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*88 ARIZONA v. CALIFORNIA: ITS MEANING AND SIGNIFICANCE FOR THE COLORADO RIVER AND BEYOND AFTER FIFTY YEARS

This Article recounts the background leading Arizona to seek determination of its rights to use the water of the Colorado River in the U.S. Supreme Court, the arguments of Arizona and California, the Special Master's Report, and the Court's decision in 1963. It turns to a consideration of the decision's significance fifty years later. First it considers key developments in the basin since 1963 that are consequences of the decision. It argues that, by disregarding the allocation structure put in place by the 1922 Colorado River Compact and by focusing solely on the main Colorado River, the decision resulted in unsustainable overuse of an increasingly constrained water supply in the Lower Basin.

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***91 INTRODUCTION**

The legal battles between Arizona and California in the U.S. Supreme Court represent one of the great contests over use of water in U.S. history. Beginning with the initial U.S. Supreme Court decision in 1931,[1] rejoined in 1963,[2] and continuing with its most recent decision in 2006,[3] the disputes between these states (and others) over use of the Colorado River now rival and perhaps exceed that of Charles Dickens's *Jarndyce v. Jarndyce*.[4] This Article concerns what is widely regarded as the most famous of these decisions, the one handed down by the U.S. Supreme Court in 1963.[5]

The occasion for the retelling of this story is the arrival of the 50th anniversary of the Court's decision on June 3, 2013. To mark this occasion we organized a symposium, held at the Getches-Wilkinson Center, University of Colorado, Boulder, to bring together leading experts on the Law of the Colorado River, western water law, tribal water law, and federal water law. These experts have written papers addressing a range of issues raised by the Court's 1963 decision and by its implications for a basin now facing unprecedented challenges.[6] While we look back half a century to the Court's decision, we are focused on today and the future--what has this landmark decision meant for the growing gap between reliable basin water supplies and basin water demands and uses? What has it meant for effective governance of basin water uses, both within the U.S. and including Mexico? What has it meant for tribal water uses and for tribal benefits from rights to water? What does it mean for our understanding of the foundation of the Law of the River--the Colorado River Compact (Compact) itself?

This introductory paper presents a review of the decision, the issues that prompted Arizona to file this original action with the U.S. Supreme Court in 1952, the parties' arguments, the report of Special Master Rifkind, and the Court's decision and implementing decree. It also provides a brief review of subsequent events that trace directly to the decision.[7] It highlights ways in which the decision enabled increased depletions in the Lower ***92** Basin that now seem unsustainable. My purpose here is to set the stage for the papers that follow, to provide a summary of the holdings, to remind us of the reasons for the Court's decision, and to introduce the issues that the other papers will more fully explore.

At the time of its issuance, the decision mostly prompted commentary about the apparent enlargement of federal authority related to federal water development and use. It held that Congress in the Boulder Canyon Project Act had allocated among the riparian states the water of the Colorado River main stream in the Lower Basin. It also held that the Secretary of the Interior had the power to determine water uses within states through issuance of contracts for water from Lake Mead. It concluded that the Secretary was to act as the "watermaster" for the River in the Lower Basin. It determined that substantial tribal reserved water rights existed, the uses of which were attributable to state allocations of Basin water; and that federal land reservations may hold implied reserved rights just as with lands reserved for tribes.[8]

The fear of federal usurpation of state authority respecting water use has largely receded but, in its place has developed

awareness that the decision encouraged water use in the Lower Basin in a manner that now appears unsustainable.[9] The decision paved the way for construction of the Central Arizona Project. Buttressed by the greatly increased storage made available by the construction of Glen Canyon Dam, the decision focused attention almost entirely on the main stream of the Colorado River. Growing consumption of water from the tributaries went essentially unnoticed. The decision allocated 7.5 million acre-feet of consumptive use to Arizona, California, and Nevada from the main stream without reference to the Compact, without consideration of tributary uses, and without including their shares of reservoir evaporation and river losses necessary to enjoy those uses. It awarded rights to tribes to divert more than 900,000 acre-feet per year. From today's perspective these aspects of the decision appear far more important than issues of federalism.

***93** The paper begins with a brief summary of the factors motivating Arizona to file the action in 1952.

I. FACTORS MOTIVATING THE LITIGATION

Arizona decided to initiate this litigation primarily because its efforts to get Congress to authorize the Central Arizona Project (CAP), which would bring water from the main Colorado River to the central region of the state, had hit a dead end.[10] Congress in 1951 had decided to suspend further consideration of such legislation until rights to the use of the Lower Basin's apportionment under the Compact had been determined.[11] In 1944, Arizona had at last signed the Compact and was moving aggressively to get CAP authorization to bring water from the main Colorado River to the rapidly growing and water-short central part of the State. With Congressional action at an impasse, Arizona needed to get the U.S. Supreme Court to declare that it had legal rights to enough Lower Basin water that a CAP would be feasible.

Under the Compact, the five Lower Division states of Arizona, California, New Mexico, Nevada, and Utah had been given the ability to consumptively use up to 8.5 million acre-feet (maf) per annum of water from the Colorado River system (main stream plus tributaries).[12] The Secretary of the Interior had issued contracts to users in California totaling 5.362 maf of water annually,[13] although California had agreed to limit its annual consumption to 4.4 maf plus one half of any surplus to get ratification of the Compact and approval of the Boulder Canyon Project Act.[14] The Secretary also issued a contract to Nevada for use of 300,000 acre-feet (af) from Lake Mead and the Colorado River system ***94** within the State.[15] And once Arizona had ratified the Compact, the Secretary awarded it a contract for the delivery of water from Mead sufficient to enable annual consumptive uses of 2.8 maf.[16] The only way Arizona could use this much water from the Colorado River was with a CAP.

Also in 1944, the U.S. entered into a treaty with Mexico that included a commitment to deliver 1.5 maf annually from the Colorado River as it entered the international boundary.[17] And, following the completion of World War II, the Bureau of Reclamation and the Upper Division states began developing plans for substantial development of Upper Basin water.[18] Arizona leaders were increasingly concerned about these growing uses of the Colorado River and how they might affect the water supply available for the CAP. But of greatest concern was the rapidly declining groundwater table in the Phoenix area, reflecting the enormous growth in the use of groundwater for irrigation and other uses.[19]

***95** Still Arizona had some concerns about filing an original action in the U.S. Supreme Court. The Court had developed a legal doctrine known as equitable apportionment to address disputes between states respecting uses of shared rivers.[20] In previous cases, the Court had expressed reluctance to hear such actions unless they presented a clear controversy concerning identified legal rights that had been injured.[21] What precisely were Arizona's legal rights in this matter? How had California injured those rights when there was still water available for use out of Lake Mead and the lower Colorado River? Nevertheless, Arizona decided to move ahead and filed its action on August 13, 1952.[22]

II. THE ARGUMENTS

A. Arizona

Arizona initially framed its case as a quiet title action, suggesting that it already had rights to consumptively use 3.8 maf annually from the Colorado River System (2.8 maf under Article III(a) of the 1922 Compact and 1.0 maf under Article III(b)).[23] It based its claims to 2.8 maf on the fact that California had agreed to limit its consumptive uses of Article III(a) water to 4.4 maf plus half the surplus and Nevada had accepted a contract for 300,000 af as its share, thus leaving 2.8 maf for Arizona.[24] Arizona also pointed to the allocation proposed in Article 4(a) of the Boulder Canyon Project Act authorizing a

three-state compact, stating that it now accepted this allocation as "fair and equitable."[25] Arizona sought to exclude consideration of its uses of Gila basin water, arguing these uses constituted ""salvage" and that beneficial consumptive use under the Compact referred to ***96** uses from the main stream.[26] To meet the injury requirement, Arizona argued that California had constructed facilities capable of diverting as much as eight maf which, if used, would deprive Arizona of water to which it was legally entitled.[27]

In 1957, following some changes in representation and in conjunction with the ongoing trial before the Special Master, Arizona submitted an "Amended and Supplemental Statement of Position."[28] In subsequent pleadings, Arizona now argued that the Compact apportioned only water of the main Colorado River at Lees Ferry.[29] It asserted a right established by Congress in the BCPA to consume 2.8 maf from the main stream.[30] It also ***97** asserted that California had limited itself to no more than 4.4 maf of the Compact's III(a) water and one half of any surplus, thus excluding itself from any III(b) water which, Arizona said, had been permanently apportioned under the Compact to the Lower Basin.[31]

B. California

California, taking its cue from previous Supreme Court equitable apportionment cases involving western rivers,[32] positioned itself as the senior appropriator of water from the Colorado River, with contracts authorizing use of 5.362 maf supported by state water rights and existing uses already exceeding 4.4 maf.[33] It emphasized the existing reliance of more than four million people, in the state, on Colorado River water and the rapidly growing population along the South Coast that would require even more water.[34] It suggested Arizona could not benefit from the 4.4 maf limitation because California had made this commitment to other states to get Compact ratification in the absence of Arizona.[35]

***98** California also asserted that uses of water from the Gila Basin in Arizona were included under the Compact and needed to be considered in this apportionment decision.[36] California argued Article III(b) water had not been permanently allocated to the Lower Basin (much less to Arizona), that it should be treated as surplus water, and that California should have the right to consume half of this surplus water under the BCPA.[37] As the case progressed, California focused increasingly on the water supply available for use in the Lower Basin. It noted that this supply was reliably only 7.5 maf from the Upper Basin plus whatever flows entered the main stream from Lower Basin tributaries less reservoir evaporation and river losses, equaling about 5.8 maf per year and that this amount was inadequate to meet existing uses (said to be 5.1 maf) and still provide at least 1.2 maf for the CAP.[38]

C. United States

The United States filed a motion to intervene in December 1953.[39] In addition to voluntarily submitting itself to the Court's jurisdiction, the U.S. emphasized the importance of the controversy and the need for its resolution.[40] It noted that the total of the claims to ***99** water by the parties "far exceeds the quantity of water apportioned to the Lower Basin."[41] The U.S. wanted to protect its various rights and interests in the Lower Basin, including those of the Indian tribes and its own interest in the construction of the CAP.[42]

As the case progressed, the U.S. broadened its positions to not only uphold the authority of the U.S. to manage uses of the water in Lake Mead but to support the view that Congress in the BCPA had put in place a system that allocated uses of the mainstream to the three riparian states,[43] that it had given the Secretary authority to control uses of water from Lake Mead through his contracting authority,[44] and that the contracts were valid.[45] It further argued that because Congress was concerned only with the main stream there was no need to consider the Compact and its apportionment of uses under Articles III(a) and (b).[46] In its 1959 recommended findings and supporting brief, the U.S. spelled out in detail all the various federal claims to water.[47] In particular, the U.S. asserted the rights of 25 Indian tribes ***100** living on reservations in the Lower Basin to the use of basin water under *Winters v. United States*.[48] Quantification of those rights should be based on future needs and not present uses, the U.S. argued.[49]

III. THE SPECIAL MASTER'S REPORT[50]

Part I of the Special Master Rifkind's Report, issued in December 1960, provides a comprehensive background discussion, including an overview of the Basin geography, water development, water users and uses, and tribal and federal reservations.[51]

Part II lays out his legal analysis.

