The Case for Adding an Ecology Minute to the 1944 United States-Mexico Water Treaty

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I. INTRODUCTION

The venerable U.S.-Mexico treaty on the Utilization of Waters of the Colorado and Tijuana Rivers and of the Rio Grande has been viewed for more than half a century as one of the most important compacts governing relations between the United States and Mexico.[1] A vital component of the Law of the River for both the Rio Grande and Colorado River basins, the treaty, signed in 1944, establishes national entitlements on boundary rivers and provides the operating framework for binational cooperation on a wide range of water management issues, ranging from flood control and hydro-power generation to drought mitigation.[2]

While often viewed as a model of binational commitment to the peaceful management of shared water resources and a document sufficiently flexible to meet the many challenges of a changing social and hydrological landscape in the regions it serves, the treaty has recently come under fire for its shortcomings as a framework for binational rationing of shared water resources under conditions of "extraordinary

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1. Utilization of the Waters of the Colorado and Tijuana Rivers and of the Rio Grande, Feb. 3, 1944, U.S.-Mex., 59 Stat. 1219 [hereinafter 1944 Water Treaty].

2. *See id.*

drought" or global warming[3] and its limitations in making provisions for ecological needs and uses of water within the basin.[4] In the latter case, emergent claims on the scarce waters of the Colorado and Rio Grande for ecological purposes have drawn attention to the 1944 treaty's rather archaic construction of beneficial uses in light of contemporary needs. These concerns are most recently evident in the ongoing debate over ways and means of securing a minimum flow to sustain the Colorado Delta ecosystem and protect endangered species.[5]

This Article examines the case for strengthening the ecological application of the 1944 Water Treaty by utilizing the treaty's well-regarded mechanism for treaty interpretation through the Minute facility of the International Boundary and Water Commission, United States and Mexico (IBWC). As provided in articles 2, 24 and 25 of the treaty, the IBWC with the concurrence of the governments may interpret the treaty and apply or extend its provisions to deal with particular problems that fall within the treaty's reach.[6] The analysis proceeds in two parts, first, by briefly reviewing the history of developments leading to the demand for an ecological minute, second, by considering whether an extrapolation of the treaty's text to strengthen ecological claims on boundary water is presently warranted and would strengthen conservation claims on boundary river treaty waters.[7]

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3. Bill Hume, *Big River: Big Issues*, 39 NAT. RESOURCES J. 17, 21 (1999); Albert E. Utton, *Coping with Drought on an International River Under Stress: The Case of the Rio Grande/Rio Bravo*, 39 NAT. RESOURCES J. 27, 30-32 (1999).

4. Peter H. Glieck, *The Effects of Future Climatic Changes on International Water Resources: The Colorado River, the United States and Mexico*, 21 POL'Y SCIENCES 23, 33 (1988).

5. *See* Daniel W. Anderson, THE COLORADO, RIVER DELTA ECO-SYSTEM: ECOLOGICAL ISSUES AT THE UNITED STATES-MEXICO BORDER 1 (2000); Eric Boime, *Water and Nation-Building in the Colorado River Delta*, ENFOQUE (Center for U.S.-Mexican Studies, Univ. of Calif., San Diego), Spring/Summer 2000, at 1-2, 10, *available at* http://www.usmex.ucsd.edu/pdf/enf_spr_sum00.pdf; Michel J. Cohen et al., *Conservation Value and Water Management Issues of the Wetland and Riparian Habitats in the Colorado River Delta in Mexico*, *in* THE COLORADO RIVER DELTA ECO-SYSTEM: ECOLOGICAL ISSUES AT THE UNITED STATES-MEXICO BORDER 66 (2000); PETER W. CULP, RESTORING THE COLORADO DELTA WITH THE LIMITS OF THE LAW OF THE RIVER: THE CASE FOR VOLUNTARY WATER TRANSFERS 1-10 (2001); Paul D'Amours, *The Colorado River Delta*, 2000 COLO. J. INT'L ENVTL. L. & POL'Y 183 (2000); DANIEL F. LUECKE ET AL., ENVIRONMENTAL DEFENSE FUND, EL DELTA UNA VEZ MAS: RESTAURANDO EL HABITAT RIBERENO Y LOS HUMEDALES DEL DELTA DEL RIO COLORADO (1999); Jennifer Pitt et al., *Two Countries, One River: Managing for Nature in the Colorado River Delta*, 40 NAT. RESOURCES J. 819 (2000); C. Luther Probst & Peter W. Culp, *Searching for CIBOLA: Community Based Environmental River Watershed*, 42 ARIZ. L. REV. 259 (2000); Evan Ward, *Two Rivers, Two Nations, One History: The Transformation of the Colorado River Delta Since 1940*, 11 FRONTERA NORTE 113-40 (1999).

6. 1944 Water Treaty, *supra* note 1, arts. 2, 24-25, 59 stat. at 1222, 1256, 1258.

7. *See id.*

II. THE 1944 WATER TREATY AND ECOLOGICAL UTILIZATION OF BOUNDARY WATER: BACKGROUND AND DEBATE

The incorporation of notions of environmental protection and sustainable development within customary international water law is now relatively well advanced, though far from complete. As Tarlock observes,[8] the right to equitable utilization of shared waters, in essence the right to participate in the development of a shared water source, remains the cardinal value in international water law and is clearly superior to any environmental protection claim on the resource as things currently stand. At the international level the assertion of a right to environmental protection is thus subsidiary to the principle of equitable utilization.[9] This relationship is evident in the recent 1997 Convention on the Law of Non-Navigational Uses of International Water Courses[10] which, while affirming the need for ecosystem protection and pollution prevention, ranks these values subsidiary to those of equitable utilization and development of shared waters.[11] While international customary law remains insufficient to support a firm claim to environmental protection of shared fresh-water resources, it is certainly true that nations may by mutual consent decide to grant environmental protection greater weight in the order of values affecting their joint management of shared water courses.

