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Cover Page Footnote

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MONTANA V. WYOMING: SPRINKLERS, IRRIGATION WATER USE EFFICIENCY AND THE DOCTRINE OF RECAPTURE

LAWRENCE J. MACDONNELL*

I. INTRODUCTION

In 2007, Montana filed an original action with the United States Supreme Court asserting that certain water uses in Wyoming violated the Yellowstone River Compact (“Compact”).¹ The litigation was triggered by severe drought in the basin between 2000 and 2006, during which period there was inadequate water available for Montana appropriators in the Tongue River and Powder River sub-basins.² Montana raised four primary issues: irrigation of new acreage in Wyoming; new and expanded storage facilities; new groundwater pumping, especially associated with coalbed methane development; and increased consumption of water due to improved irrigation efficiency on existing irrigated acreage.³ In 2011, the U.S. Supreme Court decided the first substantive issue in this litigation: “Is a switch to more efficient irrigation with less return flow within the extent of Wyoming’s pre-1950 users’ existing appropriative rights, or is it an improper enlargement of

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¹ The Court granted Montana leave to file its complaint in *Montana v. Wyoming*, 552 U.S. 1175 (2008). Congress consented to the Yellowstone River Compact in the Act of Oct. 30, 1951, Pub. L. No. 82-231, 65 Stat. 663, 663.

² See, e.g., YELLOWSTONE RIVER COMPACT COMM’N, FIFTY-FIFTH ANNUAL REPORT Att. B (2006) [hereinafter “55th Annual Report”] (letter from Jack Stults, Commissioner for Montana, describing water shortages in the Tongue River sub-basin of Montana).

³ Montana Bill of Complaint at 3, ¶¶ 8-11, *Montana v. Wyoming*, 131 S. Ct. 1765 (2011) (No. 137, Orig.).

that right to the detriment of Montana's pre-1950 water users?"⁴ The Court held that such improvements are permitted under the Compact.⁵

This Article takes a careful look at this decision. It begins with an introduction to the physical setting, focusing on the Tongue and Powder sub-basins within the Yellowstone basin. It discusses Montana's arguments why the Compact precludes improved irrigation efficiency that increases consumption and the Special Master's rejection of those arguments. Next, the Article looks at the U.S. Supreme Court's opinion. Finally, it offers some observations triggered by this litigation, critiques the doctrine of recapture in western water law, and supports the Court's embrace of water use efficiency over protection of the status quo. We begin with a look at the Yellowstone River basin.

II. THE BASIN, THE COMPACT, AND THE CONTROVERSY

A. THE BASIN

The Yellowstone River basin includes an area of about 70,100 square miles nearly equally divided between Montana (51%) and Wyoming (48%), with a very small portion in North Dakota (1%).⁶ While coal mining and oil and gas development are important in some portions of the basin, grazing is the dominant land use.⁷ About five percent of the land area is used for irrigated agriculture, primarily for production of hay and grass.⁸ Agricultural uses account for 99% of surface water uses in the basin.⁹

Montana challenges Wyoming water uses in the Tongue and Powder River basins only. These rivers are both tributaries of the Yellowstone that originate on the eastern side of the Big Horn Mountains of Wyoming and flow north across the border into Montana. They are both small rivers, even by western standards. The Tongue begins in the northern Big Horns and collects water from a series of small tributaries in the general vicinity of Sheridan, Wyoming, before crossing the border with Montana. Most of the Tongue drainage, which accounts for only eight percent of the total area of the Yellowstone basin, is located in

⁴ Montana v. Wyoming, 131 S. Ct. 1765, 1773 (2011).

⁵ *Id.* at 1779.

⁶ U.S. GEOLOGICAL SURVEY, NATIONAL WATER-QUALITY ASSESSMENT PROGRAM, YELLOWSTONE RIVER BASIN, USGS FACT SHEET 149-97, at 2 [hereinafter "YELLOWSTONE BASIN WATER QUALITY"], available at pubs.usgs.gov/fs/FS-149-97/fs-149-97.pdf.