A. Justiciability

The Master began his legal analysis with a discussion of justiciability-- whether the case involves "a threatened invasion of rights" "of serious magnitude" that has been demonstrated by "clear and convincing evidence."[52] The Master found such a threatened invasion of rights in the inability of Arizona to get Congress to fund the CAP without resolution of the water rights issue.[53] More pragmatically, the Master noted the need to resolve these issues so that federal water development in the Lower Basin could proceed.[54]

***101** *B. The Boulder Canyon Project Act (BCPA)*

The key to the Master's decision was his determination that Congress had already made an allocation of 7.5 maf of main stream water in the BCPA.[55] The Master found this result in Section 1 of the Act authorizing the Secretary to construct Hoover Dam for the purpose of storing and delivering water, Section 5 authorizing the Secretary to contract for the storage and delivery of water and stipulating that no person can use stored water except by contract, and Section 8(b) subjecting dam operations to the compact authorized among Arizona, California, and Nevada for division of Lower Basin water and subjecting any uses under the Compact to the Secretary's contracting authority.[56] Because Congress had already apportioned the water, "principles such as equitable apportionment or priority of appropriation which might otherwise have controlled the interstate division of the River in its natural flow condition were rendered inapplicable ..."[57]

In the Master's view, Congress had placed the U.S. in charge of the Colorado River water supply when it reached Lake Mead and, except for present perfected rights,[58] the Secretary had authority to contract with any party within Arizona, California, and Nevada for that water's use.[59] The Master had no problem finding that Congress had the constitutional power under the Commerce Clause to control and determine the use of the water of a "navigable" interstate stream and thus to make the allocation he found in the BCPA.[60]

C. The California Limitation

That left the question whether Congress in the BCPA had specifically allocated among the three main stream states consumptive use of Lower Basin water. The Master began by considering the Act's requirement that California agree to limit its consumptive use of Article III(a) water to 4.4 maf per year, plus not more than one half of any surplus or excess water unapportioned by the Compact.[61] As he noted, the Upper Division States had ***102** inserted this provision to be sure there was a limit on California's uses if future Arizona uses were not controlled under the Compact.[62] The Master faced a problem, however, in determining which waters the limitation applied to. The BCPA stated the limitation applied to Article III(a) water, meaning the consumptive use of 7.5 maf of Colorado River system water, not just the main stream.[63] The Master rejected the plain meaning of the statute in favor of an interpretation that Congress was concerned only with the main stream and simply used the term "III(a) water" as a shorthand for consumptive use of 7.5 maf per year.[64] Thus the Master concluded California was limited to consumptive use of 4.4 maf of the "first" 7.5 maf of consumptive use of mainstream water by users in Arizona, California, and Nevada, measured at the point of diversion as diversions less returns to the river.[65] The Master went on to define excess or surplus under the BCPA as water in the main Colorado River in the Lower Basin beyond that amount necessary to enable consumptive use of 7.5 maf.[66] Perhaps the most important consequence of this interpretation was its deviation from the Compact's accounting scheme under which consumptive use of system water is governed, arguably including not only that occurring in tributaries but also resulting from evaporation and river losses.[67]

***103** *D. Secretarial Contracts*

Next the Master turned to the contracts with Arizona, California, and Nevada. The California contracts are with the entities supplying water for beneficial use.[68] These entities negotiated an agreement establishing claims to water that served as the basis for the Secretarial contracts.[69] Total deliveries under the contracts were 5.362 maf, with certain contracts to take water under California's basic 4.4 maf apportionment and other contracts to receive water when available beyond this basic apportionment.[70] The 1944 contract with Arizona states that, subject to availability under the Compact and the BCPA, the

Secretary will deliver water to users in Arizona from Lake Mead sufficient to enable consumptive use of 2.8 maf.[71] The Master found the contract valid as a commitment by the U.S. to make releases of water in the necessary amounts even though these releases were not made to actual users of water.[72] The Nevada contract, first agreed to in 1942 and then amended in 1944, provides for delivery of a total of 300,000 af.[73] Also, it includes all water diverted from the Colorado River system anywhere in the state, not just water diverted from Lake Mead.[74]

***104** Noting the Secretary also had established contracts with federal reclamation project users for delivery of water from the main Colorado River, the Master determined the Secretary has authority under the BCPA to contract with parties other than states.[75] While the contract with Arizona commits to make available a certain amount of water, it does not limit to whom that water can go.[76] Although the Secretary has discretion to contract, the Master concluded, the contractee must also qualify also under state law.[77] All contracted uses must be accounted for within the allocations made under the contracts, according to the Master.[78]

E. Tributaries

Because the Master relied on the BCPA which he interpreted applied only to use of main stream water from Lake Mead and below, he left the Lower Basin tributaries for use by the state through which they flowed.[79] Thus he concluded unequivocally that Arizona was free to use the water of the Gila basin in addition to consuming 2.8 maf of main stream water under her contract.[80] He struck down Arizona and Nevada contract provisions that ***105** would have reduced their use of main stream water by the amount of water they consumed from tributaries or the main stream above Lake Mead.[81] While the Master recognized the contributions to mainstream water provided by Lower Basin tributaries and expressed the view their use was subject to equitable apportionment, he concluded the matter was not yet ripe for determination.[82]

F. Shortages

The Master determined that uses of water provided under the contracts were intended to be treated equally, a determination that led him to conclude that shortages should be shared in proportion to the states' respective share of the 7.5 maf apportionment.[83] Thus shortages would be apportioned to Arizona based on the ratio of 2.8/7.5, to California by the ratio of 4.4/7.5, and to Nevada by the ratio of 0.3/7.5.[84] Under the BCPA, the use of surplus water was to be shared equally between Arizona and California.[85]

***106** *G. The Allocation Scheme*

The Master provided this summary of how water would be allocated under his recommendations:

> The Secretary, in his discretion, decides how much water to be released from mainstream reservoirs in any particular period. The amount available for consumption in the United States in any one year will be the amount so released less the amount necessary to satisfy higher priorities. The contracts do not limit the Secretary's discretion; they operate only upon mainstream water which is available for consumption in the United States. They require that this water be apportioned as follows: of the first 7.5 million acre-feet of consumptive use in one year, 4.4 for use in California, 2.8 in Arizona and .3 in Nevada; of the remaining consumptive uses during that year, 50% for use in California and 50% in Arizona, subject to the possibility that Arizona's share may be reduced to 46% if the Secretary contracts to allocate 4% of the surplus for use in Nevada.[86]

H. Federal Claims

The Master turned next to what he characterized as the federal claims to main stream water. Foremost were those for Indian reservations.[87] Applying the rationale of the *Winters*[88] case to the five main stream Indian reservations, the Master found an implied intent to reserve unappropriated water from the Colorado River to supply the agricultural activities expected to provide the basis of an economy upon which tribal members could live.[89] Importantly, he concluded the amount of water reserved was for "reasonable future needs"[90] which he interpreted as "enough water ... to satisfy the future expanding agricultural and related water needs of each Indian Reservation."[91] He explained: "I have concluded that the United States

effectuated the intention to provide for the future needs of ***107** the Indians by reserving sufficient water to irrigate all of the practicably irrigable lands in a Reservation and to supply related stock and domestic uses."[92] He decided to quantify these reservations as diversion amounts, first finding the number of irrigable acres on each reservation and then applying a duty of water per-acre. The result was a total diversion right of 905,496 af.[93]

The Master looked next at other federal land reservations along the main Colorado River.[94] He first decided these reservations also could have an implied right to water from the Colorado River, based on the same rationale as for Indian reservations.[95] In the case of a national recreation area and two wildlife refuges he found that the purposes of the reservation required the use of water.[96]

As he did with water uses for federal reclamation projects, the Master included water uses for tribal and federal land reservations in the allocations of water for the state in which they are located.[97]

I. Use of the Gila in New Mexico

Applying the doctrine of equitable apportionment to the dispute between New Mexico and Arizona respecting uses of water from the Gila Basin in New Mexico, the Master determined that present uses in New Mexico should continue even if junior to rights in Arizona so as not to disrupt existing economies.[98] In addition, the Master accepted the settlement negotiated between the two states respecting certain uses of groundwater.[99] He disallowed New Mexico claims to future uses of water because the supply was already over appropriated.[100] He decided not to award any additional water to meet various federal claims but determined there was an implied reservation of water for the Gila National Forest.[101]

***108** *J. Recommended Decree*

Part Three of the Master's Report sets out his proposed decree. The Decree as it was finally adopted by the U.S. Supreme Court will be discussed *infra*.[102]

IV. THE FRANKFURTER MEMO

While the parties filed numerous exceptions to the Master's Report with the U.S. Supreme Court in the fall of 1961, the Court did not render its decision until 1963.[103] Recent research has revealed how critical changes in the Court's composition during this period resulted in a decision different than it likely would have otherwise been.[104] Following the first round of briefing and argument, Justice Frankfurter prepared a comprehensive memorandum for circulation to other members of the Court that might well have become the basis of the Court's majority opinion had he not become ill and been forced to resign from the Court. This section examines the Frankfurter memorandum and the very different approach it would have taken to the dispute.

A. Section 4(a) of the BCPA

A U.S. Supreme Court decision in *Arizona v. California* written by Justice Frankfurter would have largely contented itself with resolving the debate respecting the meaning of Section 4(a) of the BCPA and left the matter of allocation of unused Lower Basin water for another day. In Justice Frankfurter's view, Congress in the BCPA had not allocated Lower Basin water, but it had required California to limit its consumptive uses of that apportionment to no more than 4.4 maf plus half of the surplus. The matter that required resolution was: to which water did this limitation apply?

Justice Frankfurter concluded Congress had not intended to include the waters of the Gila basin in the limitation.[105] That is, Arizona's consumptive uses in the Gila Basin should not be counted against its main stream use of the basic 7.5 maf apportionment in considering the California limitation. The limitation applied to main stream water and served ***109** to protect Arizona's and Nevada's ability to use the remainder of the main stream water while also protecting future uses in the Upper Basin.[106]

In addition, Justice Frankfurter would have accepted the Master's view that surplus water refers to consumptive uses from the

main stream in the U.S. beyond 7.5 maf.[107] But he would have rejected the Master's conclusion that the Secretary apportioned water through his contracts. Rather he would have understood the Secretary's actions as making water available to users in accordance with state appropriations.[108] He saw the contracting authority both as a mechanism for ensuring some payment to the U.S. for the use of stored water and as a limitation on further uses by Arizona. Under this same logic, Justice Frankfurter would have resolved the question of allocating shortages following the priority system.[109]

B. Equitable Apportionment

Justice Frankfurter agreed that the aggregate of the claims exceeded the apportioned supply of water to the Lower Basin.[110] Nevertheless, he believed that his treatment of Section 4(a) of the BCPA would resolve many of the outstanding issues by making clear California could only consume 4.4 maf from the mainstream. He expressed reluctance to have the Court set aside certain amounts of water for future consumption, preferring instead to limit the Court's role to resolving actual disputes over existing uses.[111]

C. Use of Tributary Water

Justice Frankfurter concluded that, despite Congress' apparent intention to leave out the tributaries, senior main stream users should retain the right to call out junior tributary users if the main stream supply becomes inadequate.[112] In his view, tributary waters had not been reserved to the states in which they flow. Rather than leave that matter for a ***110** future equitable apportionment action, as suggested by the Master, Justice Frankfurter proposed a limitation on future tributary uses.[113]

As to competing uses of the tributaries between states, Justice Frankfurter agreed with the Master there was no present need to adjudicate disputes except on the Gila.

D. Federal Claims

Justice Frankfurter would have upheld the Master's finding that water had been reserved at the time Indian reservations were established, that the purpose of the reservations was to provide a secure area of land in which the tribes could support themselves by agricultural activities, and that because irrigation is necessary for agriculture the water necessary to support agriculture was set aside.[114] He was more ambivalent, however, about the use of practicably irrigable acreage as the measure of the amount of water reserved.[115] Initially he seemed to agree with Arizona that the result would be unfair to non-Indians because it would reserve considerably more water than appeared likely to actually be used for irrigation on reservation lands.[116] But after considering alternatives he seemed to end up willing to support the Master's approach.[117] Justice Frankfurter also agreed that other federal reservations can have implied rights to water just as with Indian reservations.[118]

E. How This Approach Would Have Affected Subsequent Events

Justice Frankfurter was proposing a much more circumscribed decision than the Special Master. He would not have held that Congress had apportioned the water of the main stream, only that it had limited California to consumptive use of no more than 4.4 maf from the main stream, leaving the remainder available under the Compact to Arizona and Nevada. Consequently it seems likely Arizona could have returned to Congress with sufficient clarity respecting its rights to justify authorization of the CAP. Frankfurter would have based actual uses on state appropriations, rather than federal authority, thus avoiding the controversy over which level of government controls individual uses of the main Colorado River. He would have made clear that uses of the tributaries are included within ***111** the consumptive uses apportioned to the Lower Basin in the Compact and might have placed a cap on such uses. In all other respects he would have followed the recommendations of the Special Master. Frankfurter's view was a more judicially restrained approach that in the end might not have produced substantially different results except perhaps in limiting increased uses in the tributaries. The Court's ultimate decision chose instead to follow the Master's lead.

V. THE SUPREME COURT'S DECISION

Turnover among the Justices resulted in the case being argued twice before the Court and delayed the decision for an extra year. The Court handed down its historic decision on June 3, 1963.