It is useful to bear this in mind when considering the U.S.-Mexico case and the application of the 1944 Water Treaty to the management of the Rio Grande and Colorado Rivers. The 1944 Water Treaty, drafted and ratified towards the end of the World War II, expresses aims and values dominant in the minds of policy-makers in both countries at the middle of the last century. The treaty incorporates the notion of equitable utilization and construes the vital notion of beneficial use of water in terms of development concepts dominant at the time.[12] It is not at all misleading to say the treaty is all about development—even river channelization is construed as serving a development objective. While specific articles are dedicated to flood control, drought, and hydropower, nowhere does it envision a beneficial use of water for the purpose of biodiversity preservation or ecosystem protection as such. The treaty's

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8. A. Dan Tarlock, *Safeguarding International River Ecosystems in Times of Scarcity*, 3 U. DENV. WATER L. REV. 231, 237-38 (2000).

9. *See id.* at 246.

10. Convention on the Law of Non-Navigational Uses of International Watercourses, May 21, 1997, 36 I.L.M. 700, 704 [hereinafter Convention on the Law of Non-Navigational Uses].

11. *See id.* at 706.

12. 1944 Water Treaty, *supra* note 1.

article 3, paragraph 1, which specifies use priorities for allocation of water stipulates the following order of precedence of use:[13]

1. Domestic and municipal uses.
2. Agriculture and stock raising.
3. Electric power.
4. Other industrial uses.
5. Navigation.
6. Fishing and hunting.
7. Any other beneficial uses which may be determined by the Commission.

While the lowest beneficial use priority, *Any other beneficial uses which may be determined*, is sufficient to incorporate an ecological valuation of water within the terms of the treaty, it is also clear that such a valuation was simply not contemplated by the treaty's framers. At no point in the discussion or debate on the treaty were such concerns raised.[14] In fact, a thorough review of all declassified State Department documents related to boundary and water matters through 1970, including diplomatic exchange on the Salinity Crisis, fails to reveal any concern whatsoever with the ecological services afforded by the rivers independent of concern for agricultural, municipal, and industrial development.[15]

This should come as no surprise. Until 1970 few citizens on either side of the border were sensitive to ecological values and uses of boundary waters and those who were, a small group of biologists, marine biologists, naturalists, and native Americans were distant to the high level negotiations on water resources. By the mid-seventies, however, a concern for ecosystem protection with the Colorado River drainage had reached the docket of the International Boundary and Water Commission in the case of the San Pedro River, a tributary of the Gila River that, in turn, drains to the Colorado.[16] The controversy over contamination of the San Pedro, however, centered on the quality, not the quantity of those waters. The water quality issues raised by the San Pedro River pollution dispute were partly addressed in the IBWC's 1979 Minute 261 drawing

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13. *See id.* art. 3, 59 stat. at 1225.

14. *See* NORRIS HUNDLEY, WATER AND THE WEST 296 n.28 (1966).

15. *See* Records on Boundary and Water Disputes, U.S.-Mex., U.S. National Archives at College Park Maryland, State Department files in Record Group 59, decimal file 1960-1963/611.1232, subject-numerical files 1963, 1963-1973.

16. MILTON H. JAMAIL & SCOTT J. ULLERY, UNIV. OF ARIZONA OFFICE OF ARID LANDS, *International Water Use Relations Along the Sonoran Desert Borderlands*, *in* Resource Paper No. 14, at 49 (1979).

on authority found in the treaty's article 3, second paragraph, sanitation provisions without reference to the same article's list of priority uses.[17]

Public concern for the ecological impact of 1944 Water Treaty implementation, in fact, does not crop up until the 1980s, with hints of the issue appearing in U.S. IBWC environmental impact studies dealing with the channelization of boundary rivers and waters.[18] The issue at this time appears to be largely unilateral, with expressions of interest raised by U.S. environmental and conservation groups like the National Wildlife Federation and the Audubon Society.[19] Mexican groups appear not to have been consulted in U.S. environmental assessment procedures at this time.[20] Even in the eighties, however, there is little evidence that environmental organizations sought to use the treaty to advance claims for the ecological utilization of water if salinity and pollution issues are excluded.[21]

The catalysts for a reconsideration of this stance are several and include the strengthening of bilateral ties amongst federal conservation agencies under the so-called La Paz Agreement, the development of the North American Free Trade Agreement (NAFTA),[22] rising concern with the potential impact of prolonged drought on over-appropriate rivers, and most particularly, heightened concerns with the ecology of the Colorado Delta in light of potential reductions of surplus flows arising from upstream development and management decisions on the Colorado River. Under the 1983 La Paz Agreement,[23] the routine interactions and

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17. Recommendations for the Solution to the Border Sanitation Problems, IBWC Minute 261 (Sept. 24, 1979) (on file with the IBWC www.ibwc.state.gov) [hereinafter Minute 261]; *see* Stephen P. Mumme, *The Background and Significance of Minute 261 of the International Boundary and Water Commission*, 11 CAL. W. INT'L L.J. 223 (1981).

18. *See Draft Environmental Assessment of the Completed Segments of the United States Part of the Joint Project with Mexico to Preserve the Rio Grande as the International Boundary, Ft. Quitman to Haciendita, Texas*, IBWC (Apr. 1983) (on file with the IBWC www.ibwc.state.gov).

19. *See id.* app. B.

20. *See id.* apps. A, A8-A11.

