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Article

THE DAM CONTROVERSY: DOES THE ENDANGERED SPECIES ACT APPLY INTERNATIONALLY TO PROTECT FOREIGN SPECIES HARMED BY DAMS ON THE COLORADO RIVER?

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I. Introduction[a2]

Today, thousands of species face the danger of extinction. As the global community continues to develop, that risk, for many species, is quickly becoming a reality. Recognizing this threat, the United States enacted the Endangered Species Act (ESA) to protect plants and animals from further habitat destruction. However, this act is not being extended beyond the United States' border to protect endangered species in Mexico. As a result, species are dying from the harmful effects of dams operated on American soil. Instead of dealing with this problem on an international level, America is ***448** choosing to ignore the harm to endangered species living outside an invisible border. This selective protection contradicts the tenants of the Endangered Species Act.

In enacting section seven of the Endangered Species Act, the federal government prohibited actions that would jeopardize the future existence of an endangered species. The federal government, however, currently operates numerous dams along the Colorado River, which significantly reduce the amount of water flowing into Mexico. As a result, the Rio Colorado Delta is shrinking, destroying the habitat of numerous varieties of Mexican wildlife, including threatened and endangered species. Under the Endangered Species Act, and the Treaty with Mexico,[1] the federal government has a duty to protect these endangered species living in the delta. Under the terms of the ESA and Treaty of Mexico, the U.S. government should be held accountable for negative impacts to endangered species in Mexico resulting from over-allocation of the Colorado River.

This article will explore whether the U.S. government has a duty to protect endangered species living in Mexico. While the courts have never addressed the issue of federal action taken within the U.S. that affects endangered species in a neighboring country, this article will assert that the Endangered Species Act extends beyond the borders of the United States. This article will further contend that the United States has a duty under the Treaty with Mexico to protect species living in the Mexican portion of the Colorado River and in the Rio Colorado Delta.

Part I of this article explores the background and history of the Colorado River. The Colorado once flowed freely, carrying freshwater and nutrients into the sea and creating a delta whose vast wetlands supported countless varieties of wildlife. However, as civilization slowly crept westward, the need for water eventually became a national concern, giving birth to the dam building era. While the surge of new dams brought much needed water to the parched soil, the blessing came at a cost. The dams diverted virtually all of the water and sediment that once sustained a thriving ecosystem, leaving the delta to wither and die.

Part II discusses the legal context of the federal government's duties regarding the dam controversy. The federal government has a duty under the Endangered Species Act not to authorize any act that jeopardizes the future existence of a threatened or endangered ***449** species, even if the species is foreign. However, agencies, including the Lower Colorado River Multi-Species Conservation Program, have continually neglected to apply the duties of the Endangered Species Act to foreign species. The federal government also has a duty under the Treaty with Mexico to ensure that 1.5 million-acre feet (maf) of water reaches Mexico a year. The Colorado's water is currently over-apportioned and the overuse of water by the United States is seriously straining the Rio Colorado Delta. Because actions taken by the United States are harming the delta, the U.S. has a duty to repair the harm under the treaty.

In Part III of this article, the case study of the totoaba is used to illustrate how the dams have jeopardized the future existence of an endangered species. The totoaba is a large schooling fish that has become endangered in Mexico due to the lack of nutrient-rich water flowing from the Colorado River into the Gulf of California. Historically, the totoaba fed and spawned exclusively in the brackish waters of the Upper Sea and delta, relying on the Colorado to provide nutrients and to regulate the temperature and salinity of its environment. However, diversion of the Colorado River has converted the formerly brackish-water habitat into a hyper-saline environment, drastically altering the habitat of the totoaba and significantly reducing the totoaba population. Unfortunately, being located solely in Mexico, the totoaba is not currently benefiting from the protection of the Endangered Species Act.

This author advocates the following. The Endangered Species Act should be interpreted to extend protection to foreign species harmed by actions taken within the United States. Federal agencies should be required to consult with the Fish and Wildlife Service before implementing plans that will affect the delta directly or indirectly. Further, the delta should be within the scope of the action area when considering the cumulative effects of an action. Finally, the dams should be deemed as taking the totoaba, and the appropriate measures instituted to prevent future takings.

II. Background

The Colorado River once flowed for 1,450 uninterrupted miles[2] from the Rocky Mountains of Colorado and Wyoming into the Gulf of California,[3] depositing nutrient-rich sediment along the way. The continuous accumulation of sediment created the Rio Colorado Delta, supporting numerous species of wildlife. Over the course of ***450** the last century, the U.S. government built several dams along the River, impeding the river's flow. As of 1995 only about twenty-five percent of the Colorado's water was reaching the delta, causing the delta to erode.[4] The decrease in the size of the delta has forced threatened and endangered species to compete for habitat, or face extinction.

A. The Colorado River Environment Before Dams

Before the construction of dams, the Colorado River flowed freely through the Grand Canyon, bringing an average of 13.5 maf of water to the Gulf of California.[5] Since most of the river's flow reached the delta, the freshwater, silt and nutrients carried by the water created a fertile wetland covering 780,000 hectares.[6] The wetland provided feeding and nesting grounds for birds, as well as spawning habitat for marine life, and supported 200 to 400 species of plants.[7]

The delta mainly consists of the Rio Hardy wetlands, found where the Colorado River meets the Hardy River, and the Cienaga de Santa Clara wetlands, located at the drainage site of the Mohawk Irrigation District.[8] While providing habitat for countless species of wildlife, the wetlands also serve as a sanctuary for numerous endangered species. For example, the wetlands provide habitat for the largest populations of two species that are listed under the Endangered Species Act, the desert pupfish and the Yuma clapper rail.[9] Further, the Colorado River delta supports the endangered totoaba fish and endangered vaquita porpoise.[10] These species depend on the Colorado River's free flowing water to bring the amount of freshwater, sediment and nutrients necessary to sustain the fragile delta ecosystem.

B. The Authorization of Dams on the Colorado River

Until the early 1900's, settlement of the West had been hindered by failed attempts to implement irrigation systems.[11] The West's ***451** unforgiving weather severely impaired population growth, subjecting the area to boom and bust cycles and a dependency on capital from outside the region.[12] State water law offered an incentive to invest in irrigation, but adequate funds still could not be generated for the establishment of a stable irrigation system.[13] The government realized in the early 1900's that irrigation could not be implemented without federal input.[14] Thus, the federal government began the seemingly impossible task of creating a system capable of distributing the Colorado's water beyond its natural boundaries.

The Reclamation Act of 1902 was enacted to give Congress the ability, and the responsibility, of developing a system of dams for the West. Initially, the Act merely established the federal government as a short-term lender.[15] However, federal input steadily increased, as did the scope of the projects.[16] The scope expanded to include projects addressing flood control,

navigation, and hydro-electricity.[17] In 1939, the Reclamation Project Act was approved, authorizing the Secretary of the Interior to invest in projects involving flood control and municipal water supply.[18] The Act allowed the government to recoup capital costs by charging project beneficiaries for the water provided.[19]

Initially, most of the resistance towards the Reclamation Act came from Westerners who felt the federal government was unnecessarily interfering in local affairs.[20] However, support steadily grew after the flood of the Mississippi River in 1928, during the drought of the Depression, and with the ever-increasing demand for power.[21] Also contributing to the greater support for federal dam building was Section I of the Flood Control Act of 1936.[22] The broad language of the Act operated as general approval for any reasonably designed plan and contributed to the boom of new water diversions.[23]

***452** The Federal government derived its authority to build projects concerning irrigation, hydropower, flood control, and municipal/industrial use from the commerce clause.[24] Congress and the Supreme Court construed the federal power under the commerce clause broadly through the 1950's.[25] The federal power to regulate water resources has remained unabridged despite the Supreme Court's steady narrowing of the scope of federal power since the 1980's.[26] The Bureau of Reclamation may have begun as an experiment, but it quickly gained support and became a permanent feature of the federal government,[27] accomplishing numerous water diversion projects and providing the West with a successful irrigation system.[28]