⁷ *Id.*

⁸ *Id.*

⁹ *Id.*

Montana.¹⁰ Wyoming estimates the total available flow of the Tongue in normal years is 326,000 acre-feet.¹¹ The Powder begins to the south, in the general vicinity of Kaycee, Wyoming, and includes 19% of the Yellowstone basin, again mostly in Montana.¹² Wyoming estimates the total available flow of the Powder is 324,000 acre-feet in normal years.¹³ Flows vary dramatically within the year and from year to year. A federal report on the Yellowstone River Basin, prepared in 1940, noted, “the Tongue and Powder are practically dry in late summer.”¹⁴

B. THE COMPACT

Montana and Wyoming began efforts to reach agreement on a compact apportioning waters of the Yellowstone Basin in 1932, finally succeeding in 1950.¹⁵ The reliable direct flow of the Tongue and Powder Rivers had long been fully appropriated during the late irrigation season, so storage was necessary to capture the peak spring flows for use in later summer. As the Special Master noted,¹⁶ the “compelling reason” for the compact was to obtain federal funding for construction of such projects.¹⁷

Most important for purposes of this Article is Article V of the Compact, which provides for the allocation of water among the three states.¹⁸ First, Article V provides that all appropriative rights existing as of January 1, 1950, “shall continue to be enjoyed.”¹⁹ The effect of this

¹⁰ *Id.* at 2-3.

¹¹ WYOMING STATE WATER PLAN, POWDER/TONGUE RIVER BASIN WATER PLAN: FINAL REPORT Table III-14 (2002) [hereinafter “POWDER/TONGUE PLAN”]. An acre-foot of water is the amount contained within a foot of water covering an acre of land. It equals 325,851 gallons.

¹² YELLOWSTONE BASIN WATER QUALITY, *supra* note 6, at 2-3.

¹³ POWDER/TONGUE PLAN, *supra* note 11, tbl.III-14.

¹⁴ FED. POWER COMM’N, PRELIMINARY REPORT ON YELLOWSTONE RIVER BASIN 27 (Dec. 1940).

¹⁵ A good summary of the negotiation process is provided in the First Interim Report of the Special Master at 6-9, *Montana v. Wyoming*, 131 S. Ct. 1765 (2011) (No. 137, Orig.).

¹⁶ A Special Master is the person appointed by the U.S. Supreme Court to act as the finder of fact in original jurisdiction matters. For a critique of the role of Special Masters, see Anne-Marie C. Carstens, *Lurking in the Shadows of Judicial Process: Special Masters in the Supreme Court’s Original Jurisdiction Cases*, 86 MINN. L. REV. 625 (2002). In this case the Special Master is Barton H. Thompson, professor at Stanford Law School. He was officially appointed in *Montana v. Wyoming*, 129 S. Ct. 480 (2008).

¹⁷ First Interim Report of the Special Master at 6, *Montana v. Wyoming*, 131 S. Ct. 1765 (2011) (No. 137, Orig.). Despite the Compact, federal funding to support construction of storage on the Powder and Tongue Rivers never materialized.

¹⁸ Yellowstone Compact art. V, Act of Oct. 30, 1951, Pub. L. No. 82-231, 65 Stat. 663, 666.

¹⁹ *Id.* art. V(A) (“Appropriative rights to the beneficial uses of the water of the Yellowstone River System existing in each signatory State as of January 1, 1950, shall continue to be enjoyed in

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provision is to maintain these uses without attempting to create any kind of interstate priority system.²⁰ The primary concern of compact negotiators was to apportion the unappropriated water, the peak flows that could be stored for later use. First priority to the peak flows is given to those with pre-1950 rights who need supplemental water.²¹ Next in line are those constructing storage or developing direct flow diversions for new uses.²² These uses are apportioned between Montana and Wyoming on a percentage basis of what is called the annual divertible flow.²³ Thus, for example, Montana will enjoy the use of 60% of this amount in the Tongue basin while Wyoming is apportioned 40%.²⁴

C. THE CONTROVERSY

A series of below-average runoff years between 2000 and 2006 in the Tongue and Powder basins resulted in critical water shortages in both Montana and Wyoming. As reported in the minutes of the Yellowstone Compact Commission in 2006, Montana requested that Wyoming regulate its post-1950 water rights so that Montana's pre-1950 water rights holders could receive water.²⁵ Wyoming responded that it had already curtailed diversions by appropriators with priority dates extending back into the 1800s.²⁶ In 2007, Montana filed its complaint

accordance with the laws governing the acquisition and use of water under the doctrine of appropriation.”).