21. One of the best sources reviewing U.S.-Mexico water relations during the 1970s, makes no mention of ecological concerns with treaty water outside the case of the San Pedro River. *See* Jamail & Ullery, *supra* note 16. In the 1980s, the focus of environmental concern with treaty water continued to center on pollution. *See* Albert E. Utton, *An Assessment of the Management of U.S.-Mexican Water Resources: Anticipating the Year 2000*, *in* THE U.S.-MEXICO BORDER REGION: ANTICIPATING RESOURCE NEEDS AND ISSUES TO THE YEAR 2000, at 365 (Cesar Sepulveda & Albert E. Utton eds., 1984). An interesting collection of papers dealing with the ecology of the border region in this period likewise makes practically no reference to the importance of managing boundary waters for ecosystem preservation. *See generally* ECOLOGY AND DEVELOPMENT OF THE BORDER REGION (Stanley R. Ross ed., 1983).

22. North American Free Trade Agreement, Dec. 8, 1992, Can.-Mex.-U.S., 32 I.L.M 289.

23. *See generally* Agreement on Cooperation for the Protection and Improvement of the Environment in the Border Area, Aug. 14, 1983, U.S.-Mex., T.I.A.S. No. 10827 [hereinafter La

exchange of data between U.S. and Mexican federal agencies dealing with environmental questions increased significantly, with the effect of drawing more binational attention to natural resources conservation issues along the border. The NAFTA agreement strengthened this process as the La Paz consultation process was further elaborated through the Integrated Border Environmental Plan, 1991-1994,[24] and the follow-up Border XXI Program[25] after 1994. The Border XXI initiative spawned and strengthened a number of border conservation projects and provided a forum through its binational workgroups for linking different environmental issues, from water to biodiversity.[26] The Border XXI process also emphasized public and citizen participation, strengthening the role of nongovernmental organizations in crafting environmental policies in the border region.[27] These circumstances contributed, at least indirectly, to expanding the set of border water stakeholders to include nondevelopment interests. NAFTA also had the important effect through its side-agreement establishing the Border Environmental Cooperation Agreement (BECC) of linking the IBWC directly to policy discussions regarding sustainable development and border area environmental infrastructures needs and exposing it to the various environmental NGOs active in this issue-area.[28] The circumstantial result of these changes in the institutional and political context influencing border river water management has been greater binational citizen and governmental interest in ecosystem protection along the U.S.-Mexico border.

It is fair to say that prolonged drought in treaty river regions and rising concern with potential regional effects of global climate change have also contributed to the effort to protect river ecosystems before it may be too late. Since the mid-1990s drought has been a major factor influencing water allocation on the middle and lower steam of the Rio Grande River.[29] The Colorado River basin is also potentially at risk

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Paz Agreement] (discussing the mutual benefit of environmental cooperation between the United States and Mexico).

24. EPA, A92-171, INTEGRATED ENVIRONMENTAL PLAN FOR THE MEXICAN-U.S. BORDER AREA, FIRST STAGE, 1992-1994 (1992).

25. EPA, PUB. NO. 160-R-96-003, U.S.-MEXICO BORDER XXI PROGRAM FRAMEWORK DOCUMENT (1996) [hereinafter BORDER XXI PROGRAM], *available at* http://www.epa.gov/usmexicoborder/ef.htm.

26. *See id.* ch. 3, § 2.

27. *See id.* executive summary.

28. *See* Stephen P. Mumme & S.T. Moore, *Innovation Prospects in U.S.-Mexico Border Water Management: The IBWC and the BECC in Theoretical Perspective*, 17 GOV'T & POL'Y 753 (1999).

29. For discussion of the drought on the Rio Grande River in the 1990s, see Albert E. Utton, *Coping with Drought on an International River Under Stress: The Case of the Rio Grande/Rio Bravo*, 39 NAT. RESOURCES J. 27 (1999); Stephen P. Mumme, *Managing Acute Water*

should climate change diminish precipitation.[30] These problems with water availability, and potentially long-term reductions in expected flows on the treaty rivers reinforced concerns by conservation and environmental groups with securing minimum flows to protect fauna and flora. Such concerns may be found in reports and statements released by groups as varied as California's Pacific Institute and the Texas Center for Policy Studies as well as scholarly meetings dealing with treaty river water management.[31]

While rising concern with instream flows, species protection, and ecosystems found expression with respect to a number of discrete problems on the Rio Grande and Colorado Rivers in the 1990s, the Colorado River Delta has received the greatest attention. By the mid-1990s, Mexico's establishment of the Reserva de la Biosphera Alto Golfo e California y Delta del Rio Colorado (Upper Gulf of California and Colorado River Delta Biosphere Reserve), new scientific studies examining endangered and threatened species of marine mammals, birds, and wildlife, and the threat of greater salinity due to slated operation of the Yuma reverse-osmosis desalting plant, all contributed to heightened concern for the Delta.[32] By 1996 certain NGOs began to explore the feasibility of management reforms that might improve the reliability of instream flows below Morelos Dam to sustain the lower Colorado ecosystem.[33] These included a number of leading national and regional environmental organizations, Defenders of Wildlife, the Pacific Institute, the Sonoran Institute, and others.[34] As Defenders of Wildlife legal

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Scarcity on the U.S.-Mexico Border: Institutional Issues Raised by the 1990s Drought, 39 NAT. RESOURCES J. 149 (1999).

30. JASON MORRISON ET AL., PAC. INST. FOR STUDIES IN DEV., ENV'T, AND SECURITIES, THE SUSTAINABLE USE OF WATER IN THE LOWER COLORADO RIVER BASIN 9-16 (1996).

