The Federal Reserved Rights Doctrine and Practicably Irrigable Acreage: Past, Present, and Future

*Jennele Morris O'Hair**

Federal reserved water rights have become the subject of increasing contention over the last decade as non-federal water users compete with federal Indian and non-Indian water users for a finite supply of water. This article will review issues relevant to use of this water supply. First, this article will articulate the historical background of the federal reserved water rights doctrine and the practicably irrigable acreage standard. Second, the development of the federal reserved rights doctrine, limitations on the doctrine, and the impact it has already had on water users will be reviewed. Third, recent decisions in this area are analyzed, showing possible trends in the use of the federal reserved rights doctrine. This article will conclude that the federal reserved rights doctrine has been significantly narrowed in recent years, and a jurisprudential basis exists for further constriction of the doctrine.

I. THE GENESIS OF FEDERAL RESERVED WATER RIGHTS

A. The Winters *Case*

The seminal decision on federal reserved rights is the 1908 case of *Winters v. United States*.[1] While the holding in that case was very narrow, it has had—and will continue to have—a profound impact on water law and water allocation in the West. In that case, the United States brought suit to enjoin non-Indian landowners or "homesteaders," who had made homestead and other public land entries along the Milk River in Montana, from constructing or maintaining dams or reservoirs on the Milk River or otherwise preventing the water from flowing to the Fort Belknap Indian Reservation.[2]

The United States faced a tough battle as the treaty establishing the reservation had not spoken regarding water rights. More ominous was

---

 The author gratefully acknowledges the assistance of Robert F. Palmquist in the preparation of portions of this article.

1. 207 U.S. 564 (1908).

2. *Id.* at 565. The Fort Belknap Reservation had been established by treaty in May 1888 as a reservation for the Gros Ventre and Assiniboine Indian tribes.

the fact that upstream non-Indian diverters had started using water before the tribes;[3] under the doctrine of prior appropriation[4] the upstream non-Indian diverters would have won. But the Supreme Court held that the federal government, in establishing the Fort Belknap Indian Reservation, impliedly reserved enough water to satisfy reservation purposes.[5]

In rendering this decision, the Supreme Court noted that the Indians, in agreeing to occupy the reservation, had reduced their land holdings from "a very much larger tract" of land adequate to the "habits and wants of a nomadic and uncivilized people"[6] to those of "a pastoral and civilized people" while occupying the reservation.[7] The Court also noted that the reservation lands "were arid and, without irrigation, were practically valueless."[8] Finally, the Court invoked the "rule of interpretation of agreements and treaties with the Indians" that "ambiguities occurring will be resolved from the standpoint of the Indians."[9] The Supreme Court concluded that "the government did reserve [water rights to the reservation] . . . for a use which would be necessarily continued through [the] years. This was done May 1, 1888 [the date of establishment of the Fort Belknap reservation]."[10] The *Winters* decision formed the basis for all subsequent federal reserved rights cases.

1. Conflicting Federal Promises

In essence, *Winters* dealt with the federal government's conflicting promises to the homesteaders and the Indians. The federal government promised the Indians that if they gave up their huge landholdings and their nomadic ways, they would be guaranteed a permanent homeland on which they could engage in pastoral pursuits. At the same time, however, the government promised homesteaders that if they entered upon the public lands and appropriated water to a beneficial use, they could acquire vested water rights under state or territorial water law systems, and the federal government promised to defer to those systems.

---

3. *Id.* at 567.

4. The doctrine of prior appropriation developed in the West as the method for allocating scarce water resources. The classic statement of the doctrine is "first in time is first in right," meaning that the first person to appropriate the water (the senior appropriator) has the superior right to its use, with later appropriators being entitled to water only after the senior appropriator's right has been satisfied.

5. *Winters*, 207 U.S. at 567.

6. *Id.*

7. *Id.*

8. *Id.*

9. *Id.*

10. *Id.* at 577.

In *Winters*, these conflicting promises were resolved in favor of the Indians.

Today, the same problem of conflicting federal promises continues to play a large role in pending federal reserved rights cases. But in future federal reserved rights cases the answer may not be so simple. The Supreme Court may well find a way to resolve the conflicting federal promises in favor of non-Indians.

2. Winters' *Limitations*

The *Winters* case has come to stand for the proposition that the federal government, in establishing Indian reservations, impliedly reserved enough water to fulfill the purposes of the reservation. The United States brought suit on behalf of two tribes to halt upstream diversions by non-Indians who began using the water before the Indians pursuant to patents under the homestead and desert land laws.[11] All the Court actually did in *Winters* was affirm a decree enjoining the non-Indian upstream diverters from interfering with the tribes' use of 5,000 miners inches of water from the Milk River.[12] Thus, the actual holding of the case was quite narrow. Considering what the case has come to stand for, it is amazing that the opinion of the Court is less than three pages long.

B. *Antecedents to the* Winters *Opinion*

Though *Winters v. United States* is usually cited as the seminal case in federal reserved water rights jurisprudence, the *Winters* court itself and a number of commentators have referred to several previous opinions as laying the groundwork for the *Winters* decision. Indeed, the *Winters* Court acknowledged in 1908 that "the power of the [federal] Government to reserve the waters and exempt them from appropriation under the state laws is not denied, and could not be."[13]

1. *The* Winans *Case*

One of the cases cited for this proposition by the *Winters* Court was *United States v. Winans*.[14] Notably, *Winans* was not a water law case; it involved an Indian reservation's fishing rights as established by treaty. The Supreme Court held that lands that were formerly owned by the

---

11. *Id.* at 565, 567-69.
12. *Id.* at 565, 578.
13. *Id.* at 577 (citing United States v. Rio Grande Ditch & Irrigation Co., 174 U.S. 690, 702 (1898)).
14. United States v. Winans, 198 U.S. 371 (1905).

Indians, but which ended up in the hands of non-Indian settlers, remained subject to the Indian right to fish as conferred by the treaty.[15] The Court stated:

> The extinguishment of the Indian title, opening the land for settlement and preparing the way for future States, were appropriate to the objects for which the United States held the Territory. And surely it was within the competency of the Nation to secure to the Indians such a remnant of the great rights they possessed as 'taking fish at all usual and accustomed places.'[16]

As it later did in *Winters*, the Court resolved the problem of conflicting federal promises in favor of the Indians. In so doing, the Supreme Court invoked several canons of construction that have arisen in Indian law.

Winans held that "the treaty was not a grant of rights to the Indians, but a grant of rights from them — a reservation of those not granted."[17] This is one of the most important canons of construction in Indian law: that all rights not expressly ceded by a tribe or taken by the federal government are reserved to the tribe. *Winans* also enunciated this important canon of Indian treaty construction:

> [W]e will construe a treaty with the Indians as 'that unlettered people' understood it, and 'as justice and reason demand in all cases where power is exerted by the strong over those to whom they owe care and protection,' and counterpoise the inequality 'by the superior justice which looks only to the substance of the right without regard to technical rules.' (citation omitted) How the treaty in question was understood may be gathered from the circumstances.[18]

Thus, together, *Winters* and *Winans* illustrate the application of several important canons of Indian treaty construction: (1) that ambiguities in a treaty will be resolved in favor of the Indians; (2) that a treaty will be construed as the Indians understood it at the time it was entered into; (3) that the absence of an express reservation of water does not mean the Indians failed to reserve water for their reservation; and (4) that congressional intent to abrogate Indian treaty rights must be unequivocally expressed.

Another important canon of construction that has arisen in the federal reserved rights doctrine is that a waiver of an Indian tribe's sovereign immunity will be strictly construed. For instance, in *Idaho Department*

---

15. *Id.* at 381-82.
16. *Id.* at 384.
17. *Id.* at 381.
18. *Id.* at 380-81.

of Water Resources v. United States,[19] the United States asked the court to order the Idaho Department of Water Resources to accept filing of the government's claims in the Snake River adjudication without the payment of filing fees. The Supreme Court of Idaho held that the McCarran Amendment[20] did not prohibit the State of Idaho from collecting filing fees from the U.S. government for its claims in the adjudication.[21] The U.S. Supreme Court reversed, holding that the McCarran Amendment did not waive the sovereign immunity of the United States from payment of filing fees imposed by Idaho. The Court reached its conclusion because the language of the McCarran Amendment making "the State laws" applicable to the United States was not sufficiently specific to constitute a waiver.[22]

Indian law is not water law, and therefore one might query why canons of Indian law construction should make any difference. They do matter, however, because when dealing with water for an Indian reservation, one must contend not only with principles of water law but also with principles of Indian law. It is well to keep these canons of construction in mind as the outcome of many perplexing federal reserved rights issues may be resolved by invoking one of them.

2. United States v. Rio Grande Dam & Irrigation

The other case cited in the *Winters* opinion was *United States v. Rio Grande Dam & Irrigation Company*.[23] This case recognized the power of a state to change "the common law rule as to streams within its dominion" to permit appropriation of flowing waters for various purposes.[24] However, the Supreme Court limited this state power, holding that:

---

19. 832 P.2d 289 (Idaho 1992).

20. 43 U.S.C. § 666(a) (1995). By the McCarran Amendment, Congress consented to joinder of the United States as a defendant in a state court water rights adjudication, where the United States owns water rights on the river system, but only when the adjudication is a comprehensive general adjudication of all rights of all water users on the stream, i.e., an *inter sese* proceeding. *See, e.g.*, Dugan v. Rank, 372 U.S. 609 (1963); John B. Weldon, Jr. and Mikel L. Moore, *General Water Rights Adjudication in Arizona: Yesterday, Today and Tomorrow*, 27 ARIZ. L. REV. 709, 727 (1985). Federal reserved water rights are within the scope of the McCarran Amendment's waiver of sovereign immunity on behalf of the United States. *See, e.g.*, United States v. District Court in and for County of Eagle, 401 U.S. 520 (1971); United States v. District Court in and for Water Division No. 5, 401 U.S. 527 (1971).

21. 832 P.2d at 297.

22. United States v. Idaho, 508 U.S. 1 (1993).

23. 174 U.S. 690 (1898).

24. *Id.* at 703.