A. Congressional A location of the Mainstream

Justice Black, writing for the majority, found that Congress in the BCPA had itself allocated the use of the water of the Colorado main stream.[119] While the states failed to agree to the three-state compact authorized in the BCPA, the allocation had nevertheless been effected by the Secretary through his contracts.[120] The result was that, of the first 7.5 maf of consumptive use from the main stream, Arizona was entitled to 2.8, California to 4.4, and Nevada to 0.3 maf; in addition, California and Arizona shared equally in the use of any surplus water available in the main stream.[121] The four states with tributaries--Arizona, New Mexico, Nevada, and Utah--have use of their water separate from Congress's allocation of the mainstream.[122] The Congressional allocation, the Court decided, eliminated the need for consideration of equitable apportionment.[123] The Compact is only relevant to the degree its terms are directly referenced in the BCPA.[124]

***112** The Court determined the Secretary's authority to make water available through contracts was not limited by state water law.[125] It concluded:

> Significantly, no phrase or provision indicating that the Secretary's contract power was to be controlled by the law of prior appropriation was substituted either then or at any other time before passage of the Act, and we are persuaded that had Congress intended so to fetter the Secretary's discretion, it would have done so in clear and unequivocal terms ...[126]

The Court's expansive view of national authority to manage Hoover Dam and the Lower Colorado River is reflected in this extended passage:

> In undertaking this ambitious and expensive project for the welfare of the people of the Lower Basin States and of the Nation, the United States assumed the responsibility for the construction, operation, and supervision of Boulder Dam and a great complex of other dams and works. Behind the dam were stored virtually all the waters of the main river, thus impounding not only the natural flow but also the great quantities of water previously allowed to run waste or to wreak destruction. The impounding of these waters, along with their regulated and systematic release to those with contracts, has promoted the spectacular development of the Lower Basin. Today, the United States operates a whole network of useful projects up and down the river, including the Hoover Dam, Davis Dam, Parker Dam, Headgate Rock Dam, Palo Verde Dam, Imperial Dam, Laguna Dam, Morelos Dam, and the All-American Canal System, and many lesser works. It was only natural that the United States, which was to make the benefits available and which had accepted the responsibility for the project's operation, would want to make certain that the waters were effectively used. All this vast, interlocking machinery--a dozen major works delivering water according to congressionally fixed priorities for home, agricultural, and industrial uses to people spread over thousands of square miles--could function efficiently only under unitary management, able to formulate and supervise a coordinated plan that could take account of the diverse, often conflicting interests of the people and communities of the Lower Basin States. Recognizing this, Congress put the Secretary of the Interior in charge of these works and entrusted him with sufficient power, principally the § 5 contract power, to direct, manage, and coordinate their operation. Subjecting the Secretary to the varying, possibly inconsistent, commands of the different state legislatures could frustrate efficient operation of the project and thwart full realization of the benefits Congress intended this national project to bestow. We are satisfied that the Secretary's power must be construed to permit ***113** him, within the boundaries set down in the Act, to allocate and distribute the waters of the mainstream of the Colorado River.[127]

B. The Secretarial Contracts

The Court turned next to a consideration of disputed provisions in the contracts, beginning with the limitation on diversions between Lees Ferry and Lake Mead. The Court upheld these provisions, stating: "The Lower Basin, with which Congress was dealing, begins at Lees Ferry, and it was all the water in the mainstream below Lees Ferry that Congress intended to divide among the States."[128] The Secretary must be able to take into account any uses of the mainstream above Lake Mead,

the Court stated, to effectuate Congress's plan.

C. Shortages

The Court rejected the Master's proposal for pro rata sharing of shortages.[129] In line with its expansive view of the Secretary's authority it decided the Secretary should be "free to choose among the recognized methods of apportionment or to devise reasonable methods of his own."[130] The Court also upheld the resolution reached by the Master that included a settlement by the parties concerning New Mexico's use of the Gila.[131]

D. Claims of the United States

Here too the Court followed entirely the Master's recommendations, including his proposed decree provisions. The Court only discussed the claims for Indian reservations. It noted and dismissed Arizona's arguments that "the United States had no power to make a reservation of navigable waters after Arizona became a State; that navigable waters could not be reserved by Executive Orders; that the United States did not intend to reserve water for the Indian reservations; that the amount of water reserved should be measured by the reasonably foreseeable needs of the Indians living on the reservation rather than by the number of irrigable acres; and finally, that the judicial doctrine of equitable apportionment should be used to divide the water between the Indians and the other people in the State of ***114** Arizona."[132] In support of its view that the U.S. had intended to reserve water the Court reasoned:

> 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.[133]

In upholding the Master's method for quantification the Court stated: "We have concluded, as did the Master, that the only feasible and fair way by which reserved water for the reservations can be measured is irrigable acreage."[134] The Court also accepted the Master's recommendation that all consumptive uses, including those under federal right, be included as part of the states' allocations.[135]

E. Decree

The Court authorized the parties to develop a decree for the Court's consideration.[136]

VI. THE 1964 DECREE[137]

The first section contains a list of eleven definitions of terms used in the Decree.[138] The second section is framed as an injunction prohibiting the U.S. from releasing water except in conformance with the Decree. Importantly it limits deliveries to Arizona, California, and Nevada based on the amount of mainstream water determined by the Secretary to be available for release from Lake Mead: if sufficient to satisfy consumptive uses of 7.5 maf in the year, then enough to enable consumptive use of 2.8 maf in Arizona, 4.4 maf in California, and 0.3 maf in Nevada; if sufficient to enable additional consumptive use, ***115** then 50 percent of the surplus to California and 50 percent to Arizona (unless the U.S. contracts for 4 percent with Nevada, then 46 percent to Arizona); if insufficient to enable 7.5 maf of consumptive use then, "after providing for satisfaction of present perfected rights in the order of their priority dates without regard to state lines ...," as consistent with the BCPA (i.e., no more than 4.4 maf for California).[139] Unused apportionment in any year from one state may be used in another state.[140] Releases for federal reservations are specified.[141] Section III of the Decree enjoins the states of Arizona, California, and Nevada and the California contractees from interfering with Federal management of main stream Colorado River water in the Lower Basin. Section IV regulates uses of Gila Basin water in New Mexico. Section V places specific record-keeping responsibilities on the U.S. Section VI establishes a process for determining all present perfected rights using water from the main stream Colorado. Section VII imposes some information-gathering responsibilities on New Mexico.

Section VIII identifies some things not affected by the Decree that include the Compact.[142] Section IX provides for retained jurisdiction. With this summary of the Decree's provisions, we turn next to a consideration of the real effect of this landmark decision.

VII. WHAT THE CASE DECIDED

Important as this decision was, it is necessary to recognize its limits. At issue was Arizona's ability to claim enough main stream water to justify construction of the Central Arizona Project. In response, the U.S. Supreme Court decided that Congress had already allocated to Arizona consumptive use of 2.8 maf of the first 7.5 maf of annual consumption from the main stream of the Lower Colorado River. The decision turns almost entirely on the Court's rather strained interpretation of the BCPA, its conclusion that the BCPA did more than place a limit on California that it in fact awarded Arizona the right to consume 2.8 maf of main stream water, and its conclusion that the surplus water to be shared by Arizona and California under the BCPA referred not to water unallocated under the Compact but to water available in the Colorado River main stream beyond that necessary to provide for consumptive uses of 7.5 maf. While the Court rejected California's argument that Arizona's rights had to take into account its uses in the Gila Basin, it would be overbroad to say the Court awarded use of the tributaries to Arizona and the other states with tributaries. It is more accurate to say it determined Congress in the BCPA had not intended to include tributary uses in its allocation actions. But the Court refrained from making any ***116** determinations about effects of tributary uses on main stream rights and certainly did not discuss the effects of tributary uses on water supply for the Mexican Treaty obligation. While it addressed uses of Gila Basin water between New Mexico and Arizona it did not consider the status of these uses under the Compact. Indeed, it sought to entirely avoid application of the Compact. And, of course, the Court ratified the existence of tribal reserved water rights, quantifying those rights on the basis of practicably irrigable acreage. Critically, the case decided absolutely nothing about how the water uses it approved fit within the apportionment scheme established under the Compact.

VIII. THE CONSEQUENCES OF *ARIZONA V. CALIFORNIA*

A. Uses of the Main Colorado River in the Lower Basin

The most important direct result of the Court's decision was to apportion annual consumptive use of water from the main Colorado River among Arizona, California, and Nevada. Determining that Arizona had the right to consume 2.8 maf from the mainstream meant that it could return to Congress seeking authorization and funding for the CAP. The Court's interpretation that the California limitation restricted that State to consumptive use of no more than 4.4 maf of the first 7.5 maf available in the mainstream below Lake Mead heightened the importance of holding rights to use water within this allocation. It highlighted, for example, the vulnerability of the Metropolitan Water District's diversion right since only 0.55 maf came from the state's basic 4.4 maf allocation while the remaining 0.662 maf would have to come from either unused apportionment or surplus.[143] Nevada's small allocation has proven inadequate in the face of Las Vegas's enormous growth, prompting the Southern Nevada Water Authority to move aggressively to find additional sources of water.[144]

***117** *1. The Central Arizona Project (CAP)*

It took several years but, with the passage of the Colorado River Basin Project Act in 1968,[145] Arizona finally got approval of the CAP. Construction of the project, which takes about 1.5 maf of water out of Lake Havasu on the Colorado River, lifts it 800 feet to a system of concrete aqueducts, and delivers it 336 miles to users in the Phoenix and Tucson areas, ended in 1994.[146] To get the bill through Congress, Arizona had to agree to subrogate all CAP diversions to California's basic 4.4 maf allocation.[147] If there is insufficient water available in Lake Mead to enable consumptive use of 7.5 maf, CAP diversions are the first to be curtailed.[148] Nevertheless, in calendar year 2012 the CAP delivered 1.6 maf to hundreds of users including cities, water districts, and tribes.[149]

2. The California 4.4 Plan

Because the U.S. Supreme Court allowed California to use water unconsumed by either Arizona or Nevada available in the

mainstream under the 7.5 maf apportionment as ***118** well as extra water released from Lake Powell under the Long Range Operating Criteria,[150] California continued to consume considerably more than its 4.4 maf allocation for many years following the Court's decision in *Arizona v. California*. As the CAP came online, however, and as Nevada's demands rose with the growth of Las Vegas, it became clear that California was going to need to gradually reduce its consumption-eventually stabilizing at 4.4 maf.[151] Following more than a decade of hard work, the basin states including California reached an agreement under what was called the California 4.4 plan.[152]

There were several key elements. To firm up supplies for urban users along California's south coast, the Metropolitan Water District (MWD) and the San Diego County Water Authority separately worked out agreements with the basin's largest water user, the Imperial Irrigation District (IID), enabling the shift of water from agricultural to urban uses.[153] Under something called the Quantification Settlement Agreement, Imperial's share of Colorado River water was fixed at 3.1 maf.[154] In addition, in 2001 the Secretary of the Interior adopted Interim Surplus Guidelines[155] establishing procedures to govern declaration of surpluses in the Lower Basin. The guidelines incorporated means by which the Secretary could take into account California's progress in reducing its water use over a 15-year period.

***119** Hydrologic changes, however, overtook this process. A drought beginning in 1999 had reduced storage levels in Lakes Mead and Powell dramatically by the end of 2002, forcing the Secretary under the new guidelines to declare a limited surplus year in 2003 and another in 2004.[156] By 2005 the Secretary was obligated to declare there was only enough water to meet the basic 7.5 maf of consumptive use. By 2007 it had become necessary to adopt guidelines to determine how shortages would be shared.[157]

3. Finding Additional Sources of Water for Nevada

The truly astonishing growth of Las Vegas motivated a series of actions in Nevada. One was to form the Southern Nevada Water Authority (SNWA) as a single entity governing water supply for the region.[158] Another was to invite proposals for the sale of water to Las Vegas.[159] As the new SNWA got more experienced it focused on more incremental approaches. First, it broke important new ground by working out an agreement with Arizona to "bank" water in that state's new Water Bank.[160] Second, it got serious about aggressively pursuing water conservation.[161] Third, it developed an ambitious plan for development of ***120** groundwater resources elsewhere in the state.[162] Fourth, it pursued water by investing in ways to conserve water elsewhere in the Lower Basin and by getting an agreement allowing it to transfer water acquired from agricultural users in the Virgin and Muddy Rivers in the northern part of the state.[163]

4. Instituting Shortage Criteria

The extended drought in the basin increased the likelihood there would not be adequate water in some years to enable Arizona, California, and Nevada to consumptively use 7.5 maf. While the basin states and the Secretary had reached agreement in 2001 on criteria under which surplus water would be available they now needed to agree on criteria under which shortages would be managed. Negotiations produced a set of interim guidelines in 2007 that the Secretary adopted with a sunset in 2026.[164] These guidelines primarily serve to govern Lake Mead operations when storage levels drop below elevation 1,075 feet--triggering a shortage condition under which there would not be enough water available to enable annual consumptive use of 7.5 maf in the Lower Basin.[165] In addition, Section 6 of the guidelines govern "coordinated" operations of Powell and Mead. Reclamation conducts what is called the 24-month computerized study to project water elevations in both reservoirs.[166] If the projected January 1 elevation levels in Powell are above so-called ""equalization" levels set out in a table[167] (beginning at 3,636 feet in 2008 and gradually increasing to 3,666 feet in 2026), then Reclamation will make releases from Powell in excess of 8.23 maf until the storage levels of the two reservoirs equalize or certain elevation levels ***121** are reached (the ""equalization tier").[168] In the event the supply of water available in the Colorado River main stream in the Lower Basin is insufficient to enable consumptive uses of 7.5 maf, the Secretary now has procedures in place to allocate shortages.