31. *See id. See generally* PETER GLIECK ET AL., PAC. INST. FOR STUDS. IN DEV., ENV'T, & SECURITIES, CALIFORNIA WATER 2020: A SUSTAINABLE VISION (1995); MARY KELLY, TEX. CTR. FOR POL'Y STUDS., THE RIO CONCHOS: A PRELIMINARY OVERVIEW 20-21 (2001); TEX. CTR. FOR POL'Y STUDS., BINATIONAL DECLARATION/DECLARACION BINACIONAL: RIO CONCHOS AND THE LOWER RIO BRAVO/RIO GRANDE (May 2001).

32. *See* Douglas L. Hayes, *The All-American Canal Lining Project: A Catalyst for Rational and Comprehensive Groundwater Management on the United States-Mexico Border*, 31 NAT. RESOURCES J. 803, 817 (1992); *see generally* Pitt et al., *supra* note 5.

33. *See* Posting of Joseph A. Milan, jmilan@ix.netcom.com to BECCNET@listserve.Arizona.edu (May 22, 1996) (on file with author) (reporting on one of the early joint environmental initiatives to mobilize support for saving the Colorado Delta, a 1996 meeting in Yuma, Arizona, involving the Mexican NGO Pronatura and its U.S. counterpart, Amigos de Pronatura, as well as academic participants).

34. *See id.*; *see also* William J. Snape, *Adding an Environmental Minute to the 1944 Water Treaty: Impossible or Inevitable?*, Workshop Proceedings, Water and Environmental Issues of the Colorado River Border Region Roundtable Workshop app. D (Apr. 30, 1998) (transcript available at http://www.sci.sdsu.edu/salton/snape1998environmenute.htm).

director Bill Snape put it at a conference on the Delta in 1998, the question was not whether an ecological minute to the treaty would be forged but "when such a minute will be crafted."[35]

III. THE NECESSITY OF AN ECOLOGICAL MINUTE TO THE 1944 WATER TREATY

This assertion of the necessity and utility of an ecological minute to the treaty deserves examination. Several questions must be answered. First, do the ecological circumstances actually warrant such a minute? Second, is the treaty as written sufficient to allow instream flows in support of river ecosystems? Third, how would an ecological minute strengthen ecological claims on scarce boundary waters within the complex of domestic and international law and practice that constitutes the Law of the River in the Rio Grande and Colorado River basins?

The answer to the first question is relatively straightforward. Take the case of the Colorado River Delta. Available evidence clearly establishes the necessity of certain minimum regular and periodic flows to sustain the incidence and distribution of fauna and flora that comprise the ecosystem.[36] Even so, scientific uncertainty concerning the volume and timing of minimum stream flow requirements remains, contributing to technical dispute regarding the nature of the instream flows needed to sustain the Delta's ecology.[37] It is important to realize that scientific consensus is emerging on the Delta ecosystem's water requirements but is not yet complete. Reaching consensus on the technical parameters of a solution, on the volume and timing of essential minimum flows, is at least a fundamental precondition for reaching agreement on a sustainable solution for supporting the Delta ecosystem. However, the fact that agreement on the Delta's minimum water needs is emerging, coupled with an understanding that these minimum requirements are not secured by the present system of rights and allocations in the Law of the River, does tend to justify the claim of an ecological need for additional water if the ecosystem is to be sustained.

Similar ecological claims are emerging elsewhere on the treaty rivers with binational implications. On the Rio Grande River, concerns about the silvery minnow in the middle Rio Grande have already led to a

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35. Snape, *supra* note 34, at vi.

36. Pitt et al., *supra* note 5; *see also* Cohen et al., *supra* note 5; Luecke et al., *supra* note 5, at 825-33; Jo Clark et al., *Immediate Options for Augmenting Water Flows to the Colorado River Delta in Mexico* (May 2001), *available at* http://www.sonoran.org (on file with author).

37. *See generally* Pitt et al., *supra* note 5 (discussing broadly the possibilities and uncertainties involved with the critical requirements in the Colorado River Delta).

lawsuit and another may be filed to protect the habitat of the Southwestern willow flycatcher.[38] Downstream, drawdown of the Edwards aquifer, whose springs feed into the Rio Grande, may adversely impact threatened species of salamander and wild rice.[39] Prolonged drought in the treaty river watersheds has heightened concern for the long-term viability of selected ecosystems, demonstrating the vulnerability of species at risk. If this class of problems is likely to persist as seems to be the case, then it seems vital that the two countries reach a framework agreement on ecosystem protection.

The answer to the second question is more problematic. The treaty's sufficiency to cope with this problem is open to debate. As seen above, the treaty contains no explicit stipulation of a priority for the ecological use of treaty waters, nor have the IBWC's minutes subsequently altered its original list of priorities.[40] Applicable

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38. *See* Denise D. Fort, *Restoring the Rio Grande: A Case Study in Environmental Federalism*, 28 ENVTL. L. 15, 36 (1998); Maria O'Brien, *Shortage and Tension on the Upper Rio Grande: Protecting Endangered Species During Times of Drought—Comments from the Perspective of the Middle Rio Grande Conservancy District*, 39 NAT. RESOURCES J. 145, 145-48 (1999); *Rio Grande Suit Planned for Rare Bird*, DENV. POST, May 6, 2001, at 7-B.

39. James H. Bolin, *Of Razorbacks and Reservoirs: The Endangered Species Act's Protection of Endangered Colorado River Basin Fish*, 11 PACE ENVTL. L. Rev. 35, 52-53 (1993); *see also* Dan Feldstein, *The Water Puzzle*, HOUS. CHRON., Nov. 26, 2000, at 1-A (discussing how low water levels on the Rio Grande are affecting everyday life in Texas, in addition to the effects on the Texas Blind Salamander and wild rice).