> in the absence of specific authority from Congress a State cannot by its legislation destroy the right of the United States, as the owner of lands bordering on a stream, to the continued flow of its waters; so far at least as may be necessary for the beneficial uses of the government property.[25]

C. Who "Reserved" the Water?

Commentators disagree on whether the federal government, acting on behalf of the Indians, "reserved" the necessary water for Indian reservations, or whether it was the Indians themselves, in agreeing to move onto a federal reservation, who reserved their water rights. According to historian Norris Hundley, Jr., the Supreme Court in *Winters* "located authority to reserve water in both the Indians and the U.S."[26]

In making this assertion, Hundley looks to language in the *Winters* opinion that arguably supports both positions. For example, Justice McKenna stated that "[t]he Government is asserting the rights of the Indians."[27] The *Winters* opinion also states that "[t]he power of the *Government* to reserve the waters and exempt them from appropriation under the state laws is not denied, and could not be . . . . That the *Government* did reserve them we have decided, and for a use which would be necessarily continued through [the] years."[28] In a more recent federal reserved rights case, *Arizona v. California I*,[29] the Supreme Court stated, "We . . . agree that *the United States* did reserve the water rights for the Indians effective as of the time the Indian Reservations were created."[30]

The *Winters* opinion also speaks, however, of the Indians' cession of the large portion of their land to the government, and their *retention* or *reservation* of some water rights. The Court refers to the non-Indian parties' argument that the Indians ceded their lands, "yet made no reservation of the waters."[31] In disposing of this argument, the *Winters* Court stated:

---

25. *Id.*
26. Norris Hundley, Jr., *The Winters Decision and Indian Water Rights: A Mystery Reexamined*, 13 WEST. HIST. Q. 17, 34 (Jan. 1982).
27. Winters v. United States, 207 U.S. 546, 576 (1908).
28. *Id.* at 577 (emphasis added).
29. 373 U.S. 546 (1963).
30. *Id.* at 600 (emphasis added).
31. *Winters*, 207 U.S. at 567.

> We realize that there is a conflict of implications, but that which makes for the *retention of the waters* is of greater force than that which makes for their cession. The Indians had command of the lands and the waters - command of all their beneficial use, whether kept for hunting, 'and grazing roving herds of stock,' or turned to agriculture and the arts of civilization. *Did they give up all this?* Did they reduce the area of their occupation and *give up the waters which made it valuable or adequate?*[32]

The Court answered these questions in the negative.

The answer to the question of who reserved the water rights may depend on how the Indian reservation was created. A legal distinction may be made between reservations created by treaty prior to 1871, when the United States ceased to make treaties with Indian tribes, and post-1871 reservations created either by statute or executive order. Where a reservation was created pursuant to a pre-1871 treaty, it may be reasonable to assume that the water rights were reserved by the tribes from their grants to the federal government, rather than being reserved by the government for the Indians.[33]

In an unpublished dissenting opinion in *Wyoming v. United States*,[34] U.S. Supreme Court Justice William Brennan, joined by Justices Marshall and Blackmun, seemingly agreed with the Hundley point of view that *both* the federal government and the Indians "reserved" the water. Justice Brennan stated that "in many cases, including this one, Indian reservations were created by treaty rather than unilateral action of the Government, so that it is the *intent of both parties* that forms the basis for the reservation of water rights."[35]

D. Attributes of Federal Reserved Water Rights

A federal reserved water right differs from a state water right acquired under the prior appropriation doctrine[36] in three important ways. These differences can have a significant effect on non-federal water users.

---

32. *Id.* (emphasis added).

33. *See, e.g.*, United States v. Winans, 198 U.S. 371, 381 (1905) ("[T]he treaty was not a grant of rights to the Indians but a grant of rights from them — a reservation of those not granted.").

34. Draft of Unpublished Dissenting Opinion in Wyoming v. United States (June 1989) (on file with the author). *See* discussion *infra* part III.A regarding the unpublished draft opinion in that case.

35. Draft of Unpublished Dissenting Opinion in Wyoming v. United States (June 1989), at 12 (emphasis added).

36. See *supra* note 4 for a definition of the prior appropriation doctrine.

1. No Beneficial Use Requirement

Unlike state water rights based on the prior appropriation doctrine, the validity of federal reserved rights does not depend on whether they have been used. Under the prior appropriation doctrine, "beneficial use" is the basis, measure, and limit of the water right.[37] Under the reserved rights doctrine, "beneficial use" simply does not matter. As stated by one court, the reserved rights doctrine "vests the United States with a dormant and indefinite right that may not coincide with water uses sanctioned by state law."[38]

Thus, the validity of a federal reserved right does not depend on continuous beneficial use, or any use at all.[39] State law-based water rights, by marked contrast, are subject to forfeiture and abandonment for nonuse.[40]

2. Priority date

The priority date of a federal reserved right is the date of establishment of the reservation, whereas the priority date of a state law-based water right is the date beneficial use of the water begins.[41]

A recent state decision has suggested that the priority date of a federal reserved right may precede the reservation's establishment. In *New Mexico v. Lewis*,[42] a divided panel of the New Mexico Court of Appeals concluded that the priority date of the Mescalero Apache Tribe's rights to the Rio Hondo River was the date of a treaty in which the United States promised to create a reservation. The "lynch pin" of the

---

37. *See, e.g.*, ARIZ. REV. STAT. ANN. § 45-141.B (1995) ("Beneficial use shall be the basis, measure and limit to the use of water.").

38. United States v. Jesse, 744 P.2d 491 (Colo. 1987).

39. However, in a case where a tribe sued the United States for damages for failing to protect the tribe's water rights, the tribe's damages were limited by the amount of its historic beneficial use. Gila River Pima-Maricopa Indian Community v. United States, 231 Ct. Cl. 193, 214 nn.12-13 (1982).

40. *See, e.g.*, ARIZ. REV. STAT. ANN. §45-141.C (1995), providing for forfeiture of water rights when water is not used for five successive years. Last year the Arizona Legislature amended this forfeiture statute to bolster the rights of state-law claimants by providing that this does not apply to a water right initiated before June 12, 1919 (the date of Arizona's first surface water code). H.B. 2276, 42d Legis., 1st Reg. Sess., Ch. 9, Sec. 3 (1995) (codified at ARIZ. REV. STAT. ANN. § 45-141.C). That amendment is now the subject of a special action challenging its constitutionality brought by the Arizona Apache Tribes.

41. *See, e.g.*, United States v. New Mexico, 438 U.S. 696, 705-11 (1978); *In re* General Adjudication of All Rights to Use Water in the Big Horn River System, 753 P.2d 76, 97 (Wyo. 1988), *aff'd mem. by an equally divided Court*, 492 U.S. 406 (1989).

42. 861 P.2d 235, 244 (N.M. Ct. App. 1993), *cert. denied*, 858 P.2d 85 (N.M. 1993).

court's analysis was the canon of construction that Indian treaties are to be construed liberally in favor of the Indians.[43]

In a few cases, the courts have found "time immemorial" or aboriginal priority for federal reserved rights.[44] Indian tribes routinely argue that their water rights are entitled to aboriginal priority based on their historic occupation of reservation lands. The U.S. Supreme Court has not directly ruled on this important issue.

As one commentator aptly noted, "[b]ecause the priority date of the reserved right relates back to the date of the reservation, reserved water rights threaten existing water appropriators with divestment of their rights without compensation."[45] This is because most Indian reservations were established prior to the initiation of non-Indian water uses.

3. *Quantification*

In general, the amount of the federal reserved right is quantified based on the amount of water reasonably necessary to fulfill the primary purpose of the reservation. This is the holding of the U.S. Supreme Court in the 1976 case of *Cappaert v. United States*.[46] *Cappaert* and its progeny require a detailed look at the reservation purpose, as gleaned from the treaty, executive order, Congressional enactment, or other document creating the reservation. "The issue is whether the Government intended to reserve unappropriated and thus available water. Intent is inferred if the previously unappropriated waters are necessary to accomplish the purposes for which the reservation was created."[47] The

---

43. The *Lewis* case is another good example of how Indian canons of construction may be invoked where necessary to shore up Indian water rights. *See supra* part I.B.1.a.

44. *See, e.g.*, United States v. Adair, 723 F.2d 1394, 1412-15 (9th Cir. 1983), *cert. denied sub nom.*, 467 U.S. 1252 (1984) (holding that the Tribe's water rights were not created by the treaty; rather, the treaty merely confirmed the continued existence of these rights); Joint Board of Control v. United States, 832 F.2d 1127, 1131-32 (9th Cir. 1987), *cert. denied*, 486 U.S. 1007 (1988).

45. A. Boles & C. Elliott, United States v. New Mexico *and the Course of Federal Reserved Water Rights*, 51 U. COLO. L. REV. 209, 213 (1980).

46. 426 U.S. 128, 141 (1976). *See also* United States v. New Mexico, 438 U.S. 696, 700-03 (1978); United States v. Adair, 723 F.2d 1394, 1409 (9th Cir. 1983), *cert. denied sub nom.*, Oregon v. United States, 467 U.S. 1252 (1984); United States v. Jesse, 744 P.2d 491, 494 (Colo. 1987).

47. Cappaert v. United States, 426 U.S. 128, 139 (1976). A pending Colorado case provides an excellent illustration of the application of the primary purpose test. Water Division No. 1 in Colorado held that the United States has a reserved right to all unappropriated water in Rocky Mountain National Park for park purposes. Memorandum of Decision and Order, District Court, Water Division No. 1, Case No. W-8439-76 (Colo. Dec. 29, 1993). Earlier, the District Court denied the claim of the U.S. Forest Service for reserved water rights for the purpose of stream channel maintenance. The court distinguished the two cases on the grounds that the purposes for which national forests were created were largely economic in nature, and to fulfill those purposes the stream channel only needs reasonable maintenance. However, to

purpose of the reservation is determined as of the date of its establishment.[48]

Under state water law, the measure of a water right is the amount of water beneficially used.[49] The doctrine of prior appropriation recognizes only the right to divert a quantified amount of water at a specific location for a specific purpose. The federal reserved rights doctrine, by contrast, vests the United States with a dormant right to an indefinite quantity of water, and that right may not coincide with water uses sanctioned by state law.[50]

Professor Trelease has been a vocal critic of the federal reserved rights doctrine because of the ambiguity of the reserved right:

> The federal reserved water right is not like other water rights, at least not like those in the West. It is not recorded, not fixed in size, not dependent on beneficial use. When the Federal Government withdraws a part of its land from the public domain and reserves it for a federal purpose, the Government by implication reserves enough of the 'appurtenant' unappropriated water to accomplish the purpose of the reservation.[51]

Despite these ambiguities, the federal reserved rights doctrine is a reality that western water users must deal with as best they can.