B. The Evolution of Tribal Reserved Water Rights

The U.S. Supreme Court's strong affirmation of tribal reserved rights and its approval of the practicably irrigable acreage method for quantifying these rights put the subject of tribal water rights front and center on the western states' water agenda.

While most tribes were not in any hurry to pursue these rights, state water leaders recognized tribal rights represented a substantial claim to water which, if realized, would affect many already existing nontribal uses. Moreover, the Court's determination that consumptive uses under tribal rights counted against the state allocations made it important for Basin states, especially Arizona with its many tribal reservations, to know the extent of these claims. In a few cases, states initiated general stream adjudications to force their quantification.[169] The use of negotiated settlements emerged as an alternative to court adjudication in the 1980s.[170] As of 2011 Congress has approved 24 settlements, according to the Western Governors Association.[171] Eight of those acts involve tribes with reservations in Arizona.[172] According ***122** to the Bureau of Reclamation's Colorado River Basin Water Supply and Demand Study (Basin Study), "Federally recognized tribes (tribes) hold quantified rights to a significant amount of water from the Colorado River and its tributaries (approximately 2.9 million acre-feet of annual diversion rights)."[173]

C. Uses of Lower Basin Tributary Water

The 1968 Project Act directed the Secretary of the Interior to prepare reports "as to the annual consumptive uses and losses of water from the Colorado River system after each successive five-year period ...."[174] Despite the fact there were to be reports of "system" uses and consumptive uses from major tributaries, only very limited information respecting uses from tributaries in the Lower Basin has been provided. As part of the Basin Study, Reclamation took a look at information respecting both natural flows as well as consumptive uses in the Lower Basin tributaries.[175] Information produced by this study shows between 2001 and 2005 average annual consumptive uses in the Little Colorado River of about 120,000 af, in the Virgin of about 600,000 af, and in the Bill Williams of about 100,000 acre-feet.[176] Consumptive uses in the Gila Basin averaged about 3.5 maf during this period.[177] The Basin Study, for the first time, provides some sense of the magnitude of the tributary uses the U.S. Supreme Court decided Congress in the BCPA had left to the states.

D. The Federal Role in Lower Basin Mainstream Water Management

The Court in *Arizona v. California* suggested a central role for the U.S. in water matters on the mainstream of the Lower Colorado River based on an expansive reading of federal authority. It was this part of the Court's decision that drew the most criticism, both from dissenting Justices and from academic commentators.[178] To some, it seemed to ***123** portend a federal usurpation of traditional state authority respecting determination of water uses and a substitution of federal interests in the basin for state interests.[179]

Fifty years later, these fears appear to have been little warranted. The Secretary has not independently determined water uses. Just five years after the decision, Congress established clear boundaries around Secretarial discretion, putting in place specified priorities for releases from Lake Powell, requiring formulation of Long Range Operating Criteria developed with active state involvement, and requiring development of annual operating plans that includes active state engagement and review.[180] And while the Secretary retains the ultimate authority to determine whether there is sufficient water to allow desired consumptive uses, the criteria and guidelines that govern those decisions have been shaped significantly by the Basin states.[181] Congress required the Secretary to consult with the states when developing the Long Range Operating Criteria and to re-consult at least every five years.[182] The Secretary is required to consult with the states before issuing his annual operating plan for the main stream reservoirs.[183] The Secretary in his own Interim Guidelines has required consultation with the states prior to making any changes to these guidelines.[184] To meet the salinity standards under the Clean Water Act, the U.S. agreed to adopt compliance points at the low end of the river before it passes into Mexico rather than ***124** to establish state-specific standards.[185] Even when meeting his legal responsibilities not to further jeopardize endangered species along the Lower Colorado mainstream, the Secretary followed the process favored by the states.[186] The single exception to this pattern of deference was the Secretary's use of her authority to push California parties into accepting the 4.4 Plan.[187]

IX. UNRESOLVED ISSUES AND UNINTENDED CONSEQUENCES

The Court's historic decision in *Arizona v. California* fifty years ago triggered many actions still unfolding in the Colorado River basin and beyond. This final section considers the implications of the decision for an issue the Court sought to avoid--the 1922 Colorado River Compact. It also addresses how the decision has enabled expanded use of water in the Lower Basin that now, as supplies have become increasingly tight, is presenting challenges.

A. Arizona v. California and the Colorado River Compact

Arizona and California met in the U.S. Supreme Court because of their inability to agree on how much water the users in each state could consume under the Compact. Both states assumed the Compact was relevant to the ultimate decision. Both spent considerable energy trying to convince the Court (and the Master) to adopt their interpretation of the Compact. Ultimately because the Court based its decision on the BCPA, it disclaimed any intent to interpret or apply the Compact.[188] The Court followed the Master in concluding that the Compact only concerned itself with apportioning water between the two basins and was not relevant in determining uses among the states in the Lower Basin; but, of course, the Court recognized that the Compact's "division of the waters between the basins ... must be respected."[189] More important for this discussion is the Court's recognition that, under the ***125** BCPA, the Secretary's contracts are subject to the Compact and that references to the Compact in the BCPA "show that the Act and its provisions were in no way to upset, alter, or affect the Compact's congressionally approved divisions of water between the basins."[190]

Despite the Court's disclaimer, its decision has been interpreted and applied in ways that arguably are inconsistent with the Compact and that, at the very least, complicate the matter of Compact interpretation. Because we treat this issue at length in a later paper,[191] it will only be introduced here. The Court decided that Congress had allocated 7.5 maf of consumptive uses from the main Colorado River to Arizona, California, and Nevada. The Compact apportioned 8.5 maf of consumptive uses from both the tributaries and the main stream to the five Lower Division states. Congress in the BCPA proposed that Arizona, California, and Nevada enter into a compact that would allocate the 7.5 maf of consumptive use apportioned to the Lower Basin under Article III(a) of the Compact.[192] Despite this explicit reference to the water apportioned under the Compact, water that clearly included Lower Basin tributaries, the Court decided Congress only intended to apportion the mainstream. What is the effect of the Court's decision substituting mainstream water for the Compact's apportionment of "system" water under Article III(a)? What is the status of Article III(b) of the Compact after *Arizona v. California*?

Again, because the Court was concerned only with the BCPA it decided that Congress had intended to leave use of the tributaries to the states through which they pass (except for the Gila Basin in New Mexico). Yet the Court stated the dispute presented by the case in the following terms: "The basic controversy in the case is over how much water each State has a legal right to use out of the waters of the Colorado River and its tributaries."[193] Its answer?: "We have concluded, for reasons to be stated, that Congress in passing the Project Act intended to and did create its own comprehensive scheme for the apportionment among California, Arizona, and Nevada of the Lower Basin's share of the main stream waters of the Colorado River, leaving each State its tributaries."[194] Because it felt compelled to separate tributary uses from main stream uses, the Court even struck down provisions in the Secretary's contracts with Arizona and Nevada that would have taken into account consumptive uses from tributaries above Lake Mead: "We hold that the Master was correct in deciding that the Secretary cannot reduce water deliveries to Arizona and Nevada by the amount of their uses from tributaries above Lake Mead, for, as we have held, ***126** Congress in the Project Act intended to apportion only the mainstream, leaving to each State its own tributaries."[195] The Court acknowledged the importance of tributaries in the Lower Basin to the Upper Basin: "Inclusion of the tributaries in the Compact was natural in view of the upper States' strong feeling that the Lower Basin tributaries should be made to share the burden of any obligation to deliver water to Mexico which a future treaty might impose."[196] And it acknowledged the awkward absence of New Mexico and Utah from consideration in the BCPA: "But Utah and New Mexico, as Congress knew, had interests in Lower Basin tributaries which Congress surely would have protected in some way had it meant for the tributaries of those two States to be included in the water to be divided among Arizona, Nevada, and California. We cannot believe that Congress would have permitted three States to divide among themselves water belonging to five States."[197]

It is not surprising that Congress in the BCPA did not speak to consumptive uses of tributary water because it was concerned with the construction and use of a major water storage facility to be located on the main Colorado River. The Court's decision that Congress allocated a portion of the Lower Basin's Compact apportionment in the BCPA, however, raises difficult questions. As it recognized, Congress was only concerned with the main stream while the Compact includes uses of water from both the main stream and the tributaries. How do we understand the status of tributary uses under the Compact after *Arizona v. California*? Are tributary uses to be accounted for under the Article III(b) allowance for use of up to an additional one maf until the states agreed to a further apportionment of basin water? Are users in Lower Division states free to use water from the tributaries only as against California's 4.4 maf limitation? Are they free to consume tributary water when that consumption reduces the supply available in Lake Mead upon which the Secretary bases his decision about the amount of water to be released from that reservoir? Are they free to consume that water if it affects the ability of the U.S. to meet its treaty obligations to Mexico?

The delivery obligation to Mexico is the first priority in the Basin.[198] The Compact recognized a treaty would be forthcoming and proposed that delivery obligations to Mexico be met out of the expected surplus of water--water thought to be available beyond the amounts apportioned to the two basins. Article III(c) provides:

> If, as a matter of international comity, the United States of America shall hereafter recognize in the United States of Mexico any right to the use of any ***127** waters of the Colorado River System, such waters shall be supplied first from the waters which are surplus over and above the aggregate of the quantities specified in paragraphs (a) and (b); and if such surplus shall prove insufficient for this purpose, then, the burden of such deficiency shall be equally borne by the Upper Basin and the Lower Basin, and whenever necessary the States of the Upper Division shall deliver at Lees Ferry water to supply one-half of the deficiency so recognized in addition to that provided in paragraph (d).

With the recognition that no such surplus reliably exists, the U.S. has interpreted this provision to require the Upper Basin to provide 750,000 af at Lees Ferry to be used to meet its half of the "deficiency."[199] The Upper Division States have long argued there is in fact no deficiency, that the Lower Basin is consuming water well in excess of the 8.5 maf apportioned under the Compact, and that the Mexico delivery obligation can and should be met by reducing excess consumption in the Lower Basin.[200] Arguably, the expanded uses to which the Upper Basin objects are those that have resulted because of *Arizona v. California*.

B. Arizona v. California and Expanded Water Uses in the Lower Basin[201]

The Court's decision that Congress allocated consumptive use of 7.5 maf just from the mainstream while leaving tributary consumption to the states in which the tributaries flow had the effect of placing attention primarily on consumptive uses from the main stream. So long as the three states riparian to the Colorado River in the Lower Basin were not exceeding annual consumptive use from the main stream of more than 7.5 maf, everyone seemed to be satisfied. The Court's decision paved the way for Congressional authorization of the Central Arizona Project. Congress authorized the CAP despite knowing that a portion of the water supply required for this project depended on the Upper Basin not using its full Compact apportionment.[202] As Arizona and Nevada reached full use of their shares, however, attention turned to California's uses that were exceeding its 4.4 maf basic allocation.[203] Just as more than a decade of hard work resulted in a plan that would allow California to gradually reduce its uses, a prolonged drought revealed that the issues ran deeper than just California's uses.

***128** The extended drought that began in late 1999 has made it clear that the Basin's water supply and demand are out of balance. It's not just consumptive uses from the mainstream that are the concern. It is the aggregate of all Basin water uses and losses in relation to all sources of basin water supply. In this situation consumptive uses and losses in tributaries matter. Tributary groundwater uses matter. Reservoir evaporation and river losses matter. Phreatophyte water consumption matters. Flows into Mexico outside of the delivery period and outside of the main stream matter. Even over deliveries that go unused matter.