²⁰ First Interim Report of the Special Master at 30, *Montana v. Wyoming*, 131 S. Ct. 1765 (2011) (No. 137, Orig.).

²¹ Yellowstone Compact, art. V(B), Act of Oct. 30, 1951, Pub. L. No. 82-231, 65 Stat. 663, 666 (“[T]here is allocated to each signatory State such quantity of that water as shall be necessary to provide supplemental water supplies for the rights described in paragraph A of this Article V, . . .”).

²² *Id.* (“[T]he remainder of the unused and unappropriated water is allocated to each State for storage or direct diversions for beneficial use on new lands or for other purposes . . .”).

²³ See First Interim Report of the Special Master at 64, *Montana v. Wyoming*, 131 S. Ct. 1765 (2011) (No. 137, Orig.).

²⁴ Yellowstone Compact, art. V(B)(3), Act of Oct. 30, 1951, Pub. L. No. 82-231, 65 Stat. 663, 667. Montana also is given the right to use 58% of this amount in the Powder, Wyoming 42%.

²⁵ “Ms. Sexton reported that Montana made a call for water to the Wyoming State Engineer under the Yellowstone River Compact on July 28, 2006, regarding the Tongue and Powder Rivers (Attachments B, C, and D—call letter and responses). The situation on the Tongue River was dire and Montana was unable to fill the Tongue River Reservoir this year. Montana’s biggest concern was their inability to fulfill all pre-1950 water rights. Montana also was concerned about flow in the Powder River. The Powder River at Moorhead, Montana (Montana-Wyoming border) essentially went dry on July 25, 2006, and the average flow for that date is 215 ft³/s. This was the second time that Montana made a call for water on Wyoming. A previous call was made in 2004.” 55th Annual Report, *supra* note 2, at X. “The seven straight years of below normal flows from water years 2000 through 2006 is the longest such series in the monitoring records of [the Tongue River State Line gauge].” MONT. BD. of Oil & Gas Conservation, 2009 TONGUE RIVER HYDROLOGY REPORT 5 (Sept. 2009).

²⁶ 55th Annual Report, *supra* note 2, at X (“Mr. Tyrrell reported on water-year

with the U.S. Supreme Court.

III. MONTANA'S ALLEGATIONS, THE INTERIM REPORT, AND MONTANA'S EXCEPTIONS

A. MONTANA'S ALLEGATIONS

Montana framed its complaint in terms of Wyoming's refusal to "curtail consumption of the waters of the Tongue and Powder Rivers in excess of Wyoming's consumption of such waters existing as of January 1, 1950, whenever the amount of water necessary to satisfy Montana's uses of such waters existing as of that date is not passing the Wyoming-Montana state line, in violation of Montana's rights under Article V of the Compact."²⁷ Relevant to this Article is the assertion that "[s]ince January 1, 1950, Wyoming has allowed the consumption of water on existing irrigated acreage in the Tongue and Powder River Basins to be increased in violation of Montana's rights under Article V of the Compact."²⁸ In its brief in support of its complaint, Montana alleged that appropriators in the Tongue and Powder basins in Wyoming had installed sprinkler systems in place of traditional flood irrigation methods.²⁹ Sprinklers, it asserted, are "a much more consumptive method of irrigation."³⁰ Montana alleged that sprinklers increase consumption from 65% of water diverted to 90%, thereby reducing return flows from 35% of the diverted water to only 10%.³¹ Montana argued Wyoming should have imposed administrative requirements to offset adverse effects on Montana appropriators.³²

administration highlights in Wyoming. In the Tongue River basin, water rights junior to 1883 were regulated on Little Goose Creek. Big Goose Creek was regulated to 1885 after June 27 and Sheridan was on water restrictions by mid-July. Reservoir water was released into Big Goose and Little Goose Creeks starting in mid-June and continued throughout the summer. Wolf Creek was regulated to 1883 after July 10. Little Tongue River was regulated to 1883 and Smith Creek was regulated to 1881 through the summer. By late August, only instream stock use was allowed on these rivers and creeks. In early September, flows in the Tongue River were regulated to 1891 on the reach above the Tongue River ditch at Ranchester.").