II. PRACTICABLY IRRIGABLE ACREAGE STANDARD OF QUANTIFICATION

In determining the amount of water reasonably necessary to satisfy the primary purpose of an Indian reservation, the U.S. Supreme Court has adopted a standard referred to as the "practicably irrigable acreage standard of quantification" (PIA). This measure is important, as future application of the PIA standard will determine how much of the water in the west is left for non-Indian users.

---

fulfill the purpose of the national park, maintenance of the forests in their pristine condition is required. *See also* United States v. Jesse, 744 P.2d 491, 500 (Colo. 1987), discussed *infra* note 86.

Note that federal reserved rights only extend to unappropriated water. Thus, no claim can be made under the federal reserved rights doctrine to water which had already been appropriated at the time the federal reservation was set aside.

48. *New Mexico*, 438 U.S. at 705-11; *In re* General Adjudication of All Rights to Use Water in the Big Horn River System, 753 P.2d 76, 97 (Wyo. 1988), *aff'd mem. by an equally divided Court*, 492 U.S. 406 (1989).

49. *See, e.g.*, ARIZ. REV. STAT. ANN. § 45-141.B (1995).

50. *See, e.g.*, 753 P.2d at 97; *Jesse*, 744 P.2d at 494.

51. Frank J. Trelease, *Federal Reserved Water Rights Since PLLRC*, 54 DENV. L. J. 473, 474 (1977). Trelease notes that "no case defines or explains" what water is "appurtenant."

A. Arizona v. California I

In *Arizona v. California I*,[52] the U.S. Supreme Court adjudicated the rights of Arizona and California to the Colorado River. In addition, the Court adjudicated the water rights of five Colorado River Indian tribes to the river. The Court held that the measure of an Indian tribe's reserved right is the amount of water necessary to irrigate all the "practicably irrigable acreage" on its reservation.[53] Basically, a determination of the number of practicably irrigable acres on an Indian reservation must be made, and then that number is multiplied by a water duty to arrive at the quantity of the tribe's reserved water right. The PIA test constituted a drastic expansion of the federal reserved rights doctrine.

Arizona v. California I is the *only* case in which the U.S. Supreme Court has quantified Indian reserved water rights. Yet only a single paragraph in the 52-page opinion was devoted to the measure of Indian reserved water rights. The Special Master had determined the irrigable acreage on each reservation, but did not explain how such acreage was to be determined. The Supreme Court simply held that the Master's findings on the amount of irrigable acreage were "reasonable."[54] The Court also agreed with the Master's finding that "the water was intended to satisfy the future as well as the present needs of the Indian Reservations."[55] The PIA standard was analyzed only by the Special Master, whose decisions have no precedential value.[56] The Supreme Court has not addressed the PIA standard in an opinion since its 1964 decree in *Arizona v. California I*.[57]

The Supreme Court additionally held that the federal reserved rights doctrine applies not only to reservations created by treaty, but also to reservations created by executive order and statute as well as to other non-Indian federal reservations.[58] This in itself was a fundamental expansion of the federal reserved right doctrine, which prior to *Arizona v. California I* was thought to apply only to reservations created by treaty.

---

52. 373 U.S. 546 (1963).

53. *Id.* at 600. *See also* Colville Confederated Tribes v. Walton, 647 F.2d 42, 48 (9th Cir. 1981), *cert. denied*, 454 U.S. 1092 (1981).

54. Arizona v. California I, 373 U.S. 546, 601 (1962).

55. *Id.* at 600.

56. Oregon v. United States, 467 U.S. 1252 (1984); United States v. Adair, 723 F.2d 1394, 1419 (9th Cir. 1983); *Colville Confederated Tribes*, 647 F.2d at 48.

57. Arizona v. California I, Decree, 376 U.S. 340 (1964).

58. Arizona v. California I, 373 U.S. at 598-600. *See also* United States v. Walker River Irrigation District, 104 F.2d 334 (9th Cir. 1939).

As a result of *Arizona v. California I*, the conflict for water between state and federal users has been amplified. The PIA standard is a serious threat to non-Indian water users because of the highly consumptive nature of irrigation water use and because of the huge amount of Indian reservation acreage in the western United States.[59] In Arizona alone, the Western States Water Council has estimated that potential claims based on the PIA standard for Arizona Indian reservations total eleven times the total dependable surface water supply in the state.[60]

The need to quantify federal reserved rights has been the driving factor in adjudications commenced under the McCarran Amendment,[61] including Arizona's General Stream Adjudications. The parties that brought the original petitions for the Arizona adjudications (Salt River Project, ASARCO, and Phelps Dodge) did so in response to the federal reserved rights doctrine. Under that doctrine, Indian water rights need not be, and rarely have been quantified. Although the Indians were entitled to water, they historically did not use much water, so non-Indians proceeded to appropriate all available water supplies. While Indians' claims lay dormant, the formation of western states' economies was made possible by appropriation of this water. The western states and their largest industries became concerned about these dormant Indian water claims, so they began the process of adjudication to quantify those claims.

B. Other Quantification Cases: Narrowing the Doctrine

1. Cappaert v. United States *and the Minimal Need Requirement*

After *Arizona v. California I*, the U.S. Supreme Court began to rein in the federal reserved rights doctrine. The first such case was *Cappaert v. United States*.[62] *Cappaert* involved the Devil's Hole Pupfish which inhabits a pool located in the cavern of the Devil's Hole National Monument, a federal reservation.[63] In order for the pupfish to spawn, the level of the pool must be sufficient to submerge a rock shelf.[64] The Cappaerts were nearby ranchers whose well water usage lowered the

---

59. In Arizona, for instance, about one-third of the entire state is Indian land. *See generally* PETER W. SLY, RESERVED WATER RIGHTS SETTLEMENT MANUAL 104 (1988).

60. *Indian Reserved Water Rights: Hearings before the Senate Committee on Energy and Natural Resources*, 98th Cong., 2d Sess. 27-28 (1984) (Western States Water Council, Report to Western Governors).

61. 43 U.S.C. § 666(a) (1995).

62. 426 U.S. 128 (1976).

63. *Id.* at 131.

64. *Id.* at 133-34.

water level of the pool and thereby exposed the shelf.[65] The U.S. Supreme Court held that the executive proclamation which created the Monument *explicitly* reserved a water right sufficient to protect the pupfish.[66] Thus, *Cappaert* did not on its face involve federal reserved rights, which are *impliedly* reserved upon creation of a federal reservation.

Although the Court stated that the water in the pool was surface water, it recognized the direct hydrological connection between the pool and the water pumped from the Cappaert's wells, and therefore enjoined the Cappaert's pumping only to the extent necessary to ensure a sufficient pool of water for the pupfish to spawn.[67] The Court held that the United States can protect its water from subsequent diversion, whether that diversion is of surface water or groundwater.[68] Importantly, the Court did not go so far as to hold that a federal reserved right extends to groundwater. Indeed, the Court observed that "[n]o cases of [the United States Supreme] Court have applied the doctrine of implied reservation of water rights to groundwater."[69]

Cappaert reaffirmed that "[t]he implied-reservation-of-water-rights doctrine . . . reserves only that amount of water necessary to fulfill the purposes of the reservation, no more."[70] Any attempt to reconcile *Cappaert* with the earlier PIA test of *Arizona v. California I* must recognize that *Cappaert* involved a non-Indian federal reservation, whereas *Arizona v. California I* involved Indian reservations.

2. United States v. New Mexico *and the "Primary Purpose" Test*

Though not involving Indian water rights, *United States v. New Mexico*[71] further defined and limited the federal reserved rights doctrine. The U.S. Supreme Court held that federal reservations have reserved water rights only to the minimum amount of water necessary to effectuate the *primary purpose* of the reservation — that amount without which the purpose of the reservation would be "entirely defeated."[72] Water for *secondary purposes* must be acquired under state law, not under the federal reserved rights doctrine.[73] The Supreme Court rejected claims for reserved instream flow water rights, and held that the United States

---

65. *Id.* at 135.
66. *Id.* at 142.
67. *Id.* at 142-43.
68. *Id.* at 143.
69. *Id.* at 142.
70. *Id.* at 141 (citing Arizona v. California I, 373 U.S. 546, 600-01 (1963)).
71. 438 U.S. 696 (1978).
72. *Id.* at 700-03.
73. *Id.* at 702.

could not claim reserved water rights under the Organic Act[74] for aesthetic, recreational, and wildlife purposes.[75]

But *New Mexico* involved a national forest, not an Indian reservation.[76] A looming issue in western water law is the extent to which the *New Mexico* primary/secondary purpose test will be applied to Indian reservations. In Arizona, the Gila River Adjudication Court has held that the primary/secondary purpose test applies to non-Indian federal reservations, but not to Indian reservations.[77] That court refused to inquire into the purpose of any particular Indian reservation, but instead assumed that the purpose of all Indian reservations is agricultural and that the measure of the Indian reserved right is the PIA standard.[78] Other courts have reached a similar conclusion.[79]

C. Recognized Purposes of Indian Reservations

Because the issue of whether an Indian reservation may ever have more than one purpose—or any non-agricultural purpose—has not been finally resolved by the U.S. Supreme Court, it is instructive to look at the purposes of Indian reservations that have been recognized. In *Arizona v. California I*, the Court agreed with the Master's finding that "the water was intended to satisfy the future as well as the present needs of the Indian Reservations . . . ."[80] While the Supreme Court apparently assumed that an award of PIA would satisfy "the future as well as the present needs" of the Indians, it certainly left open the possibility that water might be useful to the Indians for purposes other than irrigated agriculture.

---

74. The Organic Administration Act of 1897, 16 U.S.C. § 418 (repealed Feb. 20, 1931, ch. 235, 46 Stat. 1191). This statute formed the basis for creation of the national forest system.

75. *New Mexico*, 438 U.S. at 707-08.

76. For another case dealing with national forests, see United States v. Jesse, 744 P.2d 491 (Colo. 1987).

77. *In re* the General Adjudication of All Rights to Use Water in the Gila River System and Source, Nos. W-1, W-2, W-3 and W-4 (consol.) (Maricopa Co. Super. Ct) (order made on September 9, 1988, on file with the author).

78. *Id.* at 17. Whether the court erred in this respect is the subject of a pending interlocutory appeal to the Arizona Supreme Court.