Consumptive uses and losses in Lower Basin tributaries have amounted to more than four maf over the past decade.[204] Added to the 7.5 maf from the main stream, it is clear consumptive uses--measured as diversions less returns to the river in the U.S.[205]--substantially exceed the 8.5 maf authorized under the Compact.[206] The Special Master chose not to reduce state allocations to account for reservoir evaporation or losses between release from Lake Mead and other diversion.[207] Rather, he decided to have the Secretary take these losses into account when deciding how much water was available in Lake Mead for release to satisfy consumptive uses in Arizona, California, and Nevada.[208] The Supreme Court agreed. Reclamation estimates reservoir evaporation losses from main stream reservoirs in the Lower Basin averaged more than one maf between 2001 and 2005.[209]

The Basin Study was an important step toward more fully and accurately accounting for all sources of depletions in the basin.[210] It made absolutely clear the Basin's water budget is out of balance. As the U.S., the Basin states, and other interested parties contemplate next steps it may be useful to consider how the interpretation and implementation of *Arizona v. California* have contributed to this dilemma and what steps might be taken to address these unintended consequences.

***129 CONCLUSION**

With its water in great demand in seven arid states in the U.S. and in an equally arid part of Mexico, the Colorado is truly a challenged basin. Decisions about water use and management are difficult to make and, when they are made, they tend to have complex consequences--some unintended. *Arizona v. California* ranks perhaps only second to the Compact in its importance for governance of Basin water uses. It is impossible not to conclude this decision was reached despite the law, not because of it. It is a product of its times-- perhaps the apogee of the economic-development-of-river-basins era.[211] It bespoke an ambitious national vision for the use of rivers and their water, one that included using water as a means of promoting economic opportunity for tribes. It reflected as well an unfortunate but continuing perspective that there was enough water to satisfy all demands, at least under rational, centralized management. The basin once again faces some critical choices. The lessons of *Arizona v. California*, including the limits of litigation, need to be kept in mind.

Footnotes

a1 Member of the adjunct faculty, Colorado Law, and retired Professor of Law, University of Wyoming College of Law.

1 Arizona v. California, 283 U.S. 423 (1931).

2 Arizona v. California, 373 U.S. 546 (1963).

3 Arizona v. California, 547 U.S. 150 (2006).

4 CHARLES DICKENS, BLEAK HOUSE (Chapman & Hall 1914) (1895).

5 *Arizona*, 373 U.S. 546.

6 BUREAU OF RECLAMATION, COLORADO RIVER BASIN WATER SUPPLY AND DEMAND STUDY (2012) [hereinafter BASIN STUDY], *available at* http:// www.usbr.gov/lc/region/programs/crbstudy.html.

7 Much of this material has been presented elsewhere. *See, e.g.*, Lawrence J. MacDonnell, Arizona v. California *Revisited*, 52 NAT. RESOURCES J. 353 (2012); Josh Patashnick, Arizona v. California *and the Equitable Apportionment of Interstate Waterways*, 56 ARIZ. L. REV. 1 (2014); NORRIS HUNDLEY, JR., WATER AND THE WEST: THE COLORADO RIVER COMPACT AND THE POLITICS OF WATER IN THE WEST 282-306 (2d ed. 2009) [hereinafter WATER AND THE WEST]; Charles J. Meyers, *The Colorado River*, 19 STAN. L. REV. 1 (1966); Norris Hundley, Jr., *Clio Nods:* Arizona v. California *and the Boulder Canyon Project Act - A Reassessment*, 3 W. HIST. Q. 1, 17 (1972).

8 *See, e.g.*, Frank J. Trelease, Arizona v. California*: Allocation of Water to People, States, and Nation*, 1963 Sup. Ct. Rev. 158, 183 ("If the Court made new law on interstate apportionment, the real bombshell came when it resolved the problem how to divide the waters in times of shortage among the water users within a single state."); Edward W. Clyde, *The Colorado River Decision-1963*, 8 UTAH L. REV. 299 (1964).

9 A recent study shows that the Basin is facing a long-term shortage of supply in relation to demands. Bureau of Reclamation, *Colorado River Basin Water Supply and Demand Study*, December 2012 [hereinafter *Water Supply and Demand Study*], *available at* http:// www.usbr.gov/lc/region/programs/crbstudy/finalreport/index.html.

10 RICH JOHNSON, THE CENTRAL ARIZONA PROJECT 1918 - 1968 77-78 (1977).

[11] *The Central Arizona Project: Hearings before the Committee on Interior and Insular Affairs, House of Representatives, 82nd Cong., 1st Sess., on H.R. 1500 and H.R. 1501*, pt. 2, pp. 739, 739-56 (1951).

[12] Colorado River Compact, Art. III (a) & (b). The Colorado River Compact (the Compact) defined the Colorado River System as "that portion of the Colorado River and its tributaries within the United States of America." Art. II(a). Then in Article III(a) it apportioned the beneficial annual consumptive use of 7.5 maf to the Lower Basin and an equal amount to the Upper Basin. In Article III(b), the Compact provides the Lower Basin can increase its annual consumption by up to an additional 1 maf.

[13] RAY WILBUR LYMAN & NORTHCUTT ELY, HOOVER DAM DOCUMENTS, H.R. DOC. NO. 80-717, at 105 (1948) [hereinafter HOOVER DAM DOCUMENTS]. These contracts are reproduced in the appendix at A491-A550.

[14] California Limitation 1929 Cal. Stat. 38-39 [hereinafter Limitation Act]. Congress had made this limitation a requirement to enable six-state approval of the Compact. Boulder Canyon Project Act, 43 U.S.C. § 617c(a)(2) (2012). The additional contract water beyond 4.4 maf presumably allowed uses of water available in Lake Mead beyond that necessary to meet the Mexico Treaty obligation and to supply consumptive uses in Arizona and Nevada.

[15] Nevada Contract of January 3, 1944, HOOVER DAM DOCUMENTS, *supra* note 13 at A580. The Nevada contract provides a total of 300,000 af of consumptive use that includes uses in the Muddy and Virgin within the state as well as uses out of Lake Mead.

[16] U.S. DEP'T OF INTERIOR, BUREAU OF RECLAMATION, BOULDER CANYON PROJECT, ARIZONA-CALIFORNIA-NEVADA CONTRACT FOR DELIVERY OF WATER (1944) [hereinafter Arizona Contract], *in* HOOVER DAM DOCUMENTS, *supra* note 13. The Arizona contract provides for reductions based on uses in Arizona above Lake Mead; it also provides for reductions to offset reservoir evaporation. Arizona also agreed to share its use of surplus water with Nevada.

[17] Treaty Between the United States and Mexico Respecting Utilization of Water of the Colorado and Tijuana Rivers and of the Rio Grande, U.S. - Mex., Feb. 3 - Nov. 14, 1944, T.S. No. 994 [hereinafter Mexico Treaty]. As Hundley notes, this amount of water exceeded what the states had expected and increased the pressure on water availability in the U.S. portion of the basin. WATER AND THE WEST, *supra* note 7, at 296.

[18] U.S. DEP'T OF INTERIOR, THE COLORADO RIVER: A NATURAL MENACE BECOMES A NATURAL RESOURCE (1946). In preparation for this development, the Upper Division States negotiated a compact in 1948 that apportioned water available to these states using a percentage basis. Upper Colorado River Basin Compact, 1948. Then in 1956 Congress authorized construction of a network of large main stream dams in the Upper Basin in the Colorado River Storage Project Act, 70 Stat. 105, 43 U.S.C. §§ 620 et seq.

[19] In 1952 there were in the Central Arizona area in excess of 900,000 acres of land irrigated with surface and underground water. By 1955 this acreage had been reduced approximately 100,000 acres due to the insufficiency of local water supplies. The underground water supply, tapped by wells for irrigation of a substantial portion of said acreage, is grievously depleted because the draft thereon is greatly in excess of the recharge. As a result the well depths are increasing and the well discharges are decreasing. Because of such diminution of the underground water supply there is now available in Central Arizona water sufficient to irrigate and cultivate not more than 500,000 acres of land. In order to avoid a further reduction of approximately 300,000 acres of cultivated land, Arizona must have additional water from the main stream of the Colorado River.
Amended Bill of Complaint at 18, Arizona v. California, 373 U.S. 546 (1963) (no. 10 Original) [hereinafter Amended Bill of Complaint], *available at* http://digitool.library.colostate.edu///exlibris/dtl/d3_1/apache_media/L2V4bGlicmlzL2R0bC9kM18xL2FwYWNoZV9tZWRp=.pdf.

[20] An overview is provided in A. Dan Tarlock, *Law of Equitable Apportionment Revisited, Updated, and Restated*, 56 U. Colo. L. Rev. 381 (1985).

[21] *See, e.g.*, New York v. New Jersey, 256 U.S. 296, 309 (1921); Washington v. Oregon, 297 U.S. 517, 522 (1936).

[22] The Court granted the motion for leave to file the complaint on January 19, 1953. Arizona v. California, 344 U.S. 919 (1953).

[23] Motion for Leave to File Bill of Complaint and Bill of Complaint at 3, Arizona v. California, 373 U.S. 546 (1963) (No. 10 Original) [hereinafter Arizona Complaint], (*available at* http://digitool.library.colostate.edu/// exlibris/dtl/d3_1/apache_media/L2V4bGlicmlzL2R0bC9kM18xL2FwYWNoZV9tZWRp=.pdf).

[24] *Id.* at 19-21.

[25] *Id.* at 28.

[26] *Id.* at 26 ("Arizona says that beneficial consumptive use is measured in terms of main stream depletion, that is, the quantity of water which constitutes the depletion of the stream by the activities of man. Water salvaged by man is not chargeable as a beneficial consumptive use.").

[27] *Id.* at 28-29.

[28] Amended and Supplemental Statement of Position by Complainant, State of Arizona at 1, Arizona v. California, 373 U.S. 546 (1963) (No. 10 Original), *available at* http://digitool.library.colostate.edu/// exlibris/dtl/d3_1/apache_media/L2V4bGlicmlzL2R0bC9kM18xL2FwYWNoZV9tZWRp=.pdf ("Arizona considers its Statement of Position heretofore filed herein and certain legal conclusions and arguments set forth in its various pleadings filed herein unsound and not supported in the law in relation to the proper interpretation of Sections 4(a), 5 and 8 of the Project Act and Articles III and VIII of the Compact.").

[29] Opening Brief for Arizona at 21-32, Arizona v. California, 373 U.S. 546 (1963) (No. 9 Original) [hereinafter 1959 Brief], *available at* http:// digitool.library.colostate.edu///exlibris/dtl/d3_1/apache_ media/L2V4bGlicmlzL2R0bC9kM18xL2FwYWNoZV9tZWRp=.pdf. In support of this new position, Arizona took the view that the Compact only apportioned water originating in the Upper Basin because only this supply was available for use in both basins and thus needed to be apportioned. It noted the physical and hydrologic division separating the two basins and the fact the Upper Basin could not physically use main stream water once it passed Lees Ferry (nor could it use water originating in Lower Basin tributaries). "The Upper Basin was not interested in Lower Basin tributaries." *Id.* at 23. Arizona suggested the Compact's Article III(d) 7.5 maf flow obligation at Lees Ferry (75 maf over 10 years) represented the 7.5 maf apportioned to the Lower Basin under Article III(a) of the Compact. It noted that not all basin water had been apportioned, stating that the unapportioned water included the water in the Lower Basin tributaries. *Id.* at 30. "It is thus indubitable that the Colorado River Commissioners, in deliberately selecting Lees Ferry as the dividing point between Upper and Lower Basins and as the delivery point of water to be let down from the Upper to the Lower Basin, intentionally excluded Lower Basin tributary water from the inter-basin apportionment made by Article III of the Compact." *Id.* at 27.

[30] Amended Bill of Complaint at 22, Arizona v. California, 373 U.S. 546 (1963) (No. 10 Original), *available at* http:// digitool.library.colostate.edu///exlibris/dtl/d3_1/apache_ media/L2V4bGlicmlzL2R0bC9kM18xL2FwYWNoZV9tZWRp=.pdf. "By the Project Act the Congress of the United States divided among California, Arizona and Nevada the water apportioned to the Lower Basin by Article III(a) of the Compact." It found support for this assertion in Section 5 of the BCPA charging the Secretary when issuing contracts for water from Lake Mead to ensure those contracts conform to Section 4(a) and the proposed allocation under the tri-state compact authorization giving Arizona 2.8 maf of consumptive use out of the 7.5 maf apportioned by Compact Article III(a). In its 1959 Brief at 13, Arizona asserted: "In effect, these provisions establish a formula for division of Colorado River water which is binding on the Secretary of the Interior in making contracts on behalf of the United States with Lower Basin states for delivery of water from Lake Mead ..."

