already embraced in the Endangered Species Act. [[169]](#footnote-170)169 Countries could then make maximum use of the natural resources on both sides of the border while having a minimum impact on development.

The Delta could provide much of the required habitat for species preservation. The land in the Delta is not suited for a great deal of development and most has in fact been declared a biosphere preserve, a great deal of habitat needed for species recovery in the United States could be created in Mexico. Many of the species listed as endangered in the United States are birds that already migrate between the two countries. Preserving existing breeding grounds in the Delta, and possibly restoring ground already lost, could relieve the impact of the Endangered Species Act on upstream users of the ***river*** and allow for continued human use of water and space.

V. CONCLUSION

The ***Colorado*** ***River*** Delta, once one of the world's largest desert oases, is dying. Its lifeblood is the most litigated international watercourse in the world. As a result, the Delta needs an international solution for the its survival. While history, water law, and current drought conditions indicate countries and private organizations by themselves can do little to facilitate the survival of the Delta, modern international customary law along with unprecedented cooperation between government and private organizations could form a possible solution to the Delta's problems.

Entities both in and outside of government on both sides of the Mexico-United States border have recognized the importance of saving the Delta's rare ecosystem. Now, harmonizing current water law along the ***Colorado*** with the U.N. Convention on the Non-navigational Uses of International Watercourses can provide a framework to stabilize the Delta at its current level and even return the Delta to its former self. Delta restoration requires cooperation and a common vision, and international law can provide the necessary structure to start this restoration.

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