The Bureau of Reclamation's prolific "dam-building era" began with the Boulder Canyon Project Act.[29] Under the authority of the Act, the lake behind Hoover Dam began to fill in 1935.[30] Many more dams were to follow. Throughout the twentieth century, $21.8 billion was spent on 133 western water projects.[31] The dams had a number of purposes, including conserving water for the upper basin states, generating hydroelectricity, and regulating the amount of water flowing to the lower basin states.[32]

Regardless of the well-intended purpose behind the dams, an unintended effect has been to harm wildlife. The dams are capable of holding a combined total capacity of more than 125 maf, which is over seven times the average flow of the Colorado.[33] Therefore, no water from the Colorado River reaches the delta unless there are spill flows. This forces the delta to rely on water from groundwater ***453** seeps, agricultural drainage and tidewater,[34] increasing the concentration of salt in the environment.[35]

Despite the harm to the delta and irrigation's unsuccessful early phases, by 1997 nearly 80 percent of the Colorado was dedicated to agriculture.[36] In the process, the federal government invested an estimated $3.6 billion in water development on the Upper Basin alone.[37] Solely responsible for reservoirs with a total storing capacity of over 119 maf, the Bureau of Reclamation controls the largest segment of federal reservoir water storage in the West.[38] Further, the Bureau has overseen the construction of 133 water projects in the West.[39] The Bureau of Reclamation has far exceeded the goals of the initial Reclamation Act, which provided the authority for the federal government to operate dams along the Colorado River.

C. The Effect of Dams on the Rio Colorado Delta

The Colorado River has been called the "lifeline of the Southwest," supplying 25 million people with water, irrigating three million acres of land, and producing 11.5 billion kilowatt-hours of hydroelectric power.[40] Over a third of the river is diverted to cities like Denver, Colorado Springs, Salt Lake City, Albuquerque, Los Angeles, and San Diego.[41] However, such diversions and impoundments are preventing water from reaching the delta. While the dams are bringing life to some areas, they are simultaneously sucking the life out of the delta.

The delta is formed when sediment from the Colorado River is deposited at the mouth of the river.[42] However, daily sediment transport and water discharge data gathered at gauging stations along the Colorado shows that the river's sediment load has greatly decreased since 1941.[43] Between 1925 and 1940, the mean annual ***454** suspended sediment load was 195 million tons per year, which is significantly greater than the period between 1941 and 1957, when the annual suspended sediment load decreased to 85.9 million tons per year.[44]

This decrease in sediment load is caused by the dams' detainment of all silt deposits and the decrease in water flow. The dams trap all sediment, except for the finest silt, preventing nutrients from being carried further downstream.[45] Also, the dams have stabilized the Colorado's flow, creating a consistent and even flow, which is not turbulent enough to stir up additional sediment from the river bottom.[46] This lack of riverbed sediment was especially evident during the years required to construct

the dams and fill the reservoirs, during which the delta received virtually no water.[47]

For example, from 1904 to 1934, the peak monthly discharge measured at Yuma was between 13,000 to 130,000 cubic feet per second (cfs).[48] From 1935 to 1941, the flow decreased to between 12,000 and 29,000 cfs, while Lake Meade was filling. The flow further decreased to between 2,000 and 12,000 cfs while Lake Powell was filling from 1963 to 1980.[49] Practically all of the Colorado's water is now captured.[50] Satellite pictures taken from 1979 to 1980 showed that the river's water was not reaching the Gulf.[51] The water that does reach the delta is mainly water that has seeped through heavily cultivated soil, bringing with it a high concentration of salt, toxins, and chemicals.[52] Without freshwater from the Colorado to dilute the delta's high salinity, the delta is becoming a highly toxic environment.

In addition to diverting water from the Colorado River, the evaporation caused by dams also decreases the amount of water available. Evaporation from dam reservoirs is the second major consumption of Colorado River water.[53] The man-made reservoirs behind the dams increase the surface area of the water, increasing the amount of water that evaporates. Some reservoirs continue to ***455** maintain levels above the optimum level of storage, even though there is no net increase because of evaporation.[54]

Another problem that prevents water from reaching the delta is that while the river averages a mere 15 maf per year,[55]17.4 maf of the Colorado's water is currently apportioned between the United States and Mexico.[56] The river is estimated to have been over allocated by 20 to 30 percent.[57] Fortunately, only 12 to 13 maf is generally withdrawn.[58] But, if the delta is dying when the apportioned water is not fully utilized, the delta has no hope of surviving if each water right is fully exercised.[59]

Consequently, the construction of dams and the subsequent impoundment of water has caused the delta to shrink from 7,700 square km to 600 square km.[60] The delta is now eroding at a higher rate than it is accreting, degenerating from a vast wetland into a brackish mudflat.[61] Unless action is taken, the water supply will continue to decrease as development continues to increase.

III. Legal Context

Once the federal government accepted the responsibility of creating an irrigation system for the West, a door was opened to the acceptance of more responsibilities. Today, the federal government is tangled between so many responsibilities and competing interests, that its duties inevitably conflict. A prime example of this conflict is the tension between the federal government's duties under the Endangered Species Act and the Treaty with Mexico. The federal government has a duty under the Endangered Species Act to protect endangered species by supplying the delta with sufficient amounts of water.[62] Simultaneously, the federal government has a ***456** duty under the Treaty with Mexico to divert 1.5 maf from the delta each year.[63]

A. Duties of the Federal Government Under the ESA

One of the few occasions in which a federal court has analyzed the federal government's duties under the Endangered Species Act was in the case of Defenders of Wildlife v. Lujan.[64] This case was overruled by the Supreme Court on procedural grounds:

Over the years, our cases have established that the irreducible constitutional minimum of standing contains three elements. First, the plaintiff must have suffered an "injury in fact"-an invasion of a legally protected interest which is (a) concrete and particularized, and (b) "actual or imminent, not 'conjectural' or 'hypothetical,'" Second, there must be a causal connection between the injury and the conduct complained of - the injury has to be "fairly ... trace[able] to the challenged action of the defendant, and not ... th[e] result [of] the independent action of some third party not before the court."Third, it must be "likely," as opposed to merely "speculative," that the injury will be "redressed by a favorable decision."[65]

Because the Supreme Court did not address the substantive issues, the Eighth Circuit's decision is one of the few insights into how the federal courts interpret the federal government's duties to endangered species. Under the ESA the federal government is prohibited from authorizing, performing, or funding an act that jeopardizes an endangered or threatened species.[66] While the courts have never directly addressed the issue of federal action taken within the U.S. that affects

endangered species in a neighboring country, courts reviewing similar cases have suggested that the ESA's protection extends beyond the borders of the United States.[67] In order to comply with the requirements of the ESA, organizations ***457** like the Lower Colorado River Multi-Species Conservation Program (LCRMSC Program) have been created to protect listed species while simultaneously optimizing current water diversion facilities, and ensuring the development of similar operations in the future.[68] However, environmental groups have alleged that the LCRMSC Program inadequately fulfills the duties imposed under the ESA.[69]

1. Introduction to the Endangered Species Act

In 1973, Congress enacted the ESA for the purpose of providing a means, and a program to conserve, the ecosystems where endangered and threatened species live, as well as the species themselves.[70] Included under the requirements of the ESA is the duty of the federal government to carry out programs to conserve threatened and endangered species.[71] The ESA must also ensure that any authorization, performance, or funding does not jeopardize the continued existence of a threatened or endangered species.[72] Further, federal agencies are required to "'use . . . all methods and procedures which are necessary' to preserve endangered species."[73]

If a federal agency suspects that an action might negatively impact a threatened or endangered species, the agency must consult with the Fish and Wildlife Service about the potential impact, and ways to decrease the impact.[74] The consulting agency must determine whether the action will jeopardize the continued existence of an endangered species, and must issue a Biological Opinion.[75] Most water projects, such as the operation of dams on the Colorado River, have a connection to the federal government and must consult with the FWS over whether the proposal will ***458** adversely affect an endangered or threatened species.[76] This consultation requirement under section seven of the ESA would seem to extend to all endangered species affected by the dams, even those whose habitat is in Mexico, such as the totoaba, vaquita harbor porpoise, the desert pupfish, the Yuma clapper rail and the southwestern desert flycatcher.[77]

The text of the ESA provides evidence of Congress' intent to apply the ESA extra territorially. For example, the ESA defines "endangered species" without limiting the group by physical location.[78] The ESA also mandates a commitment to international conservation efforts, suggesting that the ESA applies to foreign species as well.[79] The ESA does not distinguish between federal actions taken domestically and actions taken abroad.[80] The Endangered Species Preservation Act of 1966 (the predecessor to the ESA) was amended by the Endangered Species Conservation Act of 1969 to provide the same amount of protection for foreign species.[81] Congressional concern for the preservation of foreign species can also be seen in the fact that as of 1989, 507 of 1046 endangered and threatened species were predominantly found outside the United States.[82] Therefore, the ESA appears, on its face, to protect foreign endangered species.