40. A number of IBWC minutes have contributed to strengthening its functions in the area of the environment. However, no minute actually modifies or alters the priority of beneficial uses set out in article 3 of the 1944 Water Treaty. The principal minutes affecting the environmental functions of the IBWC are the following: Permanent and Definitive Solution to the International Problem of the Salinity of the Colorado River, IBWC Minute 242 (Aug. 30, 1973) (on file with IBWC www.ibwc.state.gov) [hereinafter Minute 242]; Minute 261, *supra* note 17; Conceptual Plan for the International Solution to the Border Sanitation Problem in San Diego, California/Tijuana, Baja California, IBWC Minute 283 (July 2, 1990) (on file with IBWC www.ibwc.state.gov) [hereinafter Minute 283]; Facilities Planning Program for the Solution of Border Sanitation Problems, IBWC Minute 294 (Nov. 24, 1995) (on file with IBWC www.ibwc.state.gov) [hereinafter Minute 294]; International Boundary and Water Commission Support to the Border Environment Cooperation Commission in Development of Projects for the Solution of Border Sanitation Problems, IBWC Minute 299 (Dec. 3, 1998) (on file with IBWC www.ibwc.state.gov) [hereinafter Minute 299]; Joint Grant Contribution Program for Drinking Water and Wastewater Infrastructure Projects for Communities in the United States-Mexico Border Area, IBWC Minute 304 (Oct. 26, 2000) (on file with IBWC www.ibwc.state.gov) [hereinafter Minute 304]; Conceptual Framework for United States-Mexico Studies for Future Recommendations Concerning the Riparian and Estuarine Ecology of the Limitrophe Section of the Colorado River and Its Associated Delta, IBWC Minute 306 (Dec. 12, 2000) (on file with IBWC www.ibwc.state.gov) [hereinafter Minute 306]. Very briefly, and in the most general terms, these minutes do the following: Minute 242 addresses salinity and groundwater questions, Minute 261 extends the Treaty's sanitation provisions, Minute 283 introduces U.S. EPA co-funding for the IBWC's transboundary sanitation projects, Minute 294 provides a mechanism for funneling U.S. EPA and North American Development funds through IBWC to support community level facilities planning to access BECC wastewater treatment projects that contribute to border

international law might influence the interpretation of treaty provisions for beneficial uses were a case to be brought in an appropriate forum, but this avenue remains untested. The treaty's article 3, first paragraph,[41] certainly does not exclude the possibility that an ecologically beneficial use might be considered by the two governments or that agreement in any particular case, such as the Delta, might stipulate such an allocation of water resources. Thus, it may well be argued that the treaty is entirely adequate as it stands to allow the governments to address specific instances of an ecological based allocation of water.

The problem here is simply that ecological uses are considered at the lowest rung of identified priorities within the treaty, as part of the catch-all category of "any other beneficial uses which may be determined."[42] Ecology is thus superceded in priority by fishing and hunting, navigation, and a full range of consumptive uses tied directly to economic development. The treaty's development and subsequent application leaves little doubt that instream flows were regarded by the drafters as lost water which, by extension, suggests that ecosystems were taken to be nonessential within the treaty's original terms of reference.[43]

Today, the treaty's inferior placement of ecological uses of treaty water quite arguably fails to match contemporary social valuation of border river ecosystems by comparison with other listed beneficial uses.[44] If so, it can be argued that this should be corrected to make the treaty more serviceable for contemporary times. To strengthen the case, it can also be argued that other values have declined in priority over time and do not presently warrant their listed rank within the terms of the treaty. Navigation, for instance, is limited today to recreational uses such a rafting the Big Bend or the Grand Canyon or boating on the Rio Grande

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sanitation, Minute 299 further institutionalizes IBWC support of BECC sponsored transboundary sanitation projects, Minute 304 further specifies cooperative funding arrangements in support of BECC certified water supply and wastewater treatment projects, and Minute 306 creates a framework understanding for pursuing further studies of the Colorado Delta ecosystem's water requirements.

41. 1944 Water Treaty, *supra* note 1, art. 3, 59 stat. at 1225.

42. *See id.*

43. For historical background on the 1944 Water Treaty, see generally SECRETARIA DE RELACIONES EXTERIORES, EL TRATADO DE AGUAS INTERNACIONALES, CELEBRADO ENTRE MEXICO Y LOS ESTADOS UNIDOS EL 3 DE FEBRERO DE 1944 (1947); Hundley, *supra* note 14; Charles J. Meyers, *The Colorado Basin*, *in* THE LAW OF INTERNATIONAL DRAINAGE BASINS 486 (A.H. Garretson et al. eds., 1967).

44. A recent *Los Angeles Times* poll of adult citizens in the Western United States found that fifty-eight percent of respondents would protect endangered species even at the cost of limiting property and development rights. *See* Mark Barabak, *Bush Criticized as Fear for Environment Grows*, L.A. TIMES, Apr. 30, 2001, at 1.

and Colorado River lakes.[45] It can further be argued that instream flows and the ecosystems they support are critical to the maintenance of the habitat essential for fishing and hunting and residual navigational values on both rivers. Increasing the ecological priority of river water would better link these important values and strengthen support for these functions within the terms of the treaty. Enhancing the priority would also support and strengthen previous extensions of the treaty for environmental purposes as seen in Minute 242 on salinity and Minute 261 on sanitation.[46]