79. *See, e.g.*, *In re* General Adjudication of All Rights to Use Water in the Big Horn River System, 753 P.2d 76, 111 (Wyo. 1988) ("There is a strong indication that New Mexico does not apply to Indian reserved water rights."), *aff'd mem. by an equally divided Court*, 492 U.S. 406 (1989); Greely v. Confederated Salish and Kootenai Tribes, 712 P.2d 754, 766-67 (Mont. 1985).

80. 373 U.S. at 599-600.

1. Permanent homeland for irrigated agriculture

One long-recognized purpose of Indian reservations is to provide a "permanent homeland" for Indian tribes and thus to transform their members from nomadic hunters and gatherers into pastoral farmers by establishing them in irrigated agriculture. The *Winters* case is the source of the "permanent homeland" concept.[81] This concept was reaffirmed in *Arizona v. California I*, where the Court simply stated that water was reserved "to make the reservation livable."[82] There the Court recognized that:

> [m]ost of the land in these reservations is and always has been arid. If the water necessary to sustain life is to be had, it must come from the Colorado River or its tributaries. It can be said without overstatement that when the Indians were put on these reservations they were not considered to be located in the most desirable area of the Nation. It is impossible to believe that when Congress created the great Colorado River Indian Reservation and when the Executive Department of this Nation created the other reservations they were unaware that most of the lands were of the desert kind - hot, scorching sands - and that water from the river would be essential to the life of the Indian people and to the animals they hunted and the crops they raised.[83]

Other cases have embraced the permanent homeland concept.[84] However, no court has enunciated a standard for quantifying water rights reserved for the purpose of a permanent Indian homeland.

2. Fishing, hunting, and gathering rights

Several cases have awarded federal reserved rights to Indian tribes to preserve tribal fishery, hunting, and gathering rights.[85] Those tribal

---

81. Winters v. United States, 207 U.S. 564, 576. *See supra* text and accompanying notes 5-10.

82. 373 U.S. at 599, *followed in* Montana v. United States, 450 U.S. 544, 566 n.15 (1981).

83. 373 U.S. at 598-99.

84. *See, e.g.*, United States v. Adair, 723 F.2d 1394, 1410 (9th Cir. 1983), *cert. denied sub nom.*, Oregon v. United States, 467 U.S. 1252 (1984); Colville Confederated Tribes v. Walton, 647 F.2d 42, 47-48 (9th Cir. 1981), *cert. denied*, 454 U.S. 1092 (1981). *But see In re* General Adjudication of All Rights to Use Water in the Big Horn River System, 753 P.2d 76 (Wyo. 1988) (treaty language establishing a "permanent home" for the Indians does not create a federal reserved right), *aff'd mem. by an equally divided Court*, 492 U.S. 406 (1989).

85. *See, e.g.*, Menominee Tribe v. United States, 391 U.S. 404, 406 (1968); Alaska Pacific Fisheries v. United States, 248 U.S. 78 (1918).

rights may also include the right to minimum instream flows.[86] For example, in *United States v. Adair*,[87] the Ninth Circuit recognized reserved rights in maintenance of flows necessary for fish runs under a treaty that gave Indians the right to hunt and fish on reservation lands.[88] In *Big Horn*, by contrast, the court limited the federal reserved right to agricultural purposes.[89]

3. Power generation

At least one court has awarded an Indian tribe a reserved right for power generation purposes.[90]

4. Dual purposes

The Ninth Circuit has held that a particular Indian reservation can have dual primary purposes.[91] Other courts disagree.[92] In *Arizona v. California I*, the Court held that "the water was intended to satisfy the future as well as the present needs of the Indian Reservations,"[93] thus seemingly acknowledging that water might be useful to the Indians for more than one purpose. In the Arizona General Stream Adjudications, for example, Indian tribes have made claims for water under the federal reserved rights doctrine for many non-agricultural purposes, such as municipal, industrial, hydropower generation, ranching, and other uses.

---

86. *See, e.g.*, Joint Board of Control v. United States, 832 F.2d 1127, 1132 (9th Cir. 1987), *cert. denied*, 486 U.S. 1007 (1988). United States V. Adair, 723 F.2d 1394 (9th Cir. 1983), *cert. denied sub nom.*, Oregon v. United States, 467 U.S. 1252 (1984). *Cf.* United States v. New Mexico, 438 U.S. 696, 707-08 (1978) (rejecting claims for reserved instream water rights for a national forest, and holding that the United States could not claim reserved water rights under the Organic Act for aesthetic, recreational or wildlife purposes); *In re Big Horn River System*, 753 P.2d at 98-99 (the United States could not, under the Organic Act, claim reserved water rights for a national forest for instream flow, fisheries, aesthetic, recreational or wildlife purposes); United States v. Jesse, 744 P.2d 491, 500 (Colo. 1987) ("[I]n contrast to the explicit legislative protections enacted by Congress and some states to preserve lake levels and instream flows, the national forests were reserved for a very limited purpose, which did not explicitly include the preservation of instream flows.").

87. 723 F.2d 1394.

88. *Id.* at 1410.

89. *In re Big Horn River System*, 753 P.2d at 98-99 (refusing to recognize reserved rights in the United States for instream uses, fisheries, mineral development, aesthetic, recreational or wildlife purposes).

90. United States v. Walker River Irrigation District, 104 F.2d 334, 340 (9th Cir. 1939).

91. United States v. Adair, 723 F.2d 1394, 1410.

92. *In re Big Horn River System*, 753 P.2d at 96 (holding that the sole purpose of the Wind River Reservation was agricultural); In Re the General Adjudication of All Rights to Use Water in the Gila River System and Source, Nos. W-1, W-2, W-3 and W-4 (consol.) (Maricopa Co. Super. Ct) (order made on September 9, 1988, on file with the author).

93. 373 U.S. 546, 600 (1963).

5. Change of use

The Ninth Circuit has held that once a tribe has a vested property right in reserved water, it may use it in any lawful manner.[94] Subsequent acts making the historically intended use of the water unnecessary do not divest the tribe of the water right.[95]

A related issue in western water law is the extent to which an Indian tribe can sell or lease excess water. Indians argue that they may sell or lease water awarded to them under the PIA standard, while non-Indian water users oppose this extension of the reserved rights doctrine. The U.S. Supreme Court has not yet addressed this issue.

D. The Sensitivity Doctrine

The so-called "sensitivity doctrine" has arisen as one limit on federal reserved rights. The source of the doctrine is found in *United States v. New Mexico*[96] in language of the majority and concurring opinions. The majority stated:

> When, as in the case of the Rio Mimbres, a river is fully appropriated, federal reserved water rights will frequently require a gallon-for-gallon reduction in the amount of water available for water-needy state and private appropriators. This reality has not escaped the attention of Congress and must be weighed in determining what, if any, water Congress reserved for use in the national forests.[97]

In the concurring opinion, Justice Powell stated:

> I agree with the court that the implied-reservation doctrine should be applied with sensitivity to its impact upon those who have obtained water rights under state law and to Congress' general policy of deference to state water law.[98]

The idea that their reserved rights must be quantified with "sensitivity" to state and private water users is anathema to the Indians, whose war cry is "we got here first." The tribes are quick to point out that *United States v. New Mexico* was a non-Indian federal reservation case, and argue fervently that the sensitivity doctrine has no application to Indian reservations. Yet in the absence of sensitivity, quantification of Indian

---

94. Colville Confederated Tribes v. Walton, 647 F.2d 42, 48-49 (9th Cir. 1981), *cert. denied*, 454 U.S. 1092 (1981).

95. *Id.*

96. 438 U.S. 696 (1978).

97. *Id.* at 705.

98. *Id.* at 718.

reserved rights will undoubtedly result in a massive reallocation of water from non-Indian to Indian users.[99] In *Big Horn*, the Wyoming Supreme Court noted that "[i]t is thus not clear whether the sensitivity doctrine, requiring the quantification of reserved water rights with sensitivity to the impact on state and private appropriators, applies [to Indian reserved rights]."[100] But just in case it did, the court held that the Special Master's analysis "evidences a sufficient sensitivity to the water needs of other water users."[101]

E. Applicability of Federal Reserved Rights to Groundwater

Indian tribes have argued that their federal reserved rights extend to groundwater as well as to surface water.[102] This argument has two aspects. The first aspect requires a determination of what water *sources* are encompassed by the federal reserved rights doctrine. The second aspect concerns enforcement of federal reserved rights against groundwater users. Both aspects have their roots in the question of what scientifically recognized hydrological connection between groundwater and surface water should be legally recognized for enforcement purposes. In other words, should an Indian tribe have the right to sue to enjoin a groundwater withdrawal that may impact its federal reserved rights? Again, this issue has not been resolved by the U.S. Supreme Court.

In arguing that federal reserved rights extend to groundwater, the Indian tribes rely primarily on *Cappaert v. United States*.[103] In *Cappaert*, a non-Indian federal reservation case, the Court clearly stated that the water in the pool inhabited by the pupfish was *surface water*. However, it recognized the direct hydrological connection between the pool and the water pumped from the Cappaert's wells,[104] and enjoined the pumping only to the extent necessary to protect the fish's spawning grounds. The Court held that the United States can protect its surface water from subsequent diversion, whether that diversion is of surface water or groundwater.[105] Clearly the Court did *not* hold that a federal reserved right extends to groundwater. Indeed, the Court observed that

---

99. *See supra* part II.A. *See generally* Jennele M. O'Hair, *Arizona Water Policy: Challenges for the '90s*, 26 ARIZ. ATT'Y 8, 33 (Apr. 1990).

100. *In re* General Adjudication of All Rights to Use Water in the Big Horn River System, 753 P.2d 76, 111 (Wyo. 1988), *aff'd mem. by an equally divided Court*, 492 U.S. 406 (1989).

101. *Id.* at 112.

102. *See generally* Ned L. Bork III, *The Application of Federal Reserved Water Rights to Groundwater in the Western States*, 16 CREIGHTON L. REV. 781 (1983).

103. 426 U.S. 128 (1978). *See supra* part II.B.1. for a discussion of the facts in *Cappaert*.

104. *Cappaert*, 426 U.S. at 143.