However, while the ESA clearly controls the federal government's action regarding the impact of domestic agency actions on native species, it is unclear whether the ESA controls agency actions when the effects cross an international border.[83] In Defenders of Wildlife v. Lujan, the court held that the ESA applies to federal agency actions performed in foreign countries,[84] ***459** suggesting that the ESA also applies to foreign species harmed by those actions. The court further held that limiting the consultation duty to domestic species contradicts the international commitment expressed in the ESA,[85] considering that in creating the scope of the ESA's protection Congress used "expansive language which admits to no exceptions."[86] In reviewing the plain language of the text, the court stated "we believe that the [ESA], viewed as a whole, clearly demonstrates congressional commitment to worldwide conservation efforts."[87] Thus, Congress gave the impression that the ESA was intended to require Federal agencies to give foreign species the same protection afforded to domestic species.

However, on January 4, 1978, the Secretary of Interior dissolved this impression by publishing a final rule that provided that the ESA merely "requires every Federal agency to insure that its activities or programs in the United States, upon the high seas, and in foreign countries, will not jeopardize the continued existence of a listed species."[88] Even though the final rule purported to limit the scope of the federal agency's duties, the Court concluded, "To overcome the presumption that the [ESA] was not intended to have extraterritorial application, there must be clear expression of such congressional intent."[89]

Nonetheless, the Secretary sidestepped this requirement by propagating a different interpretation of section seven of the 1973 ESA, which only required consultation for "actions taken in the United States or on the high seas."[90] Environmental Groups challenged this new interpretation, but the case was dismissed for lack of standing.[91] Because the case was reversed on procedural grounds and never reached the substantive issue, the question remains open as to whether the new interpretation

completely overrules Lujan's interpretation of congressional intent, or merely overrules the section applying to the scope of the action area.

Regardless, the federal government still has a duty to protect the endangered species in the Rio Colorado Delta under this new interpretation of the ESA. Under the new interpretation, federal agencies are still required to conduct consultations for actions harming endangered species that are taken within the United ***460** States or on the high seas.[92] In the case of the Colorado River, the dams causing the harm are operated within the United States. The foreign species living in the delta must be provided the same protection as native species because the foreign species are being harmed by an action taken within the United States.

2. Application of the ESA to the LCRMSC Program

In addition to affecting actions taken by the federal government, the ESA's impact can be seen in state governments as well. For example, in 1993, water users in the lower basin states created a Steering Committee to consider the concerns for endangered species along the Colorado River.[93] Consequently, a Memorandum of Agreement was signed in August of 1995 between the Department of the Interior and the states of Arizona, Nevada, and California, to create the LCRMSC Program.[94] The Fish and Wildlife Service deemed the Steering Committee to be an "Ecosystem Conservation and Recovery Implementation Team" (ECRIT) and the Secretary exempted the committee from Federal Advisory Committee Act requirements under authority of the ESA.[95] Despite the creation of the LCRMSC Program, the Fish and Wildlife Service is still required by statute to ensure adequate steps are being taken to recover the species.[96]

The LCRMSC Program is a habitat conservation plan developed in response to the problem of compliance with the ESA.[97] Specifically, the program is intended to facilitate the designation of critical habitat for the Yuma clapper rail, razorback sucker, bonytail, peregrine falcon, bald eagle, and southwestern willow flycatcher.[98] The program is designed to help listed species and potentially threatened species to recover while "accommodat [ing] current water diversions and power production and optimiz[ing] opportunities for future water and power development."[99]

The LCRMSC Program now consists of federal, state, tribal, and public and private stakeholders concerned with the management of the Lower Colorado River Basin's water resources.[100] The ***461** stakeholders hope to obtain incidental take permits from the Secretary of the Interior in exchange for mitigation measures like the LCRMSC Program's conservation of habitat and species.[101] The incidental take permit would in essence allow the stakeholders' water power plant to "take" species.[102] The Memorandum of Agreement creating the LCMRSC Program acted as a substitute for a reasonable and prudent alternative, and was designed to postpone consultation with the Fish and Wildlife Service under the ESA.[103] However, several environmental groups opposed the Memorandum of Agreement, claiming that the LCRMSC Program prioritized water and power operations over species recovery.[104]

Four U.S. organizations and four Mexican organizations challenged the adequacy of the consultation under the ESA in March of 2003. The suit, brought in Federal District Court for the District of Columbia, was based on the Bureau's operation and management of the dams and diversions.[105] The Bureau of Reclamation was named along with the Fish and Wildlife Service (FWS) and the National Marine Fisheries Service (NMFS).[106] Plaintiffs claimed the government "failed to satisfy the consultation requirements of the ESA with regard to protected species in the Colorado River Delta in Mexico."[107]

The court found that while the consultation that led to the 1996 Biological Assessment and Biological Opinion analyzed the effects on species found in Mexico, the analysis was not "supplemented in [the Bureau's] reinitiated consultation with FWS in April 2002."[108] The Bureau concluded that its operations may affect the totoaba and the Southwestern Willow Flycatcher.[109] The Bureau acknowledged that "reductions in the flow and changes in the water quality of the Colorado River have been identified as 'primary factors' contributing to declines of the Totoaba Bass, because the ***462** Totoaba spawn at the mouth of the river."[110] Despite this recognized threat to the totoaba, the court found that the duty of consultation under the ESA did not extend to operations affecting extra-territorial species in the delta.[111]

This holding seems to contradict the court's previous decisions in which the FWS's biological opinions violated the ESA by failing to consider the cumulative impact of all federal actions that are affecting the species in the area.[112] The cumulative impact requirement suggests that the LCRMSC Program must look beyond the borders of the United States and consider the impact on endangered species in Mexico.[113] However, the LCRMSC Program currently does not cover species in portions of

the river outside the boundaries of the United States.[114] Under the plan, 90 miles of the Colorado River and the delta will not be covered, even though the LCRMSC Program agreed to follow an ecosystem-based approach.[115] The LCRMSC Program narrowed the scope of the program in order to avoid consideration of the delta.[116]

However, as discussed above, the ESA mandates that the program consider endangered species living in the delta, regardless of whether the species ever crosses into the United States.[117] Thus, the LCRMSC Program violates the ESA by not considering the impact of the dams on endangered species in the Rio Colorado Delta.[118] The LCRMSC Program even admits, "Without a coordinated, comprehensive ecosystem-based conservation approach for the region, listed species may not be adequately addressed by individual project-specific mitigation requirements."[119] Nonetheless, the LCRMSC Program has yet to provide the protection and ecosystem-based conservation that the program promised to the FWS.

Under the ESA, the LCRMSC Program has a duty to take the endangered species of the Rio Colorado Delta into consideration. If ***463** the LCRMSC Program continues to ignore the problems caused by lack of water in the delta, the federal government (and the FWS) must intervene to ensure that adequate steps are taken by the LCRMSC Program to recover the endangered species living in the Mexican portion of the Colorado River. The federal government has a duty to extend the ESA to foreign species living in Mexico by forcing the LCRMSC Program to rectify its violations of the ESA.