The rationale most forcefully advanced by ecological minute advocates is that it is now imperative to make the treaty compatible with contemporary domestic and international law governing the protection of endangered species. In the case of U.S. federal law, under the 1973 U.S. Endangered Species Act (ESA), the Secretary of the Interior through the U.S. Fish and Wildlife Service, and the Secretary of Commerce in the case of certain marine species, is authorized to consider listing endangered species or species believed likely to become endangered by "any State agency or by any agency of a foreign nation that is responsible for the conservation of fish or wildlife or plants."[47] In the case of a listed endangered or threatened species the Secretary of the Interior is to designate critical habitat according to the best scientific and commercial evidence and taking account of the economic impact of such designation, though in the case of imminent extinction economic consideration may not trump species protection.[48] In implementing the Act the President is authorized to provide assistance (including water) to foreign countries, and the Secretary of the Interior, acting through the Secretary of State, is to encourage other countries to protect endangered or threatened species, thereby encouraging the entering into bilateral or multilateral agreements with foreign countries to conserve such species.[49]

The ESA, thus provides a statutory basis for U.S. federal water managers with the President's support, to enter into international arrangements to preserve ecosystems where such habitat is critical to the survival of threatened or endangered species. Their obligation to do so is

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45. The IBWC's annual report makes no reference to navigation in its comprehensive list of contemporary activities. Nevertheless, it does coordinate with other domestic agencies of both countries in regards to the recreational uses of border rivers and storage lakes. *See generally* INT'L BOUNDARY & WATER COMM'N, 1999 REPORT (1999), *available at* www.ibwc.state.gov/files/rpt99e.pdf.

46. Minute 261, *supra* note 17.

47. 16 U.S.C. § 1533(b)(1)(B)(ii) (1994).

48. *Id.* § 1533(b)(2).

49. *Id.* § 1537(b)(2).

strengthened to the extent the United States is signatory to international agreements like the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)[50] and the Convention on the Law of the Non-Navigational Uses of International Watercourses.[51]

The ESA's section 7 further requires that all federal agencies, such as the Bureau of Reclamation, consult with the Fish and Wildlife Service on any action that would potentially harm a listed species.[52] This would seem to apply extraterritorially to the Mexican part of Colorado River Delta where several aquatic species, the totoaba, the vaquita harbor porpoise, and the desert pupfish, and two species of birds, the Yuma clapper rail and the southwestern desert flycatcher, are already ESA listed.[53]

The critical and as yet undetermined question, of course, is whether the ESA trumps other U.S. federal, inter-state, and state laws governing domestic water allocation on the treaty rivers and how it might, in conjunction with applicable international law, apply to the implementation of the 1944 Water Treaty. The question of the extra-territorial reach of the ESA has not yet been tested in federal court but at least one case is pending.[54] In this case, brought against the Bureau of Reclamation by the Center for Biological Diversity and the Defenders of Wildlife, the plaintiffs argue that Bureau of Reclamation failed to consult on the impacts to U.S.-listed species in Mexico and that the Bureau has an obligation to consider the impacts of its operations on listed species to the Gulf of California.[55]

The use of Mexican endangered species law to secure adequate instream water from Mexican tributary or mainstem treaty water sources has neither been suggested or tested in court. Mexican domestic law is important, however, in dealing with situations where Mexico is the upstream riparian for downstream habitat on the treaty rivers and their

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50. Convention on International Trade in Endangered Species of Wild Fauna and Flora, Mar. 3, 1973, 27 U.S.T. 1087, 993 U.N.T.S. 243.

51. Convention on the Law of Non-Navigational Uses, *supra* note 10, at 700.

52. A federal statute on endangered species stipulates: "Each Federal agency shall, in consultation with and with the assistance of the Secretary, insure that any action authorized, funded, or carried out by such agency . . . is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species." 16 U.S.C. § 1536(a)(2).

53. *See* D'Amours, *supra* note 5, at 184.

54. *See* Posting of Nicole M. Stodento (nstodento@defenders.defenders.org) to BECCNET@listserv.arizona.edu (Dec. 15, 1999) (on file with author) [hereinafter Defenders]; *see also* Tony Perry, *Suit Seeks to Save Colorado River Species, Habitat*, L.A. TIMES, June 29, 2000, at A-3 (detailing a coalition of environmental groups' suit to force the government to increase preservation efforts in the Colorado River Delta).

55. *See* Defenders, *supra* note 54.

tributaries, as is the case with both the Conchos and the San Juan Rivers. Both water management and environmental protection are substantially federal administrative domains in Mexico. The protection of endangered species falls mainly under provisions of the 1988 Environmental Law,[56] as revised in 1996,[57] with implementing authority vested largely in the federal Secretariat of the Environment and Natural Resources (SEMARNAT). The Secretariat classifies species in four categories: those in risk of extinction, those that are threatened, those that are rare, and those requiring special protection for recuperation.[58] SEMARNAT may list and regulate the taking and utilization of any species with the approval of the Secretariat of Commerce and Industrial Development[59] and must also approve the taking of any threatened or endangered species by any entity.[60] SEMARNAT administers a national system of protected areas and has established a System of Units for the Conservation, Management, and Sustainable Use of Wildlife (SUMA) which complements the protected areas program with the aim of protecting national biodiversity. Complementing this system of protection, Mexico's National Water Law gives the federal government the authority to "regulate the extraction and use of national waters, establish prohibited use zones or to restrict water uses in the public interest" for the purpose of ecosystem protection or restoration.[61] Taken in combination there is little doubt that national agencies acting through the SEMARNAT and CNA have the necessary formal authority to regulate water use in the interest of ecosystem protection on the treaty rivers and are less restricted by state laws and regulations and private water rights in doing so. However, whether they could be compelled to do so through litigation is uncertain. What is certain is that adding an ecological minute to the 1944 Water Treaty would make it more compatible with Mexican domestic legislation affecting biodiversity and ecosystem protection.