105. *Id.*

"[n]o cases of [the United States Supreme] Court have applied the doctrine of implied reservation of water rights to groundwater."[106]

The basis for the Indians' argument that their federally reserved rights extend to groundwater is jurisprudentially weak. The Seminal Indian reserved rights cases have involved surface water, not groundwater. *Winters*, for example, involved surface water flowing in the Milk River.[107] *Arizona v. California I* involved five tribes' rights to surface water flowing in the Colorado River and its tributaries.[108] Yet logic would support a federal reserved right to groundwater in cases where that is the only source of water available to a federal reservation. No court has apparently dealt with this situation. Arguably, Congress would not intentionally locate a tribe on a reservation without *any* source of water. In the *Big Horn* case, where both surface water and groundwater were available to satisfy tribal water demands, the Wyoming Supreme Court specifically held that "the reserved water doctrine does not extend to groundwater."[109] In affirming by an equally divided vote, the U.S. Supreme Court evidently approved the conclusion.[110]

In the McCarran Amendment context, a recent decision of the Ninth Circuit went against the Indians on this issue. In *United States v. Oregon*,[111] the United States on behalf of the Klamath Tribe challenged Oregon's general stream adjudication, claiming that it was not a "comprehensive suit" as required by the McCarran Amendment.[112] The United States attacked the proceeding as non-comprehensive on the basis, *inter alia*, that the adjudication did not determine rights to groundwater. While acknowledging a growing trend to recognize the hydrological connection between groundwater and surface water, the court held that this trend was "too recent and too incomplete" to require adjudication of groundwater rights as well as rights to surface water for a state adjudication to meet the McCarran Amendment's comprehensiveness requirement.[113] Referring to the McCarran Amendment's use of the phrase "river system *or* other source,"[114] the court stated that the use of this disjunctive "strongly suggests" that a valid adjudication may be limited to either a river system or some other source of water, "like

---

106. *Id.* at 142.
107. Winters v. United States, 207 U.S. 564, 565 (1908).
108. 373 U.S. at 598-99.
109. *In Re Big Horn River System*, 753 P.2d at 100, *aff'd mem. by an equally divided Court*, 492 U.S. 406 (1989).
110. Wyoming v. United States, 492 U.S. 406 (1989).
111. 44 F.3d 758 (9th Cir. 1994).
112. See *supra* note 20 for an explanation of the comprehensiveness requirement.
113. 44 F.3d at 770.
114. 43 U.S.C. § 666(a) (1995).

groundwater, but need not cover both."[115] Thus, failure to include groundwater in a general stream adjudication does not impair the comprehensiveness of the adjudication so as to divest the state court of McCarran Amendment jurisdiction. In this case, the Indians lost two important battles: to have their rights to groundwater adjudicated, and to secure a basis for enforcement of their federal reserved rights against groundwater users.

But in the Arizona General Stream Adjudication, the trial court, relying on *Cappaert*, has held that the federal reserved rights doctrine extends to groundwater.[116] The issue of whether water that is considered non-appropriable groundwater under Arizona law may be subject to a federal reserved rights claim is now before the Arizona Supreme Court on interlocutory appeal.[117] The related enforcement issue — whether holders of federal reserved water rights enjoy greater protections from groundwater pumping than do holders of state water rights — is also before the Arizona Supreme Court.[118] The briefs have been filed, but the Arizona Supreme Court has deferred oral arguments pending its decision on the constitutionality of recent amendments to the Arizona adjudication statute.[119] The outcome of these appeals is of momentous importance to Arizona and other western states.

---

115. 44 F.3d at 768.

116. In Re the General Adjudication of All Rights to Use Water in the Gila River System and Source, Nos. W-1, W-2, W-3 and W-4 (consol.) (Maricopa Co. Super. Ct) (order made on September 9, 1988, on file with the author). The trial court held that "federal reserved water rights apply to both surface water and groundwater sources *on and off the reservation* whose diversion affects reservation sources, to the extent that there is not enough water left to satisfy the reservation's purpose, or P.I.A. if the land is an Indian reservation." *Id.* at 20 (emphasis added). With this language, the court extended the "appurtenancy" element of the federal reserved rights doctrine to its logical limits, and may have gone so far as to give a federal reservation a right to recharge of its surface water supply. *See* Trelease, *supra* note 51 and accompanying text.

The Arizona Supreme Court has also recognized the hydrological connection between groundwater and surface water. In Re the General Adjudication of All Rights to Use Water in the Gila River System and Source, 857 P.2d 1236 (Ariz. 1993) (*en banc*) (rejecting the trial court's "50%-90 day" test of subflow).

117. This issue has been designated as Interlocutory Appeal Issue No. 4.

118. This issue has been designated as Interlocutory Appeal Issue No. 5.

119. ARIZ. REV. STAT. ANN. § 45-141.C (1995); H.B. 2276, 42d Legis., 1st Reg. Sess., Ch. 9, Sec. 3 (1995) (codified at ARIZ. REV. STAT. ANN. § 45-141.C).

F. Other Limitations on Federal Reserved Rights

1. Required deference to state water law

As noted above,[120] the courts, in finding that the establishment of Indian and other federal reservations included reserved rights to water, have used several different terms to describe the nature and source of these rights. The *Winters* case referred to "implications" and "inferences" as the means by which the Court found that the federal government had reserved rights to the Milk River on behalf of the Fort Belknap Indian Reservation.[121] Other decisions have grounded the "implied" or "inferred" water rights in the presumed intent of Congress or the Executive in creating the reservations for which the water rights were claimed.[122]

Arguably, the scope and extent of an "inferred" or "implied" reservation of water rights may only be understood in the larger context of the federal government's dealings with the public lands that made up the territories and states at the time the rights were impliedly reserved. These dealings demonstrate the federal government's general policy of deference to state laws governing water and property rights. Under this argument, federal reserved rights may under proper circumstances be limited by the attributes or conditions placed on state water rights.[123]

Recent U.S. Supreme Court decisions indicate "a retreat from the Supreme Court's prior broad interpretations of the reserved water rights doctrine."[124] The Supreme Court has restricted, not expanded, the reserved rights doctrine, permitting its use only to secure the amount of water absolutely necessary to meet the primary—but not the secondary—purposes of the reservation.[125] A reserved right will be implied

---

120. *See supra* part I.C.

121. Winters v. United States, 207 U.S. 564, 576-77 (1908).

122. *See, e.g.*, Arizona v. California I, 373 U.S. 546, 598 (1963); United States v. Walker River Irrigation District, 104 F.2d 334, 339-40 (9th Cir. 1939); Skeem v. United States, 273 F. 93, 96 (9th Cir. 1921).

123. For instance, in their briefs on Interlocutory Issues 4 and 5, Arizona groundwater users have argued that percolating groundwater, which is non-appropriable under Arizona law, must be excluded from the water to which federal reserved rights attach. *See supra* notes 116-118 and accompanying text.

124. Star L. Waring & Kirk S. Samelson, *Non-Indian Federal Reserved Water Rights*, 58 DENV. U. L. REV. 783, 786 (1981). *See, e.g.*, Nevada v. United States, 463 U.S. 110, 129-31 (1983); California v. United States, 438 U.S. 645, 653-70 (1978); United States v. New Mexico, 438 U.S. 696, 699-701 (1978); Cappaert v. United States, 426 U.S. 128, 142 (1978); Alan E. Boles, Jr. & Charles M. Elliott, *United States Versus New Mexico and the Course of Federal Reserved Water Rights*, 51 U. COLO. L. REV. 209 (1980).

125. *See, e.g.*, United States v. New Mexico, 438 U.S. at 702; Nevada v. United States, 463 U.S. at 134.

only if "the purpose of the reservation would be entirely defeated" without it.[126] These cases show that the Supreme Court is moving toward defining the reserved rights doctrine in a manner that is compatible with state law. Further expansion of the doctrine goes against the principles of deference to state law and narrow implication of reserved rights. Indeed, *Cappaert*'s refusal to extend the reserved rights doctrine to groundwater is not surprising when viewed in the context of Congress' historic deference to state water law.

2. *Prior water rights decrees*

Federal reserved rights have sometimes been quantified in previous state and federal court water rights adjudications.[127] Indian tribes argue that they are not bound by the amounts decreed in these previous adjudications. Non-Indian water users, on the other hand, contend that these prior decrees are *res judicata* as to the quantity of the reserved right.

Important support for the non-Indian viewpoint was provided by *Arizona v. California III*,[128] in which the U.S. Supreme Court refused to reopen the decree in *Arizona v. California I* at the behest of the Colorado River Indian tribes, who argued that they had been short-changed on their federal reserved rights. The Court based its refusal to reopen the decree on principles of finality and *stare decisis*, which it said are especially important in the area of water and property rights.[129] Noting that its 1964 decree had generated significant expectations, reliance and investment on the part of non-Indian water users, the Court denied the Indians' request to reopen the decree.[130]

3. *Endangered Species Act implications*

The Endangered Species Act[131] may also operate as a limitation on federal reserved rights. To the extent that a threatened or endangered species may require water to which an Indian or non-Indian federal reservation is entitled, the federal reservation may be prohibited from

---

126. United States v. New Mexico, 438 U.S. at 700.

127. In Arizona, for instance, the Kent Decree adjudicated the rights of the Salt River Pima-Maricopa and the Fort McDowell Indian Communities; and the Globe Equity No. 59 Decree adjudicated the rights of the San Carlos Apache Tribe and the Gila River Indian Community.

128. 460 U.S. 605 (1982).

129. *Id.* at 619-20.

130. *Id.* at 620-21. *See also*, United States v. Oregon, 44 F.3d 758, 768 (9th Cir. 1939) ("the comprehensiveness standard requires the consolidation of existing controversies, not the reopening of settled determinations.")

131. 16 U.S.C. §§ 1531-1514 (1994).

using that water.[132] The same threat is posed to non-Indian water users claiming water rights based on state law.[133] The U.S. Supreme Court has not yet spoken on this issue.

4. The just compensation clause

Finally, the just compensation clauses of the United States and state constitutions may operate as a limitation on federal reserved rights.[134] This possible limitation is supported by various public land and water studies commissioned by the federal government which express great concern regarding the ambiguity and scope of the reserved rights doctrine.