B. Duties of the Federal Government Under the Treaty with Mexico

In the Convention of 1889, the United States signed a treaty with Mexico creating the International Boundary Commission (IBC).[120] The commission's purpose was to employ the rights and obligations under the treaty in a manner that benefits both countries, to improve relations between the United States and Mexico, and to settle any future boundary questions.[121] The IBC later became the International Boundary and Water Commission (IBWC), which is responsible for employing other boundary and water treaties.[122] The commission is the only organization given bi-national authority over the Colorado River. However, the IBWC is limited to water supply and quality problems and does not address issues involving environmental protection.[123] No organization exists to monitor or regulate the health of the delta.

On February 3, 1944, another treaty was signed between the United States and Mexico entitled Utilization of Waters of the Colorado and Tijuana Rivers and of the Rio Grande.[124] The treaty guaranteed 1.5 maf of the Colorado's water to Mexico, annually.[125] The treaty also provided that in times of drought or other water shortages, there would be a pro rata reduction,[126] making the United States liable for the monitoring and apportioning of the water in the Colorado River.

Despite this newfound responsibility, the U.S. government did not create a bi-national organization to monitor the affects of the Colorado's apportionment, nor was the task assigned to the IBWC. Studies in conservation biology and watershed management suggest ***464** that ecosystems must be managed as a whole to prevent the problems associated with discoordination.[127] Nonetheless, the IBWC is divided into two sections: a U.S. section and a Mexican section.[128] Each section has its own engineering staff with legal advisers and assistants, and each country is responsible for the operation costs of their own section.[129] This disconnect between the two sections prevents management of the ecosystem as a whole and promotes an isolated view of problems and solutions.

Although cooperation between the two sections is rare, both sections of the IBWC collaborated in amending the treaty with Minute 242 on August 30, 1973, addressing the problem of increasing concentrations of salinity in the water crossing into Mexico.[130] Since Mexico only receives about ten percent of the Colorado's flow,[131] Mexico would practically have to stop drawing water from the river in order to restore the delta's salinity levels to normal concentrations.[132]

Fortunately for Mexico, restoration of the delta is not Mexico's responsibility. According to the 1944 treaty, when a man-made project or operation in one country causes (or threatens to cause) harm to the other country, the government of the country causing the problem must pay for the cost.[133] Therefore, the U.S. government has the duty to either pay for the harm caused to the species living in the Mexican portion of the Colorado River and in the Rio Colorado Delta, or decrease the amount of water removed from the Colorado River. Either way, the United States is accountable for the harm to the species living in Mexico caused by the lack of water.

*465 IV. Case Study of the Totoaba

The totoaba is a large schooling fish that lives between the Gulf of California and the mouth of the Colorado River.[134] Once a source of income for commercial fishers, the totoaba was banned from the market when the totoaba population decreased from a maximum annual yield of 2261 tons in 1942 to 58 tons in 1975.[135] Early in 1976, the totoaba was put on the endangered list of the Convention on International Trade in Endangered Species.[136] On December 30, 1976, the FWS and NMFS proposed to list the totoaba under the ESA as endangered.[137] A workshop was held in September of 1978 to assess the biological status of the totoaba.[138]

Attending the workshop were scientists that not only studied the totoaba, but also examined the literature and information provided by fieldwork in the upper Gulf of California.[139] Evidence showed that essentially no water had flowed into the delta for ten to fifteen years.[140] The scientists concluded that the decrease in water flowing to the delta was negatively impacting the totoaba's spawning and nursery grounds, decreasing the totoaba population.[141]

A. Effect of Dams on Totoaba Habitat

The Colorado River once had a surplus of water flowing into the delta.[142] However, the construction of the Hoover Dam in 1928 significantly reduced the amount of water and sediment arriving at the delta.[143] Water flow continued to decrease as more dams were built along the Colorado, until the flow virtually stopped in the mid 1960's.[144] This reduction of freshwater increased evaporation and salinity in the delta while at the same time decreasing the input of ***466** nutrients, thus negatively altering the habitat of the species living there, including the totoaba.[145]

Currently, there is no water dedicated to the preservation of the delta.[146] The delta has been referred to as "essentially a dead ecosystem."[147] In years without abnormal flooding, no water reaches the delta.[148] The most water the delta has received since the construction of the dams was from 1980 to 1993, when excess flows brought a surplus of water.[149] However, even though the surplus was three times more than the treaty allotment, the surplus was a mere one-fourth of the flow the delta received before the dams.[150]

Water diversion has significantly decreased not only the amount of water flowing into the delta, but also the amount of silt.[151] As a result, the delta has lost large amounts of wetland[152] and the upper flood-plain vegetation has changed from gallery forests to lower-growing plants.[153] If diversion of the Colorado continues to increase, the Colorado is predicted to shrink to less than 2000 hectares.[154] The totoaba depend on the delta for nutrients, shelter and reproduction.[155] As the delta gets smaller, the totoaba are increasingly forced to compete against each other, as well as against other species, for what remains of the limited wetland habitat.[156]

B. Effect of Habitat Degradation on the Totoaba

Historically, the totoaba's spawning migration correlated with the salinity gradient as the spring floodwaters of the Colorado River merged with the salty water of the Upper Gulf of California.[157] The resulting brackish water provided spawning grounds for the totoaba. However, the spawning season has been truncated due to the decreasing amount of water flowing from the Colorado River into the Gulf.[158] The decrease in water flow has significantly ***467** increased the water temperature,[159] which is one of the key factors in the timing of spawning.[160] The totoaba will not be able to reproduce sufficiently for the restoration of the population unless enough water is put back into the river to stabilize the water temperature.[161]

Further, the reduction in freshwater from the Colorado has jeopardized the totoaba because of the negative effect on prerecruits and on the totoaba's nursery grounds.[162] First, the reduction of water flowing in from the Colorado River has interfered with the river's ability to add nutrients and volume necessary to increase the carrying capacity of prerecruits and juvenile totoaba.[163] Secondly, the dams and other diversions of the Colorado's water have stabilized the once highly turbulent ecosystem, allowing nonnative fish into the totoaba's habitat.[164] These nonnative fish have been harmful to the native species.[165] Thus, the dams negatively affect the juvenile totoaba's ability to develop and fend off nonnative fish.

Since the Bureau of Reclamation and other federal agencies control all water stored in the Lower Colorado mainstream dams,[166] the federal government is responsible for the harm to the totoaba that stems from the water's impoundment. The federal government has violated the ESA by authorizing, funding and performing an operation that jeopardizes the continued existence of the endangered totoaba. Unless action is taken to curb the harmful effects to the delta, the totoaba's population

will continue to spiral downward towards extinction.

C. Application of the ESA to Foreign Species of Totoaba

In response to the Bureau's draft Biological Assessment, the FWS directed the Bureau to examine the impacts of the Bureau's operation on three species found in Mexico, and to seek consultation with NMFS regarding two marine species in the Gulf of California, because the species were found "'in Mexico within the project area or . . . within the area of effects from the action under ***468** consultation."'[167] In the Final Biological Assessment, the Bureau of Reclamation admitted that modification of flow was harming the endangered totoaba.[168] Nonetheless, the court found that the duty of consultation under the ESA did not extend to operations affecting extra-territorial species in the delta.[169]

However, this holding conflicts with the duty under the ESA to include the totoaba in the biological assessment, regardless of which country the species inhabited. To satisfy the interagency consultation requirements under the ESA, the consulting agency must consider the "entire agency action."[170] Section seven of the ESA[171] requires the consulting agency to evaluate the biological impact of the planned action on "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action."[172] The entire agency action includes the federal action's impact combined with the ecological impact of "interrelated and interdependent" actions.[173] In essence, the NMFS must include the dams' effect on the delta in the biological assessment, whether the injury to the totoaba is direct or indirect.