Finally, it is possible to argue with respect to the treaty's sufficiency, that other provisions and extensions of the 1944 Water Treaty, if properly implemented to meet present needs, may diminish the necessity of establishing a formal ecological claim to treaty water. It has already been

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56. *See* Ley General del Equilibrio Ecologico y la Proteccional al Ambiente (y disposiciones complementarias) Capitulate II, Articala V, § xi (Editorial Porrua 1997), *available at* http://www.cddhev.gob.mx/leyinfo/pdf/148.pdf [hereinafter LEEGPA].

57. *See id.*

58. ORG. FOR ECON. COOP. AND DEV., ENVIRONMENTAL PERFORMANCE REVIEWS: MEXICO 106-07 (1998).

59. *See* LEEGPA, *supra* note 56, art. 85.

60. *See id.* art. 87.

61. COMISION NACIONAL DE AGUAS, LEY DE AGUAS NACIONALES ch. 5, art. 38 (1992).

argued, for example, that existing IBWC Minutes, such as Minute 242 on salinity, could be utilized to provide brackish water or wastewater in support of ecological functions in the Colorado Delta.[62] Minute 242 sets minimum standards for the quality of treaty water below Imperial Dam delivered to Mexico and further provides for bypassing brackish water discharges that would otherwise drain to the Colorado River from a large irrigation district near Yuma, Arizona, and delivering these waters to Mexico.[63] Another minute, Minute 261,[64] extends the treaty's commitment to solve border sanitation problems to encompass a broad set of water quality and water related pollution problems that affect the international boundary and authorized the IBWC to seek solutions to these problems. Taken together these extensions of treaty authority allow the governments, through the IBWC, to consider a range of water transfers involving agricultural drainage and wastewater to augment Delta water supplies, provided a minimum level of quality is met to sustain the ecosystem.

The treaty's flood control provisions may provide another avenue for addressing ecological needs. For example, the IBWC's Minute 306,[65] which authorizes the work of the binational technical task force on the Colorado River Delta, draws on one of the treaty's flood control provisions, in this case, article 13, which authorizes the Commission to "study, investigate, and prepare plans for flood control on the Lower Colorado River between Imperial Dam and the Gulf of California."[66] When coupled to the authority of other bilateral or multilateral boundary and conservation agreements (e.g., the 1970 Boundary Treaty,[67] and the La Paz Agreement)[68] the flood control requirements of the 1944 Water Treaty may support a Minute that would contribute to Delta ecosystem management by means of the creative use of drainage related, ostensibly, to flood control.

The counter argument helps answer the third question, "how would a framework Minute strengthen conservation claims on treaty river waters?" As seen above, it is certainly possible to move towards the protection of specific ecosystems or species of fauna and flora in the absence of such a minute should the governments decide to do so. On

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62. GLIECK ET AL., *supra* note 31.
63. Minute 242, *supra* note 43, at 4.
64. Minute 261, *supra* note 17.
65. Minute 306, *supra* note 40.
66. 1944 Water Treaty, *supra* note 1, art. 13, 59 stat. at 1241-42.
67. Treaty to Resolve Pending Boundary Differences and Maintain the Rio Grande and Colorado River as the International Boundary, Nov. 23, 1970, U.S.-Mex., T.I.A.S. No. 7313.
68. La Paz Agreement, *supra* note 23, at T.I.A.S. No. 10827.

the other hand, opponents of ecological valuation are able to utilize the treaty's present listing of beneficial uses against those advancing ecosystem and biodiversity claims on treaty water. Recognizing ecological benefits, within the terms of the treaty, and enhancing their listed priority would help clarify the weight given to these uses by the governments and, other things being equal, almost certainly strengthen the claim for ecological utilization of water.

Much depends, of course, on how such a Minute is written. At minimum an ecology minute should provide a conceptual framework for binational consideration of ecological values as well as enhancing their priority under the treaty. Terms of reference such as ecology, ecological use, and ecosystem should be defined and their relationship to other beneficial water uses and treaty functions identified. The Minute's relationship to applicable domestic and international law should be specified. Almost certainly, for example, an ecological minute would take note of United States and Mexican national law protecting endangered species and acknowledge certain commonalities in principles, priorities, and procedures. At the international level it would seek to adapt the treaty to values expressed in protocols such as CITES[69] and the Convention on the Non-Navigational Uses of International Watercourses. Proponents of such a Minute can be expected to attempt to strengthen not just the priority of ecological claims but to link the treaty's implementation to other international treaty obligations incumbent on the two countries and to the putative extraterritorial obligations of domestic law. For example, should the United States and Mexico become signatories to the Convention on the Non-Navigational Uses of International Watercourses an ecological Minute would almost certainly take advantage of that agreement's article 20[70] which commits signatory states to protect the ecosystems of international rivers. Whether or not the two countries enter the Convention, drafters are likely to embrace the very general concept of sustainable development as embodied in Agenda 21,[71] Border XXI,[72] and other protocols,[73] in an

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69. Convention on International Trade in Endangered Species of Wild Fauna and Flora, *supra* note 50.

70. Convention on the Law of Non-Navigational Uses, *supra* note 10, art. xx.

71. Rio Declaration on Environment and Development, June 14, 1992, 31 I.L.M. 874, 876-80.

72. BORDER XXI PROGRAM, *supra* note 25.

73. Sustainable development is a key objective of the North American Agreement on Environmental Cooperation. *See* COMM'N FOR ENVTL. COOP., NORTH AMERICAN ENVIRONMENTAL LAW AND POLICY 3 (1998). Sustainable development is also a guiding principle of the Border Environment Cooperation Commission. *See* INT'L BOUNDARY & WATER COMM'N, UNITED STATES SECTION, STRATEGIC PLAN (2000), *available at* http://www.ibwc.state.gov/departments/

effort to link an ecological priority to the development values in the treaty. On the other hand, drafters may seek to avoid the direct linkage of an ecological minute to controversial questions like groundwater allocation and management, even though the treaty has arguably already been extended to consider these questions.[74] Drafters should also consider linking such a Minute to national environmental impact statement requirements in each country in addition to linking the Minute to international environmental impact review requirements.[75] Beyond this, analytical criteria and standards for technical validation to guide the determination of risk in particular cases should be agreed upon to the extent feasible, as should procedures for periodic consultation, review, and negotiation of case specific agreements.