One such study is the 1970 report by the Public Land Law Review Commission (PLLRC). In the report the PLLRC observed that:

> when reliance is placed on Federal water rights impliedly reserved along with the reservation or withdrawal of public lands, the effect may be to displace, without compensation, other non-Federal public and private uses under water rights acquired under state law subsequent to the date when the water was impliedly reserved for the Federal lands, but prior to the date the water was actually put to use by the Federal agencies.[135]

The PLLRC noted that prior to the Supreme Court's 1963 *Arizona v. California I* decision:

---

132. *See, e.g.*, Proposed Rule to List the Huachuca Water Umbel, Canelo Hills Ladies'-tresses and Sonora Tiger Salamander as Endangered Species, *60 Fed. Reg. 16836, 16840-41 (Apr. 3, 1995) (Fish and Wildlife Service determination that these species could be jeopardized by surface water diversion and impoundment and groundwater pumping by Fort Huachuca Military Reservation); Proposed Endangered Status for the Plant Puccinellia Parishii, 59 Fed.* Reg. 14378, 14380 (Mar. 28, 1994) (Fish and Wildlife Service determination that plant could be jeopardized by surface water diversion and impoundment and groundwater pumping); SECTION 7 CONSULTATION BIOLOGICAL OPINION AND CONFERENCE REPORT FOR NAVAJO INDIAN IRRIGATION PROJECT, Blocks 1-8, at 2 (Oct. 28, 1991) (United States Fish and Wildlife Service determination that the Navajo Indian Irrigation Project will jeopardize the Colorado squawfish by depletion of flows in the San Juan River).

133. *See* United States v. Glenn-Colusa Irrigation District, 788 F. Supp. 1126, 1134 (E.D.Cal. 1992) (state water rights do not prevail over Endangered Species Act restrictions); FINAL BIOLOGICAL OPINION ON THE TRANSPORTATION AND DELIVERY OF CENTRAL ARIZONA PROJECT WATER TO THE GILA RIVER BASIN (Apr. 1994) (Fish and Wildlife Service determination that continued Central Arizona Project water deliveries to central Arizona jeopardize threatened or endangered fish species in the upper Gila River basin and adversely modify critical habitat).

134. *See generally*, Charles E. Corker, *Let There Be No Nagging Doubts: Nor Shall Private Property, Including Water Rights, Be Taken For Public Use Without Just Compensation*, 6 LAND & WATER L. REV. 109 (1970).

135. PUBLIC LAND LAW REVIEW COMMISSION, ONE THIRD OF THE NATION'S LAND: A REPORT TO THE PRESIDENT AND TO THE CONGRESS 149 (1970).

> no water user could have been on actual or constructive notice of the existence of such an 'implied' Federal water right. The same is true of the state administrative agencies, since as a matter of formal policy and actual practice, the [federal] public land agencies generally adhered to state law in acquiring water rights for reserved lands before 1963.[136]

Given these compensation concerns, the PLLRC report recommended compensation for state water users whose water rights vested before *Arizona v. California I* and would be damaged by the exercise of reserved rights.[137]

These considerations were echoed by the National Water Commission in 1973. It observed that "the Federal Government led the way in developing the West for non-Indian beneficiaries, and if private investors and State and local governments followed, the protection afforded Federal beneficiaries should be accorded to the others."[138] Like the PLLRC, the National Water Commission recommended compensation for holders of state water rights injured by the exercise of Indian reserved rights.[139]

Professor Trelease has strongly advocated that "the social costs of displacing existing uses for the benefit of national programs should be borne by federal taxpayers, and not by the affected individual users."[140] In his view, the courts, "should call for federal insistence on federal law when national considerations require it, but permit federal accommodation of state interests where federal objectives are not sacrificed, and federal adjustments to state needs where state interests outweigh federal advantages."[141] Because non-Indian water users face divestment of their water rights as a result of the federal reserved rights doctrine, it seems fair that they should receive some kind of compensation for their displaced property rights.

---

136. *Id.*

137. *Id.*

138. NATIONAL WATER COMMISSION, WATER POLICIES FOR THE FUTURE: FINAL REPORT TO THE PRESIDENT AND TO THE CONGRESS 481 (1973).

139. *See also*, COMPTROLLER GENERAL OF THE UNITED STATES, REPORT TO THE CONGRESS—RESERVED WATER RIGHTS FOR FEDERAL AND INDIAN RESERVATIONS: A GROWING CONTROVERSY IN NEED OF RESOLUTION 26-28 (1978).

140. Frank J. Trelease, *Water Resources on the Public Lands: PLLRC's Solution to the Reservation Doctrine*, 6 LAND & WATER L. REV. 89, 99 (1970).

141. *Id.* at 106.

III. RECENT INTERPRETATIONS OF THE PIA STANDARD

A. *Justice O'Connor's Unpublished Opinion in* Big Horn*: A New PIA Standard*

One of the looming issues surrounding quantification of Indian reserved water rights is the extent to which economic feasibility will be considered in applying the PIA standard. On this point, an unpublished opinion by U.S. Supreme Court Justice Sandra Day O'Connor may shed some light on the ultimate fate of this question in the U.S. Supreme Court.

The decision of the Wyoming Supreme Court in the Wyoming *Big Horn* Adjudication[142] was appealed to the U.S. Supreme Court, which affirmed the Wyoming Supreme Court's decision by an equally divided vote.[143]

Justice O'Connor authored an opinion for a majority of the Court which was never published because she later withdrew from consideration of the case. Her opinion would have reversed and vacated that portion of the Wyoming Supreme Court's opinion which included a PIA calculation for "future lands."[144]

Justice O'Connor began by noting that the Wind River Reservation presently consists of 2.5 million acres located in a fertile river valley which is the choicest and best-watered portion of Wyoming.[145] This perspective, highlighted at the beginning of the draft unpublished opinion, did not bode well for the Indian tribe.

In 1977, Wyoming initiated a general adjudication in its state courts to determine all rights in the Big Horn River system. The adjudication was divided into three phases, with the first phase focusing on Indian reserved rights. The district court appointed Special Master Teno Roncalio to recommend a decree on the Indians' entitlement to water.[146]

The Special Master found that the United States, through a 1868 treaty with the tribe, impliedly reserved enough water to fulfill the purpose of the reservation, which was to create a permanent homeland for the tribes. He found that Congress had impliedly reserved water for many purposes, including agriculture, livestock, fish and wildlife,

---

142. *In Re* General Adjudication of All Rights to Use Water in the Big Horn River System, 753 P.2d 76 (Wyo. 1988), *aff'd mem. by an equally divided Court*, 492 U.S. 406 (1989).

143. Wyoming v. United States, 492 U.S. 406 (1989).

144. Draft Unpublished Majority Opinion in *Wyoming v. United States* (June 1989) (O'Connor, J.) (on file with the author).

145. *Id.* at 2.

146. *Id.*

mining, and municipal and industrial use. However, the Master found that the reserved right did not extend to groundwater.

In quantifying the agricultural entitlement, he used the PIA standard of *Arizona v. California I*. In doing so, he created two classes of lands: historic lands and future lands.[147]

Reservation lands that had historically been irrigated or were currently being irrigated were called "historic lands" These the Master found to be practicably irrigable if they were arable, and no benefit-cost analysis was conducted for these lands.[148]

Reservation lands that had never been irrigated, but were capable of irrigation if new irrigation projects were completed in the future were called "future lands." To these lands, the Master applied a three-prong test to determine practicable irrigability. The test requires that: (1) the lands are arable (a scientific inquiry); (2) the proposed irrigation projects are feasible (an engineering inquiry); and (3) the lands can be cultivated at a reasonable cost (an economic inquiry). This last factor was essentially a cost-benefit analysis which took into account the expected profit from and cost of the irrigation projects.[149]

The state district court accepted most of the Master's recommendations, but held that the sole purpose of the reservation was agricultural, and refused to award reserved rights for non-agricultural uses.[150]

The Wyoming Supreme Court largely affirmed.[151] It agreed with the district court that the sole purpose of the reservation was agricultural.[152] It also agreed that the reserved right does not extend to groundwater.[153] With regard to the quantification of PIA for "historic lands," the court agreed that the Master had properly applied a presumption of practical irrigability.[154] As to "future lands," the court held that the determination of PIA required consideration of whether the land is susceptible to sustained irrigation (not only proof of arability but also of the engineering feasibility of irrigation), and whether the land is irrigable at a reasonable cost.[155] Thus, the Wyoming Supreme Court accepted the Special Master's three-prong test for future lands.

---

147. *Id.*
148. *Id.* at 2-3.
149. *Id.* at 3.
150. *Id.*
151. In Re General Adjudication of All Rights to Use Water in the Big Horn River System, 753 P.2d 76 (Wyo. 1988), *aff'd mem. by an equally divided Court*, 492 U.S. 406 (1989).
152. *Id.* at 97.
153. *Id.* at 99.
154. *Id.* at 107.
155. *Id.* at 101.

Based on the Master's analysis, the court quantified the tribe's reserved right at 501,000 acre feet per year, based on 54,000 acres of historic lands and 54,000 acres of future lands.[156] The U.S. Supreme Court granted *certiorari* to determine whether the Wyoming Supreme Court correctly quantified the tribe's reserved surface water rights.

Had Justice O'Connor not recused herself, the Supreme Court would have held that the PIA standard was not intended to be the sole method for quantifying Indian reserved water rights.[157] The standard of quantification, she said, depends in each case on the purpose of the particular reservation in issue.[158] *Arizona v. California I* did not, after all, express any view on the calculation of reserved rights for reservations whose purposes are non-agricultural.[159]

Justice O'Connor also noted that the U.S. Supreme Court has never determined the specific attributes of federal reserved rights, such as whether such rights are subject to forfeiture for nonuse or whether they may be sold or leased for use on or off the reservation.[160] If this view prevails in the next big PIA case, the Court could, if it wishes, "write on a clean slate" and redefine PIA.

While noting that the PIA standard is "not without defects," Justice O'Connor would have "decline[d] Wyoming's invitation to discard the PIA standard."[161] She would have affirmed the use of the PIA standard on the basis that "it provides some measure of predictability," because it has generated "significant expectations, reliance and investment," and because no other standard had been suggested which would prove as workable for determining reserved rights for agricultural reservations.[162]

Justice O'Connor would have agreed with the Wyoming Supreme Court "that arable lands which have been or are currently being irrigated should generally be considered practically irrigable."[163] Thus, she agreed with the Wyoming Supreme Court's PIA analysis for "historic lands."

As for "future lands," however, Justice O'Connor departed from the Wyoming court's analysis. The O'Connor opinion would have held that the three "future lands" factors identified by the Wyoming Supreme

---

156. *Id.* at 106 (discussing historic lands); *Id.* at 100-06 (discussing future lands).

157. Draft Unpublished Majority Opinion in *Wyoming v. United States* at 10 (June 1989) (O'Connor, J.) (on file with the author).

158. *Id.*

159. *Id.*

160. *Id.* at 12.

161. *Id.*

162. *Id.*

163. *Id.* at 13.