In addition to considering the entire agency action, the consulting agency has a duty to determine "whether the action, taken together with cumulative effects, is likely to jeopardize the continued existence of listed species."[174] The consulting agency must evaluate the specific action's effects together with the past and present impacts of every other federal agency in that area.[175] The effects of the action include the direct and indirect effects on the species.[176] The agency may not side step this requirement by narrowly defining the action area in order to leave out the effects of other agency actions.[177] Thus, the consultation must consider not ***469** only the effect of a single dam on the totoaba, but also the combined effect of all of the dams on the delta.

Further, section four of the ESA states that "it is unlawful for any person subject to the jurisdiction of the United States to . . . take any such species within the United States or the territorial sea of the United States."[178] The term "take" is defined as "to harass, harm, pursue, hunt, shoot, wound, kill, trap capture, or collect, or to attempt to engage in any such conduct."[179] While the dams do not take any totoaba within the borders of the United States, action taken within the United States is harming the endangered totoaba-and thus should be considered a taking.

Similarly, it is unlawful for any person to "take" an endangered or threatened species, under section nine of the ESA.[180] The definition of take includes "harm" and harm is further defined to include "significant habitat modification or degradation where it actually kills or injures wildlife."[181] Courts have interpreted this to require a taking to be an act that, through significant habitat modification or degradation, foreseeably causes death or injury to identifiable wildlife by significantly impairing essential behavioral patterns.[182] A decrease in fresh water input foreseeably increases the concentration of salt in a water body, thus the federal government's operation of the dams foreseeably modified and degraded the habitat of the totoaba. Furthermore, an increase in salinity foreseeably increases the temperature in the delta, and increased temperature has been identified as decreasing the spawning period of the totoaba.[183] The increase in salinity foreseeably caused injury to the totoaba by significantly impairing spawning, as well as other behavioral patterns.

In accord with the aforementioned definitions and duties imposed by the ESA, the Supreme Court has stated that the ESA "reveals a conscious decision by Congress to give endangered species priority over the 'primary missions' of federal agencies"[184] and that, "[t]he plain intent of Congress in enacting this statute was to halt and reverse the trend toward species extinction, whatever the cost."[185] Under this reasoning, the ESA is intended to take ***470** precedence over the wants and needs of other agencies. Therefore, providing the delta with enough water to save the endangered totoaba should take priority over other federal actions, such as the operation of the dams.

In concurrence with the emphasis of species preservation as a primary concern, the ESA mandates that federal agencies use their power to further the purposes of the ESA through programs that conserve endangered species and threatened species.[186] The ESA defines the terms "conserve," "conserving," and "conservation" as using all methods and procedures necessary to result in the increase of a listed species' population such that the species is no longer threatened or endangered.[187] Currently,

the government is not using every method and procedure necessary to increase the totoaba's population. In fact, the federal government is not using any method at all. The federal government has a duty under the ESA to implement a procedure, or otherwise utilize a methodology, to conserve the totoaba. For example, the federal government could implement a policy setting a maximum limit for the amount of water stored in dam reservoirs, thereby decreasing the amount of water lost toevaporation. Similar policies would create excess water that could then flow into the delta, minimizing the harm to the totoaba and its environment. Government projects that jeopardize an endangered species must be terminated, devoid of agency discretion.[188] The dams and diversions along the Colorado River are jeopardizing the totoaba. Regardless of the Bureau of Reclamations' requirements, the dam projects must be terminated, or operated in a manner that does not jeopardize the totoaba. The agencies should have no say in the matter.

A district court recently came to the same conclusion in enjoining a dam on the Missouri River from taking endangered species.[189] "[T]raditional balancing of equities [for issuance of an injunction under the ESA] is abandoned in favor of an almost ***471** absolute presumption in favor of the endangered species."[190] This follows "the Supreme Court's conclusion that Congress spoke in the 'plainest of words' in enacting the ESA, 'making it abundantly clear that the balance has been struck in favor of affording endangered species the highest of priorities.''"[191] The court further held that "ESA compliance can come at the expense of other interests including navigation and flood control," in light of congressional intent to give endangered species priority over primary missions of federal agencies.[192] If saving endangered species is a high enough congressional priority to enjoin a U.S. dam from jeopardizing endangered species living in U.S. waters, then it should be a high enough priority to enjoin U.S. dams from jeopardizing endangered species living in Mexican waters as well.

A less drastic solution would be to reapportion the Colorado River. The Treaty with Mexico sets the minimum amount of water required, but nothing prevents the United States from providing more. If each state gave up a portion of the water originally allocated under the Colorado River Basin Compact, the excess water could revitalize the Rio Colorado Delta's ecosystem. This alternative approach, in conjunction with regulated maximums for water storage would ensure the totoaba would no longer be jeopardized and the dams would no longer violate the ESA.

V. Conclusion

The U.S. government should be held accountable for negative impacts to endangered species in Mexico resulting from over-allocation of the Colorado River.[193] The ESA should be interpreted to extend protection to foreign species affected by U.S. actions, and the U.S. should fulfill the duties imposed by the Treaty with Mexico. The border between the U.S. and Mexico is essentially an imaginary ***472** line. The totoaba cannot distinguish between U.S. waters and Mexican waters. But the totoaba can distinguish between clean water and toxic water. Why should the U.S. government be absolved from responsibility for its actions, simply because the affect is felt further downstream? Were the imaginary line to move 90 miles south, the U.S. government would be forced to remedy the problem.

Foreign species should be extended the same protection under the ESA as native species. Federal agencies should be required to consult with the Fish and Wildlife Service before implementing plans that will affect the delta in any manner. Section seven of the ESA requires the consulting agency to evaluate the biological impact of the planned action on all areas directly or indirectly affected by the Federal action. Therefore, the consultation must consider the dams' affect on the delta because the decrease in water is causing the delta to erode, and the temperature of the water to increase along with the toxicity.

Similarly, the delta should be within the scope of the action area when considering the cumulative effects of an action. The consulting agency has a duty under the ESA to consider the cumulative impact of all federal actions in the area that are affecting the species. Accordingly, the consultation must consider not only the effect of a single dam, but also the combined effect of all of the dams on the endangered species living in the delta.

Further, the dams should be deemed as taking the totoaba, and appropriate measures implemented to prevent future takings. Section four of the ESA prohibits any person from harassing, harming, wounding, or killing an endangered species. However, the dams are foreseeably causing significant habitat modification and degradation that is foreseeably causing death and injury to the totoaba (and other species living in the delta) by significantly impairing essential behavioral patterns. While the dams do not take any totoaba within the borders of the United States, actions taken within the United States are harming an endangered species, and thus, should be considered a taking.

Finally, the protection of the endangered species in the Rio Colorado Delta should take precedence over the operation of dams and diversions along the Colorado River because the ESA places the priority of federal actions on the protection of endangered species. The ESA was intended to protect endangered species, even at the expense of other agency needs and goals. The ESA should be implemented as intended, and take preference over agency actions that are jeopardizing endangered species in the delta.

Currently, some agencies willingly follow the ESA's requirement to give preference to the protection of threatened and endangered ***473** species. For example, in Pacific Coast Federation of Fishermen's Ass'ns v. Bureau of Reclamation, the National Marine Fisheries Services' (NMFS) biological opinion concluded that the Bureau of Reclamation's proposed water flow management of the Link River dam was likely to jeopardize the continued existence of the coho salmon in the Lower Klamath River.[194] Thus, the NMFS proposed a plan that would: (1) require the Bureau of Reclamation to meet minimum flow levels; (2) provide an additional amount that gradually increases each year with a water bank; (3) agree to specific long-term target water flows; (4) establish an inter-governmental task force to develop, procure, and manage water resources; and (5) establish an inter-governmental science panel to develop and implement a research program to further study coho salmon and their habitat.[195] Because the endangered totoaba is suffering the same harms from the operation of dams as the endangered salmon, the Bureau of Reclamation should work together with the NMFS to develop a plan similar to the one implemented in Pacific Coast, to increase flow levels and studies of the totoaba.