IV. CONCLUSION

There can be little doubt that the 1944 Water Treaty strongly favors development over environment as it specifies priorities for the utilization of treaty waters. However, while the treaty makes no specific reference to environmental protection or environmental uses of water, its Minutes have already provided a basis for resolving transboundary water quality and pollution problems. Further, the treaty's list of priorities does not preclude reaching case by case settlements on particular disputes related to emerging demands for water in the service of ecological functions. Nevertheless, it seems clear that in the absence of a new Minute clearly stipulating a greater priority for ecological uses of water under the Treaty, one that sets out terms of reference, links its application to other

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commissioner/strategic_plan/body_strategic_plan.html; Agreement Concerning the Establishment of a Border Environment Cooperation Agreement and a North American Development Bank, Nov. 16, 1993, 32 I.L.M. 1545. It has also been recently incorporated into the Strategic Plan of the U.S. Section of the IBWC.

74. Stephen P. Mumme, *Minute 242 and Beyond: Challenges and Opportunities for Managing Transboundary Groundwater on the Mexico-U.S. Border,* 40 NAT. RESOURCES J. 341, 342 (2000).

75. The lead international protocol for transboundary environmental assessment is the Convention on Environmental Impact Assessment in a Transboundary Context, Espoo, Finland, Feb. 25, 1991. The Commission on Environmental Cooperation has pursued the development of a North American environmental impact assessment agreement in recent years. *See* Commission for Environmental Cooperation, *Draft North American Agreement on Transboundary Environmental Impact Assessment*, *available at* http://www.cec.org; *see also* Commission for Environmental Cooperation, *North America Agenda for Action, 1999-2001*, at 118 (1999), *available at* http://www.cec.org. For a comparison of recent experience with extra-territorial extensions of U.S. domestic environmental impact assessment requirements, see generally Lilias C. Jones, Pamela Duncan & Stephen P. Mumme, *Assessing Transboundary Environmental Impacts on the U.S.-Mexican and U.S.-Canadian Borders*, 12 J. BORDERLANDS STUD. 73 (1997) (reviewing the implications of transboundary environmental impact assessment on the U.S.-Mexico, and U.S.-Canadian Borders).

binational and multilateral agreements, and establishes a procedural framework for addressing binational ecosystem problems, arriving at adequate protection for border river ecosystems will be more difficult.

In sum, there is a compelling argument for adding an ecological minute to the treaty. As seen above, there is solid scientific evidence that water is needed to sustain the Colorado River Delta ecosystem on which various threatened or endangered species depend; the only serious debates remaining center on the minimum quantity and quality of water needed and where it will come from. Other ecologically based treaty water claims have already emerged and more such claims will be seen in the future. It is also evident that the 1944 treaty valuation of ecologically beneficial uses of water neither adequately reflects the social value given to ecosystem protection today nor intermingles effectively with prescriptive developments in international and domestic law for the conservation of endangered or threatened species. The pressure that prolonged drought has placed on both the Rio Grande and Colorado watersheds only adds to the urgency of shoring up minimum flows for at risk ecosystems. If adopted, such a Minute would lend additional legal support for securing instream flows for ecosystem protection and would likely reinforce other environmental functions that fall within the scope of the treaty. An ecological minute would also advance the crafting of particular solutions to specific ecosystem disputes by establishing general principles and terms of reference for approaching these problems. And depending on the approach adopted by the governments, it may further insinuate the modern notion of sustainable development in considerations of beneficial uses for treaty waters, even where higher priority uses are concerned. It would certainly contribute to the more integrated and sustainable approach to water management emerging at the federal level in both countries.[76]

For advocates of ecosystem preservation these reasons certainly provide sufficient motive for urging the governments and the IBWC to pursue such an agreement. However, the present appropriation of treaty waters in excess of naturally available supplies makes any treaty amendment favoring a reallocation of water extremely controversial. The on-going debate over the Colorado Delta ecosystem shows that any such initiative will be staunchly resisted by most water rights holders on both sides of the border. Even Minute 306, which simply establishes a conceptual framework for future studies and recommendations for

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76. *See generally* W. WATER POLICY REVIEW ADVISORY COMM'N, WATER IN THE WEST: CHALLENGE FOR THE NEXT CENTURY (1998).

dealing with the Colorado River Delta, was developed by the IBWC with great caution.[77] Reaching a framework agreement in the form of a Minute that strengthens the standing of ecological utilization of water across the spectrum of rivers and tributaries governed by the 1944 Water Treaty will almost certainly encounter serious resistance. As Bill Snape argues for Defenders of Wildlife in the case of the Colorado Delta,[78] pressures on treaty water stocks are likely only to make the task more difficult in the future. It is possible, of course, should conservationists prevail in U.S. federal court in pressing their case for extraterritorial application of the ESA, that the U.S. Section of the IBWC may be compelled to seek such an agreement with Mexico. Even should they lose, however, it would not obviate most of the reasons for pursuing such an agreement as outlined above. Be it sooner or later, both countries will be better off by harnessing the treaty to the contemporary appreciation of their border river ecosystems.

77. Interview with Arturo Herrera Solis, Commissioner, International Boundary and Water Commission, Mexican Section (May 29, 2001) (on file with author).

78. *See* Snape, *supra* note 34, at vi.