Court are necessary but insufficient for the PIA determination. In addition, she said, quantification of reserved rights must entail sensitivity to the impact on state and private appropriators of scarce water under state law.[164] For this proposition, she cited *United States v. New Mexico* and *Cappaert v. United States*, both non-Indian reserved rights cases.[165] Thus, Justice O'Connor had no difficulty extending the sensitivity doctrine to the Wind River Indian Reservation.

Justice O'Connor did not go so far as to argue that "future lands" are never entitled to a PIA quantification. But she would have remanded to the Wyoming court for recalculation of the amount of PIA for "future lands." In remanding for recalculation on this issue, Justice O'Connor stated:

> The inclusion in the PIA quantification of arable lands not yet irrigated depends on the assumption that necessary future irrigation projects will be built to supply water to those lands. . . . Given that "federal reserved water rights will frequently require a gallon-for-gallon reduction in the amount of water available for water-needy state and private appropriators," *New Mexico*, 438 U.S. at 705, the existence of future projects can not be taken for granted. Sensitivity to the impact on prior appropriators necessarily means that "there has to be some degree of pragmatism" in determining PIA. 753 P.2d at 119 (Thomas, J., dissenting). We think this pragmatism involves a "practical" assessment — a determination apart from theoretical economic and engineering feasibility of the *reasonable likelihood* that future irrigation projects, necessary to enable lands which have never been irrigated to obtain water, will *actually* be built.[166]

This "reasonable likelihood" test would have constituted a drastic contraction of the PIA doctrine, especially since the federal government has no duty to develop irrigation facilities for tribes nor to construct facilities with federal funds.[167]

In her opinion Justice O'Connor also stated that in determining PIA, the finder of fact should examine the evidence showing additional cultivated acreage is needed "to supply food or fibre to resident tribal members, or to meet the realistic needs of tribal members to expand their existing farming operations."[168] The fact finder should determine

---

164. *Id.* at 15 (citing United States v. New Mexico, 438 U.S. 696, 705 (1978). *See supra* part II.D. for a discussion of the sensitivity doctrine.

165. *Id.*

166. *Id.* at 16-17.

167. *See, e.g.*, White Mountain Apache Tribe v. United States, 11 Ct. Cl. 614 (1987).

168. Draft Unpublished Majority Opinion in *Wyoming v. United States* at 18 (June 1989) (O'Connor, J.).

whether there would be a sufficient market for or economically productive use of the crops that would be grown on the additional acreage.[169] Thus, in Justice O'Connor's view, PIA should not be awarded for additional irrigation that either is not necessary to meet "the realistic needs" of Indians living on their reservation or that would produce only a marginal economic return for the tribe. These limitations, coupled with the "reasonable likelihood" test, would have radically narrowed the federal reserved rights doctrine.

In their draft unpublished dissent, Justices Brennan, Marshall, and Blackmun vehemently opposed the "reasonable likelihood" standard suggested by Justice O'Connor, arguing that standard would penalize the Indians for the lack of federal government investment on their reservations. This dissent stated that "[r]eliance on what the Government chooses to spend on Indian water projects is no way to determine the extent of rights that flow from an 1868 treaty."[170] Brennan pointed out that the three-prong test identified by Special Master Roncalio is identical to that used by the Bureau of Reclamation in planning non-Indian irrigation projects. If anything, he argued, the standard for planning Indian irrigation projects should be broader—not narrower—than the Reclamation standard since the Indians have a limited land base for irrigation projects.[171]

The dissenting opinion also objected to application of the sensitivity doctrine[172] to *Indian* reserved rights. They criticized Justice O'Connor's failure to specify how to determine the "reasonable likelihood" that future irrigation projects will be built, or the time frame for that inquiry. Justice Brennan stated:

> Is "reasonable likelihood" to be determined on the basis of objective economic criteria? Or is it to depend on whether or not the Indians have sufficient political support in Congress to assure a reasonable likelihood that the project will be built? If the latter, the Court's requirement of a "reasonable likelihood" that an irrigation project will be built may well, in this domain of logrolling and the porkbarrel, give the acronym PIA a new meaning: *politically* irrigable acreage.[173]

Justice Brennan angrily continued:

---

169. *Id.*

170. Draft Unpublished Dissenting Opinion in *Wyoming v. United States* at 1 (June 1989) (Brennan, J.) (on file with the author).

171. *Id.* at 4.

172. *See* discussion *supra* part II.D.

173. Draft Unpublished Dissenting Opinion in *Wyoming v. United States* at 5 (June 1989) (Brennan, J.).

> The Court thus cuts loose the quantification of Indian water rights from their moorings in congressional or Executive intent and makes them subject to an equitable weighing of needs. . . . Today's decision . . . strikes at the heart of the *Winters* right itself.[174]

The dissent also accused the majority of confusing the issue of quantification with the issue of the use of the water awarded:

> The Court purports not to decide that question [whether Indian reserved rights may be sold or leased for export off the reservation], but in fact it has assumed the answer all along. If the Tribes were free to export water they did not immediately need for agricultural purposes, then the Court's premise that they had been awarded more water than they could use would be clearly untenable. . . . I do not agree with the Court that the question whether the Tribes will likely be able to use their reserved rights for irrigation any time soon is relevant to the question of how extensive those rights are.[175]

As a final rebuke, Justice Brennan stated:

> [I]f the Court now thinks that our prior assessment of what the Government intended in creating the Indian reservations was wrong, then let it say so frankly and overrule *Arizona* or even *Winters*. If not, then let us stick to them even if it means the Indians get more water than we think they "need."[176]

With O'Connor's recusal, the evenly-divided U.S. Supreme Court affirmed the Wyoming Supreme Court in a memorandum decision.[177] As a result, the "reasonable likelihood" standard failed to become part of PIA determinations.

Of the Justices who were on the bench when these opinions were written, Justice O'Connor, Chief Justice William Rehnquist and Justices Scalia, Stevens, and Kennedy remain. Justice White, who wrote the only draft concurring opinion, is no longer on the bench. Of the three dissenters (Brennan, Marshall, and Blackmun), none remain on the Supreme Court. It remains uncertain how the new Justices will view this issue, though there is a definite possibility that the "reasonable likelihood" standard will resurface in the next big PIA case.

---

174. *Id.* at 10.
175. *Id.* at 20.
176. *Id.* at 23.
177. Wyoming v. United States, 492 U.S. 406 (1989).

B. Recent Arizona PIA Ruling

Currently Arizona has two comprehensive stream adjudications underway to determine rights to the use of water in most of the state.[178] The first had its initial decision in 1988, when the Gila River Adjudication Court adopted the PIA standard for all Indian reservations, relying on *Arizona v. California I*.[179] The court refused to inquire into the purpose of any particular Indian reservation and how much water is necessary to satisfy that purpose, but instead assumed that the purpose of all Indian reservations is agricultural and that the measure of the water right is PIA. That ruling is now on interlocutory appeal to the Arizona Supreme Court.[180] The appeal has not yet been scheduled for briefing, and it may be years before a final decision is rendered by the highest state court. Whatever that decision is, it will undoubtedly be appealed to the U.S. Supreme Court. Because of the huge PIA claims made by Indian tribes in Arizona,[181] the outcome of that appeal is critical, and may have a significant impact on the economic and political future of Arizona.

In the second pending Arizona stream adjudication, the new Gila River Adjudication judge[182] granted the Gila River Indian Community's motion to order the Arizona Department of Water Resources to proceed with the Gila River Indian Reservation hydrographic survey report[183] so that its claimed senior water rights may be adjudicated.[184] In this August 1995 opinion, the court commented on PIA.

Judge Bolton concluded that "the general stream adjudication for the Gila River System and Source will be best served by commencing the

---

178. *In Re* the General Adjudication of All Rights to Use Water in the Gila River System and Source, Nos. W-1, W-2, W-3 and W-4 (consol.)(Maricopa Co. Super. Ct.)(on file with the author); In Re the General Adjudication of All Rights to Use Water in the Little Colorado River System and Source, No. 6417 (Apache Co. Super. Ct.)(on file with the author).

179. *In Re* the General Adjudication of All Rights to Use Water in the Gila River System and Source Nos. W-1, W-2, W-3, and W-4 (consol.)(Maricopa Co. Super. Ct. 1988)(unpublished order, on file with the author).

180. The issue of whether the court correctly adopted the PIA standard is designated as Interlocutory Issue No. 3.

181. *See generally* part II.

182. The Honorable Susan Bolton recently took over the Gila River Adjudication from retiring Judge Stanley Goodfarb.

183. The hydrographic survey report is the report prepared by the Arizona Department of Water Resources to initiate adjudication of a claimant's water rights. See ARIZ. REV. STAT. ANN. § 45-256 (1995).

184. *In Re* the General Adjudication of All Rights to Use Water in the Gila River System and Source, Maricopa County Superior Court Nos. W-1, W-2, W-3 and W-4 (consol.) (Minute Entry Order of August 31, 1995, on file with the author).

determination of the [Gila River Indian Community] rights at this time."[185] Despite the fact that the issue of whether PIA is the exclusive measure of Indian reserved rights is currently on interlocutory appeal to the Arizona Supreme Court, Judge Bolton directed that the best starting point for determination of the Community's rights is a "technical analysis of the possible extent of federal reserved rights based upon practicably irrigable acreage (PIA)."[186] However, she directed that if the Community claims other types of potential water uses which would require the use of standards other than PIA, the Department of Water Resources ("DWR") should examine and report on these uses to make a complete record.[187]

The court directed that in assessing PIA, DWR should review existing proposals for agricultural development, and use existing materials to arrive at an independent technical assessment of PIA on the reservation.[188] Only if DWR determines that this information is insufficient should it supplement existing studies with its own investigations on the reservation.[189]

Judge Bolton instructed DWR that it need not address all factors necessary for a final PIA determination. These factors, she noted, could involve "many specific and controversial technical elements such as irrigation system design, discount rate assumptions, and market returns from crop production."[190] Instead of focusing on these factors, the Judge directed that DWR should concentrate on the "physical factors" involved in PIA, "such as water supply and land arability, "[191] The court specifically ruled that:

> [i]n making this request for an assessment of PIA, the court is not finding that PIA is the exclusive standard for the quantification of the [Community's] rights. The court is merely concluding that PIA is a relevant inquiry in the overall determination of the [Community's] rights, and is an appropriate starting point for the final determination of those rights.[192]

---

185. *Id.* at 1.
186. *Id.*
187. *Id.* at 3.
188. *Id.*
189. *Id.*
190. *Id.*
191. *Id.*
192. *Id.* at 4.