Additionally, the Bureau of Reclamation should implement Pacific Coast's water bank management plan and reapportion the Colorado River so that more water reaches the Rio Colorado Delta. One way to meet these specific long-term target water flows would be to require each state to give up a portion of their allocation in order for the excess to flow to the Rio Colorado Delta. States could more readily afford to give up some of their apportioned water if the water was not needed for irrigation. By 1997 eighty percent of the Colorado's water was dedicated to irrigating land not suited to grow crops.[196]

Even if states refuse to cooperate with the reapportionment process, legal tools exist to force compliance. The District Court for the District of Columbia recently held that in light of congressional intent to give endangered species priority over the primary mission of federal agencies, ESA compliance can come at the expense of other interests, including navigation and flood control.[197]

The ESA provides the legal context for application to foreign species. However, federal agencies continue to ignore this interpretation of the ESA. Until the courts enforce the ESA the Rio Colorado Delta will continue to shrink more each day and ***474** endangered species, like the totoaba, will continue to lose their home.

Footnotes

a1 **Bridget Kellogg** is a recent graduate of The Florida State University College of Law's Land Use & Environmental Law Certificate Program. Bridget served as the Associate Editor and Research Editor of the Journal of Land Use & Environmental Law, and as the Writing and Research Editor for the Journal of Transnational Law & Policy.

a2 Special thanks to Professor J.B. Ruhl for his expertise regarding the Endangered Species Act, and to Evan Smitha for the concept.

1 Utilization of Waters of the Colorado and Tijuana Rivers and of the Rio Grande, Feb. 3, 1944, U.S.-Mex., 3 U.N.T.S. 313. [hereinafter Treaty with Mexico]. The Treaty with Mexico was signed on February 3, 1944 and guaranteed 1.5 maf of the Colorado River's water to Mexico. The International Boundary & Water Commission, United States and Mexico, available at <http://www.ibwc.state.gov/html/about_us.html> (last visited Feb. 11, 2004).

2 Dale Pontius, SWCA, Inc., Colorado River Basin Study: Report to the Western Water Policy Review Advisory Commission 5 (1997).

3 Id. The river also flows through Mexico and into the Sea of Cortez. Id.

[4] Edward P. Glenn et al., Effects of Water Management on the Wetlands of the Colorado River Delta, Mexico, 10 Conservation Biology 1175, 1177-78 (1996).

[5] David Meko et al., The Tree-Ring Record of Severe Sustained Drought, 31 Water Resources Bulletin 789, 800 (1995).

[6] Glenn et al., supra note 4, at 1176.

[7] See id.

[8] Id. The El Indio wetlands and the El Doctor wetlands have also been included in describing the delta area. Michael J. Cohen et al., A Preliminary Water Balance for the Colorado River Delta, 1992-1998, 49 J. Arid Environments 35, 36-37 (2001).

[9] Glenn et al., supra note 4, at 1176.

[10] Id. The delta also supports transitory birds on the Pacific Flyway. Id.

[11] See Marc Reisner & Sarah Bates, Overtapped Oasis: Reform or Revolution for Western Water 13-14 (1990).

[12] Western Water Policy Review Advisory Commission, Water in the West: Challenge for the Next Century 4.2 (1998) [hereinafter Water in the West], available at http:// www.waterwest.org/reading/readingfiles/fedreportfiles/chapt4.pdf.

[13] See id.

[14] Reisner & Bates, supra note 11, at 14.

[15] Water in the West, supra note 12, at 4.3.

[16] See id.

[17] Id. at 4.2.

[18] See Reisner & Bates, supra note 11, at 20.

[19] Id. at 15. The result was, in effect, an interest free loan. Id.

[20] Id. at 17.

[21] Id. at 18-19.

[22] Id. at 20. This led to the benefit/cost calculations that approved dams for marginal irrigation. Id.

[23] See id. at 19-20.

[24] Water in the West, supra note 12, at 4.2.

[25] Id.

[26] Id.

[27] Reisner & Bates, supra note 11, at 19-21. The Bureau of Reclamation gained support largely because the Depression had changed society's view of public works. The New Deal also fed on this sentiment. Id. at 18-19.

[28] See id. at 21.

[29] Philip L. Fradkin, A River No More: The Colorado River and the West 143 (Alfred A. Knopf, Inc.) (1981). The dam building era gave birth to the Hoover Dam and died with the Glen Canyon Dam in 1963. Id.

[30] Gasser v. United States, 14 Cl. Ct. 476, 490 (1988). While the legal propositions established in Gasser are no longer good law, the scientific data contained within remains accurate and is cited throughout this article.

[31] Water in the West, supra note 12, at 4.3.

[32] Id.

[33] Pontius, supra note 2, at 5. See also Glenn et al., supra note 4, at 1184. Hoover Dam has a storage capacity of 27, 000,000 acre-feet and Glen Canyon Dam has a storage capacity of 25,000,000 acre-feet. Gasser, 14 Cl. Ct. at 490-491. Glen Canyon Dam was completed in 1963, but Lake Powell did not finish filling until 1980.

[34] Glenn et al., supra note 4, at 1178. The water sources come mainly from the Welton-Mohawk main outlet drain extension, the Riito Drain, natural seepage from artesian springs, and seawater from the Gulf of California. Id.

[35] Id.

[36] Pontius, supra note 2, at 13.

[37] Id. at 19. Even more has been spent on the lower basin, for example, $3.5 billion was spent on the most recent project, the Central Arizona Project, but between $1.8 and $2.2 million will eventually be repaid to the government. Id.

[38] Glenn et al., supra note 4, at 1184.

[39] Water in the West, supra note 12, at 4-3.

[40] Pontius, supra note 2, at 2.

41 Id. at 8.

42 Cohen et al., supra note 8, at 35.

43 Edmund D. Andrews, Sediment Transport in the Colorado River Basin, in Colo. River Ecology & Dam Management, Proceedings of a Symposium May 24-25, 1990 Santa Fe New Mexico 54, 63 (1991), available at http://books.nap.edu/books/0309045355/html/54.html. Evidence is based on sediment load for annual runoff. Id.

44 Id.

45 See Pontius, supra note 2, at 5.

46 See Reisner & Bates, supra note 11, at 44-45. More than twelve main-stem and tributary dams have been built on the Colorado by the Bureau of Reclamation. Id.

47 Glenn et al., supra note 4, at 1177.

48 Gasser v. United States, 14 Cl. Ct. 476, 490-491 (1988).

49 Id.

50 Cohen et al., supra note 8, at 35.

51 Gasser, 14 Cl. Ct. at 496.

52 Reisner & Bates, supra note 11, at 46.

53 Pontius, supra note 2, at 10. The average annual evaporation loss due to storage in reservoirs is over 2 maf a year. Id. at 8.

54 Id. at 8.

55 Gasser, 14 Cl. Ct.. at 492; see also Pontius, supra note 2, at 5. The long-term historical average is 14.95 maf, but studies of tree-rings, depicting hundreds of years of flow, averages 13.5 maf. Pontius, supra note 2, at 6.

56 Id. at 14. 1.5 maf is dedicated to Mexico under Article 10 of the 1944 treaty, while the Colorado River Compact of 1922 apportioned 7.5 maf to the upper basin and another 7.5 maf to the lower basin. Id. at 10.

57 Pontius, supra note 2, at 14. Water is allocated between parties using treaties and agreements. See id at 10-14.

58 Gasser, 14 Cl. Ct. at 492.

[59] Id. The Central Arizona Project is expected to use another 1.5 maf of water, which will put even more strain on the current over allocation. Id. See also Pontius, note 2, at 13. California uses more than its 4.4 maf allotment, Nevada uses all but 300,000 acre-feet and Arizona uses its entire 2.8 maf allotment. Id.

[60] Cohen et al., supra note 8, at 35. Before the Colorado River was altered with dams and diversions, the mean annual discharge of water at Lees Ferry, Arizona was 1067 km. Id.

[61] Glenn et al., supra note 4, at 1176-7.