²⁷ Montana Bill of Complaint at 3, ¶ 8, *Montana v. Wyoming*, 131 S. Ct. 1765 (2011) (No. 137, Orig.).

²⁸ *Id.* at 4, ¶ 12.

²⁹ Montana's Brief in Support of Motion for Leave to File Bill of Complaint at 15, *Montana v. Wyoming*, 131 S. Ct. 1765 (2011) (No. 137, Orig.).

³⁰ *Id.*

³¹ *Id.* at 16.

³² *Id.*

B. THE INTERIM REPORT

The Special Master (“Master”) issued his First Interim Report on February 10, 2010. The Report dealt at length with Montana’s argument respecting increased consumption of water by Wyoming pre-1950 water rights holders.³³ The Master began by describing the manner in which water is diverted and used for irrigation, noting that only a portion of the water is consumed in the use with the remainder returning to the hydrologic system and becoming available for diversion and use by other appropriators.³⁴ The Master noted that this issue differed from the others raised by Montana because it involved only the pre-1950 appropriators in each state.³⁵ He explained the grandfathering of pre-1950 rights as a determination by the compact negotiators that it would be expensive and difficult to administer such rights, and that their administration would be of limited benefit.³⁶ While acknowledging Montana was not asking for traditional administration, the Master nevertheless commented on the practical problems for Wyoming associated with addressing Montana’s complaint.³⁷

The Master’s legal analysis began with a consideration of the language of Article V(A) of the Compact. Montana argued the increase in consumption was an increase in beneficial use not permitted under the Compact.³⁸ The Master found, however, that Article V(A) concerns only the amount of water diverted, not consumed.³⁹ He noted that prior appropriation water rights are described in terms of an amount of water that may be diverted, subject to the requirement that this amount be beneficially used.⁴⁰ If the drafters had intended to limit pre-1950 rights to the amount of water consumed, the Master pointed out, they would have used such language.⁴¹ Montana noted the definition of beneficial use in the Compact refers to “that use by which the water supply of a drainage basin is depleted when usefully employed by the activities of man.”⁴²

³³ This discussion begins at 54 and continues to 90. First Interim Report of the Special Master at 54-90, *Montana v. Wyoming*, 131 S. Ct. 1765 (2011) (No. 137, Orig.).

³⁴ *Id.* at 54-55.

³⁵ *Id.* at 56.

³⁶ *Id.* at 57.

³⁷ *Id.* at 58. For starters, Wyoming would have to determine its pre-1950 appropriators’ efficiency levels and identify changes in return flows for each appropriator who installed sprinklers.

³⁸ *Id.* at 59.

³⁹ First Interim Report of the Special Master at 60, *Montana v. Wyoming*, 131 S. Ct. 1765 (2011) (No. 137, Orig.).

⁴⁰ *Id.*

⁴¹ *Id.*

⁴² Yellowstone Compact, art. II(H), Act of Oct. 30, 1951, Pub. L. No. 82-231, 65 Stat. 663, 665.

The Master decided this reference to depletion was simply intended to reflect the traditional notion of prior appropriation that a diversion of water is for some consumptive-use-based purpose.⁴³

Noting that the language of Article V(A) refers to continued enjoyment under the doctrine of appropriation, the Master then undertook an extensive review of this law to see if it contains any limitations on increasing consumption through improved efficiency. His review revealed no case that directly addressed the issue presented by Montana in this litigation, which the Master restated as follows:

[C]an (1) an agricultural appropriator, (2) increase his or her consumption of water, (3) on the same irrigated acreage to which the appropriative right attaches, (4) to the detriment of downstream appropriators, (5) in the same water system from which the water was originally withdrawn?⁴⁴

First, the Master reviewed the legal principles governing changes of appropriative water rights. All prior-appropriation states limit such changes of point of diversion, purpose of use, and place of use if the change will injure other appropriators, such as by decreasing return flows upon which they rely.⁴⁵ States utilize a formal review process to evaluate the potential for such injury. Here, however, no such change of the water right is involved—only a change in the method of irrigation. Just as with changing the type of crop planted, changes in the manner of irrigation are not required to be reviewed.⁴⁶ Without such state supervision, there is no means for evaluating injury—suggesting that states do not intend to restrict changes in return flows that may result in these instances.