[31] Amended Bill of Complaint, *supra* note 31, at 21; 1959 Brief, *supra* note 30, at 33-35, 43-45.

[32] *See, e.g.*, Wyoming v. Colorado, 259 U.S. 419 (1922); Nebraska v. Wyoming, 325 U.S. 589 (1945).

[33] Answer of Defendants to Bill of Complaint at 78, October Term 1952, Arizona v. California, 373 U.S. 546 (1963) (No. 10 Original) [hereinafter California Answer], *available at* http://digitool.library.colostate.edu/// exlibris/dtl/d3_1/apache_media/L2V4bGlicmlzL2R0bC9kM18xL2FwYWNoZV9tZWRp=.pdf.

[34] *Id.* at 2. In its 1959 Brief, California spent considerable time laying out what it believed were the key principles of equitable apportionment that should govern this decision. Brief of the California Defendants at 36-59, April 1, 1959, Arizona v. California, 373 U.S. 546 (1963) (No. 9 Original) [hereinafter 1959 California Brief] (footnote omitted), *available at* http:// digitool.library.colostate.edu///exlibris/dtl/d3_1/apache_ media/L2V4bGlicmlzL2R0bC9kM8xL2FwYWNoZV9tZWRpY =.pdf. Foremost, it argued, was the principle of priority: "Rejection of priority of appropriation as the basis of interstate water rights, except where controlled by interstate compact, would require the Court to overrule every decision which it has made respecting water rights among states which follow the priority principle." *Id.* at 41.

[35] California Answer, *supra* note 34, at 39-45. California characterized the 4.4 limitation in the BCPA as a "statutory compact," under which California can consume 4.4 maf as well as one-half or any excess or surplus water not apportioned under the Compact. 1959 California Brief, *supra* note 35, at 27. California agreed to this limitation because it was necessary to get Congressional approval for a six-state compact. California now argued Arizona was estopped from relying on an agreement made because it would not sign the Compact. *Id.* at 90-105.

[36] "Uses of the waters of the Gila River and its tributaries under rights which existed as of June 25, 1929, are chargeable first against the apportionment made to the Lower Basin by Article III(a) of the Compact. Such uses in Arizona as of that date aggregated not less than 2,000,000 acre-feet per annum." 1959 California Brief, *supra* note 35, at 12.

[37] "The term 'excess or surplus waters unapportioned by said compact,' as so used in said Act, includes the increase of use of 1,000,000 acre-feet per annum permitted to the Lower Basin by Article III (b) of the Colorado River Compact." California Answer, *supra* note 34, at 22.

[38] 1959 California Brief, *supra* note 35, at 31-35 ("Water supply is the most important factual question in this litigation"). *See also* Finding of Fact and Conclusions of Law Submitted by the California Defendants, Table 2 at viii, April 1, 1959, Arizona v. California, 373 U.S. 546 (1963) (showing requirements from existing projects on the mainstream of 6.7 maf and a reliable supply of water of 5.8 maf) [hereinafter Proposed California Findings], (*available online* at **),. Thus, California asserted:
If 1,200,000 acre-feet per annum for the proposed Central Arizona Project were added to the requirements of existing projects, the deficiency in the permanent lower basin supply would increase to more than 2,000,000 acre-feet per annum. The only water physically available for the Central Arizona Project is water apportioned by the compact to the upper basin, temporarily unused there.
Id. at ix. A subsequent study for the Upper Colorado River Basin Commission confirmed this assertion. TIPTON & KALMBACH, WATER SUPPLIES OF THE COLORADO RIVER 6 (1965).

[39] Motion on Behalf of the United States of America for Leave to Intervene and Brief in Support of Motion, December 31,1952, Arizona v. California, 373 U.S. 546 (1963) (No. 10, Original) [hereinafter U.S. Intervention], *available online* at http://digitool.library.colostate.edu/// exlibris/dtl/d3_1/apache_media/L2V4bGlicmlzL2R0bC9kM18xL2FwYWNoZV9tZWRp=.pdf**

[40] *Id.* at 29-34.

[41] *Id.* at 30.

[42] Until those disputed issues are resolved, neither the United States of America nor the State of Arizona nor the parties named in Arizona's Bill of Complaint may safely proceed with further construction of diversion works from the main channel of the Colorado River involving consumptive use (domestic, agricultural, industrial, municipal) of water in the Lower Basin of the

Colorado River.
Id. at 8-9.

[43] We have heretofore proposed that the entitlements of the States of California, Arizona, and Nevada to the use within those states of the waters of the Colorado River System, exclusive of the tributaries below Lake Mead, are to be determined primarily by reference to the water-delivery contracts which the Secretary of the Interior has made by authority of Section 5 of the Boulder Canyon Project Act, subject, in the case of California, to the limitation of use in that State required by Section 4 (a) of the Project Act [...].
See, e.g., Reply Brief of the United States of America at 10, Arizona v. California, 373 U.S. 546 (1963) (No. 10 Original) [hereinafter U.S. Reply Brief] *available at* http://digitool.library.colostate.edu///exlibris/dtl/d3_1/apache_media/L2V4bGlicmlzL2R0bC9kM18xL2FwYWNoZV9tZWRp=.pdf.

[44] *Id.* at 40.

[45] Conclusions 1.3, 1.5, 1.8, Brief in Support of Findings of Fact and Conclusions of Law Proposed by the United States at 7, 12, 18, Arizona v. California, 373 U.S. 546 (1963) (No. *) [hereinafter U.S. Brief for Proposed Findings], *available at* http://digitool.library.colostate.edu///
exlibris/dtl/d3_1/apache_media/L2V4bGlicmlzL2R0bC9kM18xL2FwYWNoZV9tZWRp=.pdf**

[46] *See, e.g., id.* at 15 ("We believe the Compact is silent as to, and has no bearing upon, the apportionment of Colorado River system water intrabasin.").

[47] These claims included flood control, power, Indian reservations, the Mexican Treaty, fish and wildlife, Reclamation projects, forests, parks, and Bureau of Land Management lands. *See generally* Findings of Fact and Conclusions of Law Proposed by the United States, Arizona v. California, 373 U.S. 546 (1963) (No. 9 Original) [hereinafter U.S. Proposed Findings], *available at* http://digitool.library.colostate.edu///exlibris/dtl/d3_1/apache_
media/L2V4bGlicmlzL2R0bC9kM18xL2FwYWNoZV9tZWRp=.pdf; U.S. Brief for Proposed Findings, *supra* note 46.

[48] 207 U.S. 564 (1908). U.S Brief for Proposed Findings, *supra* note 46, at 23. In its Proposed Findings, the U.S. identified 25 Indian reservations within the Lower Colorado River Basin. *Id.* at 51.

[49] U.S. Reply Brief, *supra* note 44, at 5-7.

[50] A Special Master serves as a finder of fact and makes recommendations of law in a report to the Court in these original action proceedings. *See* Anne-Marie C. Carstens, *Lurking in the Shadows of Judicial Process: Special Masters in the Court's Original Jurisdiction Cases*, 86 MINN. L. REV. 625, 654 (2002). For a discussion of the role of masters in interstate water disputes see L. Elizabeth Sarine, *The Supreme Court's Problematic Deference to Special Masters in Interstate Water Disputes*, 39 ECOL. L.Q. 535 (2012).

[51] Report from Special Master Simon H. Rifkind, Arizona v. California, 373 U.S. 546 (1963), (report filed as 364 U.S. 940 (1961)), [hereinafter *Master's Report*], *available at* http:// digitool.library.colostate.edu/R/?func=dbin-jump-full&object_id=201635.

[52] *Id.* at 130, quoting New York v. New Jersey, 256 U.S. 296, 309 (1921).

[53] *Id.* at 132 ("Arizona cannot use the water she claims without construction of new facilities and she cannot develop new facilities unless her rights in the water are first established.").

[54] *Id.* at 131-34.

[55] *Id.* at 138. The Master added the Limitation Act and the Secretarial contracts as further sources of authority for his finding the allocation had already been made.

[56] Master's report, *supra* note 52, at 151.

[57] *Id.* at 152.

[58] *Id.* (Under Article 8 of the Compact, "[p]resent perfected rights to the beneficial use of waters of the Colorado River System are unimpaired by this compact.").

[59] *Id.* at 153.

[60] *Id.* at 161 ("In order to sustain the Project Act as applied in this case, it need only be held that the United States may, under the Commerce Clause of the Constitution, impound waters in a navigable stream and regulate the disposition thereof so long as perfected rights are satisfied ...").

[61] *Id.* at 164. The Master dismissed California's argument that the limitation should not benefit Arizona since Arizona had not originally ratified the Compact. He read the BCPA to require this limitation in the event all seven states did not ratify the Compact within six months from enactment of the BCPA, an event that occurred. *Id.* at 165.

[62] *Id.* at 165. He added that Arizona and Nevada also wanted this limitation for their protection and suggested that by their acquiescence with the further division giving Arizona 2.8 maf and Nevada 0.3 maf under a future compact, they had agreed to this division of water. Of course, no such compact ever resulted.

[63] BCPA, 43 U.S.C. § 617c(a). In addition the Master noted one half of any surplus would mean water beyond the 16 maf apportioned under Articles III(a) and (b) of the Compact. Master's Report *supra* note 52, at 168. Thus he effectively rewrote the "excess or surplus" language of the BCPA, just as he did for the reference of Article III(a) water.

[64] Master's Report, *supra* note 52 at 173.

[65] *Id.* at 186. His decision to measure California's uses at their points of diversion meant that river losses associated with making these deliveries were not attributable to the states' shares. Moreover, his conclusion that California's (as well as Arizona's and Nevada's) uses should be considered only from the water of the main Colorado supported his corollary conclusion that Congress has not intended to affect uses in the tributaries.

[66] *Id.* at 196. More precisely, the Master defined excess or surplus as any consumptive use from the main Colorado in the Lower Basin of the U.S. beyond 7.5 maf. The Master seemed to believe this would include use of the 1.0 maf made available under Article III(b) of the Compact. *Id.* at 197. Thus, once again he seemed to be suggesting Congress altered the terms of the Compact.

[67] For additional discussion see Arizona v. California *Revisited*, *supra* note 7.

[68] HOOVER DAM DOCUMENTS, *supra* note 13.

[69] Seven Party Agreement, *infra* note 144.

[70] The Secretarial Contracts awarded the first 3.85 maf to the California agricultural users (Palo Verde Irrigation District, the Yum Project, the Imperial Irrigation District, and the Coachella Water District). The Metropolitan Water District of Southern California

received the next 550,000 af to complete those with contracts within California's 4.4 maf basic apportionment. MWD held the next right to receive 550,000 af, then San Diego for 112,000 af, and finally another 300,000 acre-feet for the agricultural users. Together, the contracts would provide 5.362 maf. *See* HOOVER DAM DOCUMENTS, *supra* note 13, at 106-10.

[71] Arizona Contract, Art. 7(a), HOOVER DAM DOCUMENTS, *supra* note 13, at A560. It further authorizes the delivery of additional water out of one-half of any surplus water unapportioned under the 1922 Compact, "to the extent such water is available for use in Arizona [under the Compact and the BCPA]," and less surplus water used in Utah and New Mexico. Art. 7(b). *Id.* at Art. 7(b).

[72] Master's Report, *supra* note 52, at 207. The Master rejected California's arguments that the contract was not a binding agreement but rather only an unenforceable agreement to agree. He noted the difference between agreements directed by Congress and ordinary commercial contracts. The Master did, however, find the provision authorizing the Secretary to deduct from Arizona's allocation any diversions of water made above Lake Mead contrary to the BCPA, a point on which he was overruled by the Supreme Court.

[73] The original contract was for use of 100,000 af. The Master concluded that the contract must be regarded as intended to provide enough water to enable 300,000 af of consumptive use to make it consistent with the other contracts. Master's Report, *supra* note 52, at 225. The contract states:
Subject to the availability thereof for use in Nevada under the provisions of the Colorado River Compact and the Boulder Canyon Project Act, the United States shall, from storage in Lake Mead, deliver to the State each year at a point or points to be selected by the State and approved by the Secretary, so much water, including all other waters diverted for use within the State of Nevada from the Colorado River system, as may be necessary to supply the State a total quantity not to exceed Three Hundred Thousand (300,000) acre-feet each calendar year.
Nevada Contract, Hoover Dam Documents, *supra* note 13, at A580.