[62] See Endangered Species Act, 16 U.S.C. § 1536(a)(2) (2000).

[63] The International Boundary & Water Commission, United States and Mexico, available at <http://www.ibwc.state.gov/html/about_us.html> (last visited Feb. 11, 2004).

[64] 911 F.2d 117 (8th Cir. 1990), overruled by Lujan v. Defenders of Wildlife, 504 U.S. 555 (1992).

[65] Lujan v. Defenders of Wildlife, 504 U.S. 555, 562 (1992) (internal citations omitted).

[66] Endangered Species Act, 16 U.S.C. § 1536(a)(2) (2000).

[67] See Defenders of Wildlife v. Lujan, 911 F.2d 117, 122-23 (8th Cir. 1990) overruled by Lujan v. Defenders of Wildlife, 504 U.S. 555 (1992).

[68] Pontius, supra note 2, at 55. "Listed" means the species is listed as endangered or threatened under the ESA. See e.g., 50 C.F.R §17.11(a)-(b) (2002).

[69] See Kara Gillon, Watershed Down?: The Ups and Downs of Watershed Management in the Southwest, 5 U. Denv. Water L. Rev. 395, 420.

[70] Endangered Species Act, 16 U.S.C. § 1531(b) (2000).

[71] Id.

[72] See id. § 1536(a)(2).

[73] Tennessee Valley Authority v. Hill, 437 U.S. 153, 185 (1978) (quoting 1976 U.S.C. §§ 1531(c), 1532(2) (1976)).

[74] See Interagency Cooperation - Endangered Species Act of 1973, 50 C.F.R. § 402.01(b) (2002).

[75] See Endangered Species Act, 16 U.S.C. § 1536(a)(2)(2000). The Biological Opinion is a report done by the Fish & Wildlife Service based on the evaluation of a Biological Assessment. 65 Fed. Reg. 43,031, 43,032 (July 12, 2000). The report takes into consideration the description of the proposed action, effects of the action, cumulative effects, current species status, and

environmental baseline. The FWS makes a conclusion regarding the effects of current operations on the continued existence of listed species and includes a list of actions necessary to avoid jeopardizing a listed species. If the consulting agency finds an action is not likely to cause jeopardy, the agency may issue an incidental take permit. 16 U.S.C § 1536(b)(4)(A)-(C)(iv) (2000); 16 U.S.C. § 1536(c) (2000).

[76] Pontius, supra note 2, at 19.

[77] See generally George D. Lozano, Defenders of the Wildlife v. Hodel: Protection of Endangered Species in Foreign Nations Under the ESA of 1973, 2 Geo. Int'l Envtl. L. Rev. 209 (1989) (discussing the ESA's extra-territorial application).

[78] Defenders of Wildlife v. Lujan, 911 F.2d 117, 123 (8th Cir. 1990) overruled by Lujan v. Defenders of Wildlife, 504 U.S. 555 (1992).

[79] Defenders of Wildlife, 911 F.2d at 122-23

[80] See Listing Endangered and Threatened Species and Designating Critical Habitat, 50 C.F.R. 424.12 (2002). With the exception that land designated critical habitat must be under state or federal jurisdiction. Id. at 424.12(h)(2002).

[81] 66 Fed. Reg. 15,643, 15,645 (Mar. 20, 2001). The Endangered Species Act, Pub. L. No. 91-135, § 3(a), 83 Stat. 275 (1969), extended the protection of the ESA by allowing foreign species to be listed, including the Aleutian Canada Goose, which has since been delisted. Id.

[82] Defenders of Wildlife, 911 F.2d at 123.

[83] Lujan v. Defenders of Wildlife, 504 U.S. 555, 581 (1992) (Stevens, J. concurring).

[84] Defenders of Wildlife v. Lujan, 911 F.2d 117, 125 (8th Cir. 1990) overruled by Lujan v. Defenders of Wildlife 504 U.S. 555 (1992). The case dealt with a challenge by an environmental organization to the issuance of a regulation by the Secretary of Interior that limited the consultation obligation of the ESA to actions occurring in the United States or on the high seas. The court found the challenged regulation invalid, holding that Congress intended for the consultation obligation of the ESA to extend to all agency actions affecting endangered species, whether home or abroad. Defenders of Wildlife, 911 F.2d. at 118.

[85] Defenders of Wildlife, 911 F.2d. at 122-23.

[86] Id. at 122.

[87] Id. at 123.

[88] Id. at 124. (quoting 42 Fed. Reg. 4871(1978)) (emphasis removed).

[89] Id. at 125.

[90] Lujan v. Defenders of Wildlife, 504 U.S. 555, 559 (1992).

91 Id.

92 Id.

93 Pontius, supra note 2, at 55.

94 Multi-Species Conservation Program for the Lower Colorado River, Arizona, Nevada, and California, 64 Fed. Reg. 27,000, 27,001 (May 18, 1999).

95 Pontius, supra note 2, at 55-56.

96 See id.

97 Multi-Species Conservation Program for the Lower Colorado River, 64 Fed. Reg. at 27,001.

98 Id.

99 Id.

100 Id. Mexico was not officially represented in this agreement. See id.

101 Id. Incidental take permits allow a permit-holder to "take" endangered species during the course of a specified project. Id. For example, if a dam were issued an incidental take permit, the dam would be permitted to kill endangered species incidental to the operation of the dam without being penalized. See id.

102 "Take" is defined under 16 U.S.C. § 1532(19)(2000) as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." Id.

103 Gillon, supra note 69, at 419.

104 Pontius, supra note 2, at 55.

105 See Defenders of Wildlife v. Norton, 257 F.Supp. 2d 53, 57-58 (D.D.C 2003). The challenge came from four organizations in the United States - including the Defenders of Wildlife and the Center for Biological Diversity - and four organizations in Mexico. Id. at 57.

106 Id. at 57.

107 Id.

108 Id. at 61.

109 Id. at 60. The Totoaba is endemic to Mexico and the Southwestern Flycatcher is a migrant species. Id.

110 Id. at 62. (citation omitted).

111 Id. at 69.

112 See Defenders of Wildlife v. Babbitt, 130 F. Supp. 2d 121, 122-23 (D.D.C. 2001).

113 See id. at 128. Under the cumulative impact requirement, the action area to be considered includes areas indirectly affected by Federal actions. Id.

114 S. H. Hulbert, San Diego State University, Should the LCR MSCP Go South of The Border? Differing Views, at http://www.sci.sdsu.edu/salton/LCR_ MSCP_south_of_border.html (last modified May 19, 1998).

115 See Multi-Species Conservation Program for the Lower Colorado River, 64 Fed. Reg. 27,000, 27,001 (May 18, 1999).

116 See Hulbert, supra note 114.

117 See Defenders of Wildlife v. Lujan, 911 F.2d at 122-23, overruled by Lujan v. Defenders of Wildlife 504 U.S. 555 (1992).

118 See Defenders of Wildlife v. Babbitt, 130 F. Supp. 2d at 125.

119 Multi-Species Conservation Program for the Lower Colorado River, 64 Fed. Reg. at 27,000, 27,001.

120 The International Boundary & Water Commission, supra note 63.

121 Id. For example, the IBWC is responsible for allocating the water of the rivers between the two countries; conducting and maintaining international storage dams/reservoirs; utilizing levees and other projects to protect land from flooding; preserving the rivers as the international boundary; and solving problems of border water quality. Id.

122 Id.

123 See id.

124 Id.

125 Id.

126 Pontius, supra note 2, at 10.

127 See N. LeRoy Poff et al., The Natural Flow Regime, 47 BioScience 769, 770 (Dec. 1997).

128 The International Boundary & Water Commission, supra note 63.

129 Id. The 1944 Treaty created the IBWC as an international body, and required the head of each country's section to be an Engineer Commissioner. The Treaty also required joint action be carried out through the Department of State in the United States and through Mexico's equivalent (the Secretariat of Foreign Relations). The Commissioners contact each other approximately once a day and meet at least once a week, alternating the meeting place each time. Id.