Next, the Master reviewed the law governing the capture and reuse of unconsumed water still in the possession of an appropriator after initial use.⁴⁷ In general, states allow additional use of such water on the same property and refuse to require appropriators to continue to make this water available to adjacent, downgradient landowners until it has reached a stream.⁴⁸ The Master viewed these cases as bolstering the ability of an appropriator to increase consumption through more efficient

⁴³ First Interim Report of the Special Master at 61, *Montana v. Wyoming*, 131 S. Ct. 1765 (2011) (No. 137, Orig.).

⁴⁴ *Id.* at 65.

⁴⁵ *Id.* at 67.

⁴⁶ *Id.* at 69.

⁴⁷ *Id.* at 71.

⁴⁸ *Id.* at 72-77.

application of water.⁴⁹ In addition, the Master's analysis of Wyoming case law indicated strong support for the view that an appropriator can increase consumption by recapturing and using unconsumed water on the property.⁵⁰ The Master summarized his findings as follows:

Given the law of prior appropriation both at the time the Compact was negotiated and today, I conclude that the Compact does not prohibit Wyoming from allowing pre-1950 appropriators in the State to increase their consumption of water on the lands they were irrigating as of January 1, 1950 by improving their irrigation systems, even when that reduces the runoff that reaches Montana.⁵¹

He bolstered this conclusion by noting that it furthers the important policy objective of improving water conservation.⁵² He reiterated his concern about the practical difficulty of determining efficiency effects.⁵³

C. MONTANA'S EXCEPTIONS

Perhaps recognizing its weaknesses under prior-appropriation law, Montana framed its exception to this portion of the Master's Report as a Compact-interpretation issue. Montana began by asserting that the Compact imposed a duty on Wyoming to deliver a certain amount of water each year to the Montana state line.⁵⁴ Wyoming had violated this duty by allowing an increase in the consumption of pre-1950 water rights, effectively increasing its share of basin water and the associated benefits.⁵⁵ Montana reiterated its view that, because the definition of beneficial use refers to depletion of the basin's water supply, the plain language of Article V(A) limits any increase in consumption by pre-1950 Wyoming appropriations.⁵⁶ Montana's pre-1950 appropriators cannot "continue to enjoy" their uses if increased consumption by pre-1950 Wyoming appropriators reduces the water supply upon which these uses depend.⁵⁷ Noting the Master's acceptance of Compact limitations on depletions of water by post-1950 uses, Montana argued the same

⁴⁹ First Interim Report of the Special Master at 73, 77, *Montana v. Wyoming*, 131 S. Ct. 1765 (2011) (No. 137, Orig.).

⁵⁰ *Id.* at 81.

⁵¹ *Id.* at 86.

⁵² *Id.* at 87.

⁵³ *Id.*

⁵⁴ Montana's Exception and Brief at 14, 24, *Montana v. Wyoming*, 131 S. Ct. 1765 (2011) (No. 137, Orig.).

⁵⁵ *Id.* at 16.

⁵⁶ *Id.* at 18-19, 25.

⁵⁷ *Id.* at 25-26.

limitations should be applied to increased depletions by Wyoming's pre-1950 appropriations.⁵⁸ Urging that the language of the Compact is unambiguous, Montana suggested there was no need to look at prior-appropriation law generally.⁵⁹ Even if the language is ambiguous, Montana argued, other authority supports Montana's position.⁶⁰ Finally, Montana asserted the Master's analysis of general prior-appropriation law was inconclusive, incorrect, and should be overruled.⁶¹

IV. THE SUPREME COURT DECISION

The U.S. Supreme Court upheld the Special Master on a 7-1 vote, with Justice Scalia dissenting.⁶² Justice Thomas, writing for the majority, focused primarily on whether "background principles" of prior-appropriation law preclude more efficient uses of water because of reduced return flows.⁶³ The Court framed the question in almost precisely the terms employed by the Special Master: "whether Article V(A) allows Wyoming's pre-1950 water users—diverting the same quantity of water for the same irrigation purpose and acreage as before 1950—to increase their consumption of water by improving their irrigation systems even if it reduces the flow of water to Montana's pre-1950 users."⁶⁴ The Court acknowledged some discomfort with having to interpret state water law but felt compelled to do so because of the Compact's reference to enjoyment of pre-1950 appropriative rights under the doctrine of appropriation.⁶⁵

The Court characterized Montana's pre-1950 water users as junior

⁵⁸ *Id.* at 22-23.