[74] This limitation was not contained in the original contract. It makes clear the U.S. viewed Nevada as having a total right to use 300,000 acre-feet per year from the Colorado River system, not the main river. Consistent with his view the Secretary's contracting authority only applied to use of water from Lake Mead, the Master also rejected this provision, as he did with a similar provision in the Arizona contract. Master's Report, supra note 52, at 238. The Supreme Court overruled this determination. Arizona v. California, 363 U.S. at 591.

[75] Master's Report, *supra* note 52, at 215-16.

[76] *Id.* at 216. ("In other words, the Secretary has agreed with the State of Arizona that he will deliver a certain amount of water to Arizona users, but he has reserved to himself discretion to decide with which users he will contract.").

[77] *Id.* at 217. ("Under this section, Congress has specifically declined to give the Secretary of the Interior authority to deliver water to users within a state in disregard of the state's water law. Although a contract with the Secretary is necessary under Section 5 of the Project Act for a user to receive mainstream water, the user must also, under Section 18, be under no disability to receive such water under the applicable state law.").

[78] *Id.* at 247. "All consumption of mainstream water within a state is to be charged to that state, regardless of who the user may be." Here he presaged his later conclusion that tribal and federal reserved water rights must also fit within the state allocation.

[79] Because of direct conflict between New Mexico and Arizona respecting use of the water of the Gila, the Master determined the uses of this river and its tributaries between the two states under principles of equitable apportionment. (CITATION NEEDED).Master's Report, *supra* note 52, at 325.

[80] Master's Report, *supra* note 52, at 232. "Nothing in the Arizona water delivery contract can be interpreted, even with the most vivid imagination, as charging Arizona for her consumptive uses of Gila River water. Rather, the language of that contract explicitly and unmistakably allocates water to Arizona only from the main stream, leaving her free to consume water from the Gila

in addition to the contractual apportionment."

81 *Id.* at 237-47. The Master suggested that uses from these tributaries would not involve enough water to greatly affect the availability of water at Lake Mead:
Consumption of water on any particular tributary above Lake Mead affects the supply of water in Lake Mead and hence the amount of water that can be released for consumption each year. But it is only one of many factors that affect supply, and is clearly not among the most important ones, which are the mainstream flow into Lake Mead and storage from prior years. Thus, it is quite likely that the Secretary would be able to release the same amount of water for consumption from the mainstream in successive years despite an intervening project which depleted the flow into Lake Mead from one of the tributaries.
Id. at 238, n 89.

82 *Id.* at 318. Thus he stated: "The mainstream users most certainly have a substantial interest in tributary inflow, for the greater the quantity of water entering the mainstream, the greater the quantity of water likely to be available for use by them." *Id.* at 317-18.

83 *Id.* at 233.

84 The Supreme Court also decided to not follow this suggestion, favoring instead giving the Secretary the discretion to make this determination. Master's Report *supra* note 52.

85 BCPA, 43 U.S.C. § 617c(a). Arizona agreed to allow Nevada to use 4 percent of the surplus in its contract with the Secretary. Arizona Contract, *supra* note 16. *See* Master's Report, *supra* note 52, at 222-23.

86 Master's Report, *supra* note 52, at 224-25.

87 He decided to address claims only for those reservations along the main Colorado and in the Gila Basin. Master's Report, *supra* note 52, at 255.

88 Winters v. United States, 207 U.S. 564 (1908).

89 Master's Report, *supra* note 52, at 260. The Master explained:
As to each it is apparent that it was intended that the Indians would settle on the Reservation land and develop an agricultural economy. The land, however, is too arid to support such an economy without irrigation from the Colorado River. It would be unconscionable for the United States to have coerced or induced Indians onto a Reservation without providing the water necessary to make the lands habitable.
Id.

90 *Id.*

91 *Id.*

92 *Id.* at 262.

93 *Id.* at 267-83.

94 The Master found that the only reservation along the main Colorado that diverted water was the Lake Mead National Recreation Area. *Id.* at 292.

[95] "I conclude that the United States had the power to reserve water in the Colorado River for use in the Lake Mead National Recreation Area for the same reasons that it could reserve such water for Indian Reservations." *Id.*

[96] "The United States has the right to divert water from the mainstream of the Colorado River in quantities reasonably necessary to fulfill the purposes of the Lake Mead National Recreation Area in Arizona and Nevada with priority dates of May 3, 1929 ..." *Id.* at 295, 297-98.

[97] *Id.* at 300-02.

[98] *Id.* at 328.

[99] *Id.* at 330.

[100] *Id.* at 331.

[101] He decided not to quantify the water associated with that reservation. *Id.* at 335.

[102] *Infra* part VI.

[103] As Professor Carstens explains, "[o]nce the Special Master's report is transmitted to the Court, the Court exercises its authority in reviewing the report and revising or approving the Master's findings, conclusions, or recommendations in whole or in part." Carstens, *supra* note 51, at 655.

[104] Patashnick, *supra* note 7.

[105] Memorandum from Mr. Justice Frankfurter, Précis Opinion of the Court on Arizona v. California (Oct. 1961) [hereinafter Frankfurter Memo] (on file with author).

[106] Frankfurter would not have limited uses from other Lower Basin tributaries to benefit California, apparently assuming sufficient water would otherwise be available from the Upper Basin. *Id.* at 88-89. He would, however, have restricted diversions from the mainstream between Lees Ferry and Lake Mead. *Id.* at 89-91.

[107] *Id.* at 94-95.

[108] *See id.* at 99.

[109] *Id.* at 113-15.

[110] *Id.* at 110.

[111] Frankfurter Memo, *supra* note 106, at 110-11.

[112] *Id.* at 122.

[113] *Id.* at 123. He was sufficiently unsure about this proposal that he suggested a possible hearing on the matter before the Special Master. *Id.* at 123-24.

[114] *Id.* at 132.

[115] *Id.* at 135-38.

[116] *Id.* at 135-36.

[117] Frankfurter Memo, *supra* note 106, at 137-38.

[118] *Id.* at 139-40.

[119] We have concluded, for reasons to be stated, that Congress in passing the Project Act intended to and did create its own comprehensive scheme for the apportionment among California, Arizona, and Nevada of the Lower Basin's share of the mainstream waters of the Colorado River, leaving each State its tributaries.
373 U.S. at 564-65.

[120] *Id.* at 565.

[121] *Id.*

[122] *Id.* Thus the Court rejected the California argument that Arizona's uses of the Gila needed to be considered in deciding how much mainstream water it should have the right to use. *Id.* at 568.

[123] *Id.* at 568.

[124] Examples are the Compact's Section 12 definition of "domestic" and the Section 8 requirement to satisfy present perfected rights.

[125] *Arizona,* 373 U.S. at 580 ("... Congress intended the Secretary of the Interior, through his § 5 contracts, both to carry out the allocation of the waters of the main Colorado River among the Lower Basin States and to decide which users within each State would get water.").

[126] *Id.* at 581.

[127] *Id.* at 589-90.

[128] *Id.* at 591.

[129] *Id.* at 593.

[130] *Id.* at 594 (The Court rejected California's argument that priority should determine who gets water in times of shortage.).

[131] *Id.* at 595 ("We are not required to decide any other disputes between tributary users or between mainstream and tributary users.").

[132] *Id.* at 596-97.

[133] *Id.* at 598-99.

[134] *Id.* at 601.

[135] *Id.*

[136] *Id.*

[137] Arizona v. California, 376 U.S. 340 (1964).

[138] *Id.* at 340-41. Definitions include: "consumptive use," ""mainstream," "consumptive use of water from the mainstream within a State," "regulatory structures controlled by the United States," "water controlled by the United States, tributaries," "perfected right, present perfected right, domestic use," "annual and year," and "consumptive use of water for one State diverted in another State."

[139] *Id.* at 341-43 (Decree, Section II (B) (1)-(3)).

[140] *Id.* at 343 (Decree Section II (B) (6)).

[141] *Id.* at 343-46. (Decree Section II (D)).

[142] *Id.* at 352-53. An example is in-state priorities on the tributaries.

[143] Boulder Canyon Project Agreement, Aug. 18, 1931 [hereinafter Seven Party Agreement], *available at* http://www.usbr.gov/lc/region/pao/pdfiles/ca7pty.pdf. The Seven Party Agreement apportioned California's claims to water from the Colorado River among four existing agricultural water users (Palo Verde Irrigation District, the federal Yuma Project, the Imperial Irrigation District, and the Coachella Valley County Water District) and three urban water suppliers with plans to use Colorado River water (Metropolitan Water District, Los Angeles, and San Diego). The four irrigation entities obtained 3.85 maf of the 4.4 maf assured to California in the BCPA; MWD got the remaining 0.55 maf. MWD constructed an aqueduct with a capacity of 1,600 cubic feet per second, making possible the diversion of up to one billion gallons of water/day.

[144] *See* text accompanying notes 160-64, *infra*.

[145] Colorado River Basin Project Act, Pub. L. No. 90-537, Title III, 82 Stat. 885, 887-94 (1968) (codified as amended at 43 U.S.C. §§ 1521-1525).

[146] *See* Bureau of Reclamation, *Central Arizona Project*, http://www.usbr.gov/projects/Project.jsp?proj_Name=Central+Arizona+Project (last visited Nov. 21, 2013) (describing the project, its facilities, and its history).

[147] Article II (B) (3) of the decree of the Supreme Court of the United States in Arizona against California (376 U.S. 340) shall be so administered that in any year in which, as determined by the Secretary, there is insufficient main stream Colorado River water available for release to satisfy annual consumptive use of seven million five hundred thousand acre-feet in Arizona, California, and Nevada, diversions from the main stream for the Central Arizona Project shall be so limited as to assure the availability of water in

quantities sufficient to provide for the aggregate annual consumptive use by holders of present perfected rights, by other users in the State of California served under existing contracts with the United States by diversion works heretofore constructed, and by other existing Federal reservations in that State, of four million four hundred thousand acre-feet of mainstream water, and by users of the same character in Arizona and Nevada. Water users in the State of Nevada shall not be required to bear shortages in any proportion greater than would have been imposed in the absence of this subsection 301(b).
Cf. Central Arizona Project, 43 U.S.C.§ 1521(b) (2013).

148 Colorado River Interim Guidelines for Lower Basin Shortages and Coordinated Operations for Lake Powell and Lake Mead, 73 Fed. Reg. 19873-01 (2008) *available at* http:// www.usbr.gov/lc/region/programs/strategies/RecordofDecision.pdf [hereinafter Interim Shortage Guidelines].

149 *Central Arizona Project Water Deliveries*, Cap-Az.com, http:// www.cap-az.com/Portals/1/Documents/2012-12/2012%20MONTHLY%C20DELIVERY%20REP.pdf (last visited Nov. 21, 2013).

150 Criteria For Coordinated Long-Range Operation of Colorado River Reservoirs Pursuant to the Colorado River Basin Project Act of September 30, 1968, Pub. L. No. 90-537 (June 8, 1970); 43 U.S.C. §§ 1551-1552.

151 For a thorough discussion of the process and the issues, see James S. Lochhead, *An Upper Basin Perspective on California's Claims to Water from the Colorado River Part II: The Development, Implementation and Collapse of California's Plan to Live within its Basic Apportionment*, 6 U. DENV. WAT. L. REV. 318 (2001).

152 COLORADO RIVER BOARD OF CALIFORNIA, 4.4 PLAN, CALIFORNIANS USE OF ITS COLORADO RIVER ALLOCATION, (1997), *available at* http:// www.sci.sdsu.edu/salton/CoRiverBoard4.4plan.html.

153 In 1988, IID and MWD agreed to a plan under which MWD would finance improvements to the IID water delivery system in return for the 200,000 af of water it would salvage. Finally approved under the Quantification Settlement Agreement, IID and SDCWA agreed to a 75-year water transfer of up to 200,000 af of water annually. IID Water Resources Unit, Imperial Irrigation District and Metropolitan Water District of Southern California, *Water Conservation Final Program Construction Report* (April 2000), *available at* http:// www.iid.com/Modules/ShowDocument.aspx?documentid=4060.

154 IMPERIAL IRRIGATION DISTRICT ET AL., QUANTIFICATION SETTLEMENT AGREEMENT (2003), *available at* http:// www.sdcwa.org/sites/default/files/files/QSA_final.pdf. It fixed Coachella's diversion right at 330,000 af. To essentially force IID to agree to the QSA, the Secretary threatened to reduce deliveries to IID to 2.6 maf, based on a duty of water limitation. Lochhead, *supra* note 152, at 401.