In this way, Judge Bolton avoided any appearance of interference with the interlocutory appeal on the PIA issue currently pending before the Arizona Supreme Court.[193]

In confining DWR to a review of "existing proposals" for agricultural development, and requiring a showing of "the general likelihood" of additional successful agricultural development, Judge Bolton has effectively narrowed the PIA doctrine. Indeed, these limitations are reminiscent of the "reasonable likelihood" test proposed by Justice O'Connor in her draft unpublished majority opinion in *Big Horn*.[194]

IV. Remaining Unresolved PIA Issues

As Judge Bolton acknowledged in her August 31, 1995 Order,[195] many other issues related to feasibility or practicability of Indian agriculture remain to be decided. Some of these are set forth below:

1. What are the standards of arability? Should the PIA standard be applied differently to fertile versus barren reservations? Does PIA include all arable acreage, or must a water supply be physically available to it?
2. What level of irrigation efficiency should be required of Indian agriculture? Should the same standard be applied to Indian and non-Indian agriculture?
3. What discount rate applies in determining economic feasibility? The lower the discount rate, the better an investment in an irrigation system will appear.[196]
4. Should the determination of the amount of PIA be based on today's agricultural technology, or on the technology existing at the time a reservation was established? While the U.S. Supreme Court has not yet considered this issue, the Special Master in the *Big Horn* adjudication did consider it. He decided to base the PIA determination of engineering feasibility on the technology existing at the time of trial.[197] Such a view could lead to a lower water allocation for the Indians, since as irrigation systems have become more sophisticated, they require less water.

---

193. *See supra* note 178 and accompanying text.

194. *See supra* part III.A.

195. *See*, In Re the General Adjudication of All Rights to Use Water in the Gila River System and Source, Maricopa County Superior Court Nos. W-1, W-2, W-3 and W-4 (consol.) (Minute Entry Order of August 31, 1995, on file with the author).

196. Sly, supra note 59, at 99.

197. In Re General Adjudication of All Rights to Use Water in the Big Horn River System, 753 P.2d 76, 102-03 (Wyo. 1988), aff'd mem. by an equally divided Court, 492 U.S. 406 (1989). *See also*, Arizona v. California III, 460 U.S. 605, 625 n.18 (1983); Sly, *supra* note 59, at 102.

5. Should an Indian tribe be required to demonstrate the ability to obtain funding from Congress for a project that meets the court's standards?[198]
6. What guidelines should be used for the required cost-benefit analysis? In *State Ex Rel. Martinez v. Lewis*,[199] the New Mexico Court of Appeals affirmed the trial court's PIA analysis as supported by substantial evidence.[200] The tribe's arguments that the trial court improperly relied on federal guidelines for cost-benefit analysis of irrigation projects and used an improper discount rate were rejected.[201]
7. May Indian reserved rights be sold or leased for export off the reservation? Or does the appurtenancy element of the reserved rights doctrine limit their use to on-reservation purposes?

The answers to these and other questions must be decided by the courts—or legislated by Congress—in order for water users to attain some level of security about their water rights.

In answering all of these questions it is important to remember that the scope of the federal reserved rights doctrine is a question of federal law. All questions regarding the volume and scope of reserved rights "are federal questions which, if preserved, can be reviewed [by the federal courts] after final judgment by the [state] court."[202]

V. CONCLUSION

The foundations of the federal reserved rights doctrine were laid in *Winters v. United States*, *Cappaert v. United States*, and *Arizona v. California I*. *Winters* has come to stand for the broad proposition that the federal government, in establishing federal reservations, impliedly reserved sufficient water to fulfill the purposes of the reservation. *Winters* was an injunctive action in which the Court merely affirmed a decree enjoining the non-Indian upstream diverters from interfering with the Indians' use of a relatively small amount of surface water. Thus, the actual holding of *Winters* was quite narrow.

Cappaert was also an injunctive action. There the Court recognized the hydrological connection between the pool inhabited by the pupfish and the water pumped from the Cappaert's wells and enjoined their pumping only to the extent necessary to ensure a sufficient amount of water for the pupfish to spawn. The Court specifically stated that the water in the pool was surface water, and clearly did not hold that a federal reserved right extends to groundwater. *Cappaert* simply enforced a federal reserved

198. *See supra* note 167 and accompanying text.
199. 861 P.2d 235 (N.M. Ct. App. 1993), *cert. denied*, 858 P.2d 85 (N.M. 1993).
200. 861 P.2d at 248.
201. *Id.* at 248-50.
202. United States v. Oregon, 44 F.3d 758, 768 (9th Cir. 1994).

right to the minimum amount of water necessary to fulfill the essential purpose of the reservation.

Arizona v. California I—the only case in which the U.S. Supreme Court has quantified Indian reserved water rights—affirmed the Special Master's PIA standard of quantification. Only a single paragraph in the 52-page opinion was devoted to the measure of Indian reserved water rights. The PIA standard was analyzed only by a Special Master, who did not explain how such acreage was to be determined. The Supreme Court simply upheld the Master's findings on the amount of PIA as reasonable. Since its 1964 decision, the Supreme Court has not addressed the PIA standard in an opinion.

Throughout the West, Indian tribes rely on these cases to support their substantial claims to both surface water and groundwater based on PIA. But these are "thin reeds" indeed on which to base such claims. If these claims succeed, the result will be a massive reallocation of water from non-Indian to Indian uses and the wholesale destruction of western states' economies. At the root of the conflict is the federal governmen-t's conflicting promises to the homesteaders and the Indians. At the same time that the federal government promised the Indians a permanent homeland in exchange for cession of their vast aboriginal territories, it promised the homesteaders that if they settled the West and invested in water development, they could acquire vested water rights under state water law systems promising to defer to those state law systems. Through *Winters*, these conflicting promises were resolved in favor of the Indians. In 1908, with plenty of water still remaining unappropriated, it didn't matter very much. Even in 1963, when *Arizona v. California I* was decided, there was still enough water to go around. Today, however, when most western river systems are fully appropriated or overappropriated, it matters a great deal. In the next important federal reserved rights case to reach the Supreme Court, these conflicting federal promises may well be resolved in favor of non-Indians.

An extensive jurisprudential basis exists for halting further expansion of the federal reserved rights doctrine. Indeed, recent U.S. Supreme Court decisions have restricted the doctrine. The Supreme Court appears to be defining the reserved rights doctrine in a manner which is compatible with state law. Further expansion of the doctrine goes against this recent trend of deference to state law and narrow implication of reserved rights.

In actuality, there are several limitations or potential limitations on the scope of the reserved rights doctrine. First, under the primary purpose test, reserved rights may be awarded to satisfy only the primary purpose of a reservation. Water for secondary purposes must be acquired under state law, not under the federal reserved rights doctrine. The

documents creating each reservation must be scrutinized to determine its primary purpose. It is quite probable that many Indian reservations were created for primary purposes other than agriculture. In such cases, the PIA standard should have no application.

The primary purpose test also limits the amount of a reserved right to that amount of water reasonably necessary to fulfill the primary purpose of the reservation —that amount without which the purpose of the reservation would be entirely defeated.

Second, federal reserved rights only extend to previously unappropriated water. Thus, no valid claim can be made under the reserved rights doctrine to water which had already been appropriated by someone else at the time the federal reservation was established. Furthermore, the classic statement of the doctrine limits the reserved right to water appurtenant to the federal reservation.

Third, recent cases have held that the reserved rights doctrine does not extend to groundwater. There is no need to award a groundwater right to a tribe that has access to sufficient surface water sources. Groundwater pumping that interferes with a federal reserved surface water right can be enjoined under the principles of *Cappaert*.

Fourth, the sensitivity doctrine requires that a federal reserved right be quantified with sensitivity to its impact upon those who have obtained water rights under state law and to Congress' general policy of deference to state water law. This judicial gloss on the reserved rights doctrine recognizes that in cases where a river is fully appropriated, an award of federal reserved rights will require a gallon-for-gallon reduction in the amount of water available for state and private appropriators.

Fifth, principles of finality, *stare decisis*, collateral estoppel and *res judicata* may prevent the reopening of prior reserved rights decrees and the relitigation of prior reserved rights controversies. Because water rights are property rights, such prior decrees have generated significant expectations, reliance and investment on the part of non-Indian water users. This limitation may become important in states where federal reserved rights have already been decreed.

Sixth, the historic federal policy of deference to state laws governing water and property rights may require that reserved rights be limited by the attributes or conditions placed on state water rights. Such attributes or conditions include the requirement of beneficial use, penalties for forfeiture and abandonment, the appurtenancy doctrine, and other elements of the prior appropriation doctrine.

Seventh, the Endangered Species Act may limit a reserved water right. To the extent that a threatened or endangered species may require water to which an Indian or non-Indian federal reservation is entitled, the federal reservation may be prohibited from using that water.

Eighth, the just compensation clauses of the federal and state constitutions may require compensation for holders of state water rights injured by the exercise of Indian reserved rights. Because non-Indian water users face divestment of their water rights as a result of the federal reserved rights doctrine, it seems only fair that they should receive just compensation for their displaced property rights.

Finally, Justice O'Connor's draft of the unpublished majority opinion in the *Big Horn* case would have radically limited the federal reserved rights doctrine. She would have required Indian tribes to prove a "reasonable likelihood" that future Indian irrigation projects will actually be built, as a condition for an award of PIA for lands that have never been irrigated. In addition, she would have refused a PIA award for additional irrigation which either is not necessary to meet the realistic needs of Indians living on their reservation or which would produce only a marginal economic return for the tribe. At least one state court has followed Justice O'Connor's lead. The trial court in Arizona's Gila River Adjudication has confined the PIA analysis to a review of existing proposals for agricultural development, and has required a showing of "the general likelihood" of additional successful agricultural development.

Four of the Justices who would have joined Justice O'Connor's draft opinion (Chief Justice Rehnquist and Justices Scalia, Stevens and Kennedy) remain on the Supreme Court bench, while the three dissenters (Justices Brennan, Marshall, and Blackmun) are no longer on the bench. While it is uncertain how the new Justices will view this issue, there is a definite possibility that the "reasonable likelihood" standard will become the law in the next big PIA case. O'Connor's draft opinion may well be a portent of the future of the federal reserved rights doctrine.