⁵⁹ *Id.* at 28.

⁶⁰ Montana's Exception and Brief at 28-31, *Montana v. Wyoming*, 131 S. Ct. 1765 (2011) (No. 137, Orig.), (citing some materials from the negotiations and the Senate Report accompanying approval of the Compact).

⁶¹ *Id.* at 32. Its primary basis was that the Compact preempted any contrary state law. Moreover, Montana found support in those cases that protect downstream appropriators once the unconsumed water has returned to the stream, the situation in this litigation prior to the installation of sprinklers.

⁶² *Montana v. Wyoming*, 131 S. Ct. 1765. Justice Kagan did not participate. The dissent focused on giving meaning to the word "depleted" in the Compact's definition of beneficial use, interpreting it to mean that beneficial use is limited to the amount of water depleted by the use. *Id.* at 1780-81 (Scalia, J., dissenting).

⁶³ *Id.* at 1771 (majority opinion). Tellingly, the Majority inverted the order of Montana's arguments by leading with considerations of prior-appropriation law and then considering the Compact language.

⁶⁴ *Id.*

⁶⁵ *Id.* at 1773 n.5. The Court stated: "Our decision is not intended to restrict the States' determination of their respective appropriation doctrines." Nevertheless, the Court's analysis of this area of law is certain to be highly persuasive in any future litigation.

appropriators under the prior-appropriation system.⁶⁶ It noted the Compact placed all pre-1950 water users in the same position—that is, the priority system does not apply interstate to regulate their uses. The effect is that a senior Montana appropriator cannot require curtailment of a junior Wyoming appropriator with a pre-1950 priority date. Thus, the Court asked what protections are enjoyed by junior appropriators under background principles of prior-appropriation law. It found an answer in the principle that juniors can require that seniors use water strictly within the confines of their rights.⁶⁷ The Court then asked whether a change of irrigation method with consequent reduction of return flows is permissible under an appropriative right.⁶⁸

The Court looked first at the no-injury rule that prevents making changes of water rights that would harm other appropriators. Noting that this rule is articulated as precluding changes that alter stream flows to the material injury of downstream users, it explored whether that rule applies to the type of change at issue in this litigation.⁶⁹ Finding the rule applies only to changes of point of diversion, purpose of use, and place of use, the Court concluded that “[i]mprovements to irrigation systems . . . fall outside the no-injury rule as it exists in Montana and Wyoming.”⁷⁰ It noted that neither the Montana nor the Wyoming statutes applying to changes of use consider changing irrigation methods.⁷¹ It also noted the absence of litigation concerning the potential adverse effects of changed methods of irrigation.⁷² Thus, the Court concluded that such changes are within the scope of an appropriative water right—that is, an appropriator is free to make such changes irrespective of their effects on other water users.⁷³

Next, the Court turned to what it called the “doctrine of recapture,”⁷⁴ restating this doctrine as allowing an appropriator who has diverted water for irrigation purposes to “recapture and reuse his own runoff and seepage water before it escapes his control or his property.”⁷⁵

⁶⁶ *Id.* at 1772 (“For our purposes, Montana’s pre-1950 water users are similar to junior appropriators.”).

⁶⁷ *Id.*

⁶⁸ *Montana v. Wyoming*, 131 S. Ct. at 1773.

⁶⁹ *Id.*

⁷⁰ *Id.* at 1774.

⁷¹ *Id.*

⁷² *Id.* (“The abundance of litigation over such changes—and the absence of any litigation over the sort of change at issue here—strongly implies that irrigation efficiency improvements do not violate the no-injury rule and were considered within the scope of the original appropriative right.”).

⁷³ *Id.*

⁷⁴ *Montana v. Wyoming*, 131 S. Ct. at 1774.