130 See id.; Agreement on the permanent and Definitive Solution to the International Problem of the Salinity of the Colorado River, 12 I.L.M. 1105 (entered into force Aug. 30, 1973). The IBWC must receive specific approval when proposing construction, operation or maintenance of joint projects and joint expenditures. When the agreement is conditioned on the approval of both governments, the agreement is written as a Minute in both languages. Once authorized by both Commissioners and endorsed by both Secretaries, the Minute binds both governments. The International Boundary & Water Commission, supra note 63.

131 Glenn et al., supra note 4, at 1177.

132 See Pontius, supra note 2, at 10-13.

133 The International Boundary & Water Commission, supra note 63.

134 Miguel A. Cisneros-Mata et al., Life History and Conservation of Totoaba Macdonaldi, 9 Conservation Biology 806, 807-808 (1995). Totoaba can reach over 100kg, 2 meters and 25 years of life. Id.

135 J.C. Barrera Guevara, The Conservation of Totoaba Macdonaldi (Gilbert), (Pisces: Sciaenidae), in the Gulf of California, Mexico, 37 J. Fish Biology 201, 201.

136 Id.; see also, United States: Fish and Wildlife Service Regulations Implementing the Convention on International Trade in Endangered Species of Wild Fauna and Flora, 16 I.L.M. 390 (1977).

137 Totoaba; Listing as an Endangered Species, 44 Fed. Reg. 29,478 (May 21, 1979).

138 Id. at 29,478. The workshop was assembled by the NMFS in La Jolla, California at the NMFS' Southwest Fisheries Center. Id. at 29,479 n.1.

139 Id. at 29,478.

140 Id.

141 Id.

142 Cisneros-Mata et al., supra note 134, at 811. The amount of annual flow reported in 1857 was 1.9728 x 1010m3. Id.

143 Pontius, supra note 2, at 6. From 1896 to 1930, the average annual flow was around 17 maf per year, but decreased to 13.9 maf per year between 1930 and 1996. The decrease coincides with the dam building period. Id.

144 Cisneros-Mata et al., supra note 134, at 811.

145 See id.

146 Glenn et al., supra note 4, at 1176.

147 Id.

148 Id. at 1177.

149 Id. at 1178.

150 Id.

151 Id. at 1184.

152 Id. at 1181. The Rio Hardy wetlands shrunk from 18,000 hectares in 1973 to 1175 hectares in 1988. Id.

153 Id. at 1184.

154 Id.

155 See generally Cisneros-Mata et al., supra note 134.

156 See id. at 812-13.

157 Id. at 812.

158 Id. at 806. Spawning season shrunk from February through June, to February through April. Id. at 809.

159 Reisner & Bates, supra note 11, at 46.

160 Cisneros-Mata et al., supra note 134, at 809.

161 See id.

162 Id. Prerecruits are totoaba ranging from an egg to one year old. Id.

163 See id. at 812. However, over-fishing also plays a key role in the decline of the totoaba's population. Id.

164 See W.L. Minckley, Native Fishes of the Grand Canyon Region: An Obituary?, in Colo. River Ecology & Dam Management, Proceedings of a Symposium May 24-25, 1990 Santa Fe New Mexico 124, 124-125 (1991), available at http://books.nap.edu/books/0309045355/html/124.html.

165 See id.

166 See generally Arizona v. California, 373 U.S. 546 (1963).

167 Defenders of Wildlife v. Norton, 257 F.Supp. 2d 53, 59 (2003) (quoting the Administrative Record of the Bureau of Reclamation, AR BOR Part III. Sec. 2.) The species include the Yuma Clapper Rail, Southwestern Willow Flycatcher, Desert Pupfish, Totoaba Bass and Vaquita Harbor Porpoise. Id.

168 Id. at 62. The Bureau acknowledged that "reductions in the flow and changes in the water quality of the Colorado River have been identified as 'primary factors' contributing to declines of the Totoaba Bass, because the Totoaba spawn at the mouth of the river." Id.

169 See id. at 69.

170 Conner v. Burford, 848 F.2d 1441, 1453 (9th Cir.1988).

171 See Endangered Species Act, 16 U.S.C. § 1536(a)(2) (2000).

172 Interagency Cooperation-Endangered Species Act of 1973, 50 C.F.R. § 402.02(d) (2002) (defining "action area").

173 Id.

174 50 C.F.R. §402.02(d) (2002). "Cumulative effects are those effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation." Id.

175 See Defenders of Wildlife v. Babbitt, 130 F. Supp. 2d 121, 125-26 (D.D.C. 2001).

176 Id. The action area is defined as "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action." Id. at 128.

177 Id. at 126. "By limiting their analysis in such a manner, defendants avoid their statutory duty under the ESA to insure that their activities do not jeopardize the [endangered species]." Id.

178 Endangered Species Act, 16 U.S.C. § 1538(a)(1) (2000).

179 Id. § 1532(19).

180 Id. § 1538(a)(1)(B)

181 Endangered and Threatened Wildlife and Plants, 50 C.F.R. § 17.3(c) (2002).

182 See Babbitt v. Sweet Home Chapter of Cmtys. for a Great Or., 515 U.S. 687, 713 (1995) (O'Connor, J. concurring).

183 Cisneros-Mata et al., supra note 134, at 809.

184 Tennessee Valley Authority v. Hill, 437 U.S. 153, 185 (1978).

185 Id. at 184.

186 Endangered Species Act, 16 U.S.C. § 1536(a)(1); § 1531(c)(1).

187 Id. § 1532(3). Such methods and procedures may include a regulated taking in rare cases where population pressures in an ecosystem cannot be relieved. Id.

188 See Tennessee Valley Authority, 437 U.S. at 184-85. The Court noted, "One would be hard pressed to find a statutory provision whose terms were any plainer than those in § 7 of the Endangered Species Act. Its very words affirmatively command all federal agencies 'to insure that actions authorized, funded, or carried out by them do not jeopardize the continued existence' of an endangered species." Id. at 173 (quoting 16 U.S.C. § 1536 (1976)) (emphasis omitted).

189 American Rivers v. US Army Corps of Engineers, 271 F.Supp. 2d 230 (D.D.C. 2003) (enjoining dam where environmental groups established a likelihood of success on the merits and a likelihood or irreparable harm where balance of harms weighed in favor of a preliminary injunction).

190 Id. at 248-49 (quoting Defenders of Wildlife v. EPA, 688 F.Supp. 1334, 1355 (D. Minn. 1988)).

191 Id. at 249 (quoting Tennessee Valley Authority v. Hill, 437 U.S. 153, 194 (1978)).

192 Id. at 257.

193 But see Defenders of Wildlife v. Norton, 257 F. Supp. 2d 53 (D.D.C. 2003). In Defenders of Wildlife, Mexican and American environmental groups sued the Department of the Interior based on the Bureau of Reclamation's operation of dams on the lower Colorado River. Focusing mainly on issues of standing, the court held that the Bureau of Reclamation's duty to consult under the ESA did not extend to the operation's effects on extra-territorial species in the Rio Colorado Delta since the Bureau of Reclamation had no discretionary control over the water flowing into the delta. "[A] Supreme Court injunction, an international treaty, federal statutes, and [government] contracts [with private water] users account[ed] for every acre foot of . . . river water." Id. at 69. While this case stands for the proposition that the Bureau of Reclamation is not in violation of the ESA in carrying out non-discretionary mandates, this case does not detract from my theory that the federal government is in violation of the ESA in mandating the water withdrawals in the first place.

194 Pacific Coast Fed'n of Fishermen's Ass'ns v. U.S. Bureau of Reclamation, 2003 U.S. Dist. LEXIS 13745 at 23 (Cal. Dist. Ct. App. N.D. July 14, 2003).

195 Id.

196 Pontius, supra note 2, at 13.

197 Rivers v. Army Corps of Engineers, 271 F.Supp. 2d 230 (D.D.C. 2003) (enjoining water diversions along the Missouri River).

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