155 DEP'T OF THE INTERIOR, RECORD OF DECISION, INTERIM SURPLUS GUIDELINES FINAL ENVIRONMENTAL IMPACT STATEMENT (2001), *available at* http:// www.usbr.gov/lc/region/g4000/surplus/surplus_rod_final.pdf.

156 BUREAU OF RECLAMATION, 2003 ANNUAL OPERATING PLAN FOR COLORADO RIVER SYSTEM RESERVOIRS 2, (2002), *available at* http:// www.usbr.gov/lc/region/g4000/aop/AOP03.pdf. The Full Domestic Surplus declaration protects diversions by MWD and the Southern Nevada Water Authority but doesn't allow extra diversions for other uses. The Plan also announced that if California parties did not sign the QSA by December 31, 2002, the Secretary would declare only "normal" conditions for 2003. Because they did not, the Secretary declared normal conditions for 2003. The parties signed October 10, 2003. With the agreement the Secretary instituted the Full Domestic Surplus for the remainder of 2003 but reduced it to Partial Domestic Surplus for 2004.

157 BUREAU OF RECLAMATION, COLORADO RIVER INTERIM GUIDELINES FOR LOWER BASIN SHORTAGES AND THE COORDINATED OPERATIONS FOR LAKE POWELL AND LAKE MEAD (2007), *available at* http:// www.usbr.gov/lc/region/programs/strategies/RecordofDecision.pdf. Intended to sunset at the end of 2026, the shortage guidelines are triggered when elevations in Lake Mead reach 1,025 feet. They promote coordinated management of Lake Powell and Lake Mead to help avoid Mead reaching this elevation. California does not have to share in these shortages, which cover reductions of

up to 500,000 af.

158 *See generally About SNWA*, SOUTHERN NEVADA WATER AUTHORITY, http:// www.snwa.com/about/about_us.html (last visited Nov. 21, 2013).

159 *See* Lochhead, *supra* note 152, at 340-42. Nothing directly resulted from this effort, but indirectly it made other basin states aware of Nevada's situation and its willingness to take whatever steps it felt necessary to secure additional water supplies.

160 *Arizona Water Bank*, SOUTHERN NEVADA WATER AUTHORITY, http:// www.snwa.com/ws/future_banking_arizona.html. This agreement allowed Nevada to ""store" unused entitlement water in the Arizona bank for future use in Nevada. It was an important step in enabling actions crossing state lines.

161 SOUTHERN NEVADA WATER AUTHORITY, WATER CONSERVATION PLAN 2009-2013 (May 2009), *available at* http://www.snwa.com/assets/pdf/about_reports_ conservation_plan.pdf.

162 *See generally Groundwater Development Project*, SOUTHERN NEVADA WATER AUTHORITY, http://www.snwa.com/ws/future_gdp.html (last visited Nov. 21, 2013).

163 Authorized as part of the Interim Guidelines, Nevada's projects are intended to produce 'intentionally created surplus" water that it can use. For more information see *Intentionally Created Surplus*, SOUTHERN NEVADA WATER AUTHORITY, http://www.snwa.com/ws/river_surplus_ics.html.

164 Interim Shortage Guidelines, *supra* note 149, at 14.

165 *Id.* The Guidelines also address allocation of unused basic apportionment water under Article II(B)(6), intentionally created surplus, developed shortage supply, and implementation of California's Colorado River plan. The Guidelines govern the allocation of shortages, primarily to users of water from the Central Arizona Project but also to SNWA, down to 500,000 af.

166 On August 16, 2013 Reclamation announced that, based on its 24-month study, it planned to reduce releases from Lake Powell to 7.48 maf in water year 2014 (Oct. 1, 2014 to Sept. 30, 2014). *Bureau of Reclamation Forecasts Lower Water Release from Lake Powell to Lake Mead for 2014* (Aug. 16, 2013), *available at* http://www.usbr.gov/newsroom/newsrelease/detail.cfm?RecordID=44245. This marked the first time annual releases from Powell have been less than 8.23 maf since Powell first filled in the mid 1960s.

167 Interim Shortage Guidelines, *supra* note 149, at 51.

168 If the projected January 1 level is below the table value but the storage elevation in Powell is above 3,575 feet (9.52 maf of active storage), then there are several operational options that could involve releases from Powell of 7.0 to 9.0 maf ("upper elevation balancing tier"). If the projected storage elevation in Powell on January 1 is below 3,575 feet, then releases are either 7.48 maf or 8.23 maf dependent upon the projected elevation of Lake Mead ("mid-elevation balancing tier"). If Powell's January elevation is projected to be less than 3,525 feet (5.93 maf of active storage), then Reclamation is to make releases of between 7.0 and 9.5 maf to "balance" the amounts in the two reservoirs ("low-elevation balancing tier").

169 The McCarran Amendment waived sovereign immunity of the U.S. in the event a State initiates a general stream adjudication. Suits for Adjudication of Water Rights, 43 U.S.C. § 666. The U.S. Supreme Court decided that tribal reserved rights could be adjudicated in state court under a general stream adjudication. Colorado River Water Conservation District v. United States, 424 U.S. 800 (1976). Wyoming initiated such an adjudication in 1977 for the Big Horn River that included the Wind River Indian Reservation.

[170] Bonnie G. Colby, John E. Thorson & Sarah Britton, NEGOTIATING TRIBAL WATER RIGHTS, FULFILLING PROMISES IN THE ARID WEST (2005); *See also* Darcy S. Bushnell, American Indian Water Rights Settlements, *available at* http://uttoncenter.unm.edu/pdfs/American_Indian_Water_Right_Settlements.pdf.

[171] Under these settlements, the tribes typically have settled for less water than might have been available under the Practicably Irrigable Acreage (PIA) standard but have received other benefits, sometimes including the funding to construct the facilities necessary to use the water on the reservation. A listing of all settlements prepared by the Native American Rights Fund is available online at http:// narf.org/water/2013/materials/settlements.pdf.

[172] *Id.* Two are in California. There are four in Nevada, but they are outside the Basin.

[173] *Tribal Water Demand Scenario Quantification*, Basin Study, *supra* note 6, at C9-1.

[174] Construction of Colorado River Basin Act, 43 U.S.C. § 1551(b)(1). The Compact had included provision for Basin accounting. Art. V.

[175] Modeling of Lower Basin Tributaries in the Colorado River Simulation System, Basin Study, *supra* note 6, at Appendix C11.

[176] *Id.* at C11-10 to C11-13. There are inconsistencies in these data that Reclamation is now investigating. The figures cited here vary from those found in previous years. For example annual consumptive uses and losses between 1971 and 2000 ranged from 120,000 to 180,000 af in the Little Colorado; 60,000 to 150,000 af in the Virgin; and 20,000 to 70,000 af in the Bill Williams.

[177] *Id.* at C11-16. More accurately, consumptive uses and losses in the Gila Basin have varied from about 2.5 maf to about 4.5 maf from 1971 to 2005.

[178] Justice Harlan began his dissent: "The Court's conclusions respecting the Secretary's apportionment powers, particularly those in times of shortage, result in a single appointed federal official being vested with absolute control, unrestrained by adequate standards, over the fate of a substantial segment of the life and economy of three States." Arizona v. California, 373 U.S. 546, 604. He went on: "It is inconceivable that such a Congress intended that the sweeping federal power which it declined to exercise--a power even the most avid partisans of national authority might hesitate to grant to a single administrator--be exercised at the unbridled discretion of an administrative officer, especially in the light of complaints registered about 'bureaucratic' and 'oppressive' interference of the Department which that very officer headed." *Id.* at 614.

[179] The power of Congress to apportion interstate waters discovered in this decision has only been used once since 1963--to apportion the water of the Truckee River. The Truckee-Carson-Pyramid Lake Water Rights Settlement Act of 1990, Title II, Public Law 101-618, 32 Stat. 3294, 3306. Nor has Congress subsequently ever attempted to give the Secretary absolute discretion to determine uses of water from a federal water supply project without regard to state water law.

[180] Colorado River Basin Project Act, 43 U.S.C. § 1552. The U.S. Supreme Court, in California v. U.S., suggested a much more limited role for the U.S. in managing Reclamation projects and distinguished its decision in Arizona v. California as reflecting only "the singular legislative history of the Boulder Canyon Project Act." 438 U.S. 645, 674 (1978).

[181] *See, e.g.*, Lochhead's discussion of the states' role in developing the Interim Surplus Guidelines, *supra* note 152, at 359-62.

[182] The Secretary will sponsor a formal review of the Operating Criteria at least every 5 years, with participation by State representatives as each Governor may designate and such other parties and agencies as the Secretary may deem appropriate. Long Range Operating Criteria, *supra* note 151,.

[183] 43 U.S.C. § 1552(b).

[184] Interim Shortage Guidelines, *supra* note 149, at 54 ("The Secretary shall first consult with all the Basin States before making any substantive modification to these Guidelines.").

[185] Colorado River Basin Salinity Control Forum, *Water Quality Standards for Salinity, Including Numeric Criteria and Plan of Implementation for Salinity Control, Colorado River System*, June 1975. The U.S. invests in many projects and activities throughout the basin intended to reduce salinity under the Colorado River Basin Salinity Control Act, Pub. L. 93-320, 88 Stat. 273, 43 U.S.C. §§ 1571 - 1599.

[186] *See generally* LOWER COLORADO RIVER MULTI-SPECIES CONSERVATION PROGRAM, http://www.lcrmscp.gov/ (last visited Nov. 21, 2013).

[187] Lochhead noted the importance of using federal power in this process, stating: "Historically, the DOI simply delivered whatever water the contractors ordered, and then made an accounting at the end of the year." *Supra* note 152 at 401. Instead Interior announced its intention to monitor use and limit releases to stay within contractor entitlements.

[188] Arizona v. California, 373 U.S. 546, 565-66.

[189] *Id.* at 566. Later in the decision the Court states: "What Congress was doing in the Project Act was providing for an apportionment among the Lower Basin States of the water allocated to that basin by the Colorado River Compact." *Id.* at 591.

[190] *Id.* at 567.

[191] Jason A. Robison & Lawrence J. MacDonnell, *Reckoning* Arizona v. California *with the Colorado River Compact*, ARIZ. J. ENVTL. L. & POLICY (forthcoming).

[192] 43 U.S.C. § 617c(1).

[193] Arizona v. California, 373 U.S. at 551.

[194] *Id.* at 564-65. The Court again reiterated: "the tributaries are not included in the waters to be divided but remain for the exclusive use of each State." *Id.* at 567.

[195] *Id.* at 590-91.

[196] *Id.* at 568-69.

[197] *Id.* at 573.

[198] Colorado River Basin Project Act, 43 U.S.C. § 1552(a)(1). *See also* Lawrence J. MacDonnell, David H. Getches & William C. Hugenberg, Jr., *The Law of the Colorado River: Coping With a Severe Sustained Drought*, 31 J. AM. WATER RES. ASS'N 825 (1995).

[199] 43 U.S.C. § 1552(a); Long Range Operating Criteria, *supra* note 151, at § II (2) (providing for a minimum objective release of 8.23 maf from Lake Powell).

[200] James S. Lochhead, *An Upper Basin Perspective on California's Claims to Water from the Colorado River, Part I: The Law of the River*, 4 U. DENV. WATER L. REV. 290, 320 (2001).

[201] This argument is made more fully in Arizona v. California *Revisited*, *supra* note 7.

[202] Arizona v. California *Revisited*, *supra* note 7, at 410-11.

[203] *See generally* Lochhead, *supra* note 201.

[204] *See* text accompanying notes 206 to 212, *infra*.

[205] The 1964 Decree states: "Consumptive use" means diversions from the stream less such return flow thereto as is available for consumptive use in the United States or in satisfaction of the Mexican treaty obligation ..." Arizona v. California, 376 U.S. 340 (1964).

[206] This issue is addressed at length in Robison & MacDonnell, *supra* note 192.

[207] Master's Report, *supra* note 52, at 313 ("Reservoir evaporation, channel and other losses sustained prior to the diversion of water from the mainstream are not chargeable to the states but are to be treated as diminution of supply.").

[208] The Supreme Court implicitly adopted this determination in its 1964 Decree. *Supra* note 206.

[209] Bureau of Reclamation, Colorado River Basin Consumptive Uses and Losses Report, 2001-2005, Table LC-1 at 33, *available at* http:// www.usbr.gov/uc/library/envdocs/reports/crs/pdfs/cul2001-05.pdf.

[210] Basin Study, *supra* note 6.

[211] *See generally* MARC REISNER, CADILLAC DESERT: THE AMERICAN WEST AND ITS DISAPPEARING WATER (1986).