⁷⁵ *Id.*

The Court, like the Master, found this doctrine supportive of the conclusion that changes in irrigation methods for purposes of efficiency are within the scope of an appropriative right.⁷⁶ The Court acknowledged the cases limiting that right if the unused water would return to the source from which it was taken, which was the situation in this case.⁷⁷ But it found the law in Montana and Wyoming was to the contrary, concluding that in these states “the original appropriator may freely recapture his used water while it remains on his property and reuse it for the same purpose on the same land.”⁷⁸

Finally, the Court considered Montana’s primary argument—that the increase in consumption resulting from the changed irrigation method is precluded by the terms of the Compact itself. Given the Court’s analytical focus on the scope of an appropriative right, it restated Montana’s argument as asserting that the Compact language altered the traditional scope of Wyoming’s pre-1950 water rights.⁷⁹ The Court rejected Montana’s reading of the Compact language, finding instead that the reference to depletion in the definition of beneficial use was intended simply to make clear that the protected pre-1950 uses were those involving a depletion of water such as irrigation.⁸⁰ The Court found Montana’s assertion that the intent was to limit pre-1950 water uses to their consumption in 1950 was a drastic redefinition of beneficial use without basis in the language of the Compact itself.⁸¹ Moreover, the Court rejected Montana’s argument that Article V(A) was intended to guarantee Montana a specific quantity of water, noting the absence of the kind of language used in other compacts for this purpose.⁸²

V. RETHINKING THE DOCTRINE OF RECAPTURE

In both the Special Master’s and Supreme Court’s decisions, the doctrine of recapture was discussed to support their conclusion that an increase in consumption associated with a changed method of irrigation

⁷⁶ *Id.* at 1776.

⁷⁷ *Id.* at 1775.

⁷⁸ *Id.*

⁷⁹ *Id.* at 1777 (“Montana ... argues that even if background principles of appropriation law do not support its position, Article V(A) of the Compact does not protect the full scope of ordinary appropriative rights.”).

⁸⁰ *Montana v. Wyoming*, 131 S. Ct. at 1778.

⁸¹ *Id.* (“Montana’s reading of the Compact . . . would drastically redefine the term ‘beneficial use’ from its longstanding meaning. . . . If the Compact’s definition of ‘beneficial use’ were meant to drastically redefine the term into shorthand for net water consumption, we would expect far more clarity.”).

⁸² *Id.* at 1779.

in Wyoming was permissible and did not legally impair enjoyment of use by pre-1950 appropriators in Montana.⁸³ An independent look at the doctrine of recapture, however, suggests it is inconsistent with the fundamental law of prior appropriation and fails to adequately reflect hydrologic realities that bind together users of water. An approach more consistent with principles of prior appropriation would base the right of recapture on the original intention of the appropriator.⁸⁴ Only in situations in which the appropriator intended to recapture water unconsumed after initial use for the original purpose for which the water was appropriated and in which such recaptured water could be beneficially used for the appropriation's purpose, would a right of recapture be recognized. Otherwise, diverted but unconsumed water would return to the hydrologic system to become available for use by others.

The Special Master noted the many cases that uphold the right of an appropriator to recapture water unconsumed in the original use and to reuse this water.⁸⁵ His review of these cases suggested one line supporting a right of recapture because courts had denied the right of subsequent users to demand continuation of those return waters.⁸⁶ From these cases he concluded: "As a result, the original appropriator is always

⁸³ First Interim Report of the Special Master at 86, *Montana v. Wyoming*, 131 S. Ct. 1765 (2011) (No. 137, Orig.); see *Montana v. Wyoming*, 131 S. Ct. at 1777.

⁸⁴ Intent is one of the traditional requirements of an appropriation. For an early statement of this principle, see *McDonald & Blackburn v. Bear River & Auburn Water & Mining Co.*, 13 Cal. 220, 232-33 (1859) ("The right accrues from appropriation; this appropriation is the intent to take, accompanied by some open, physical demonstration of the intent, and for some valuable use"). While the requirement to openly demonstrate intent has been replaced by filing an application in permit states, the concept of intent still has meaning in understanding the scope of an appropriation. Intent can help to define an appropriator's contemplated use. Thus, in *Toohy v. Campbell*, 24 Mont. 13, 60 P. 396, 397 (1900), the court stated: "But, as every appropriation must be made for a beneficial or useful purpose . . . it becomes the duty of the courts to try the question of the claimant's intent by his acts and the circumstances surrounding his possession of the water, its actual or contemplated use and the purposes thereof." See also *Colville Confederated Tribes v. Walton*, 752 F.2d 397, 402 (9th Cir. 1985) ("An initial diversion of at least some water is an important indication of intent. When water is diverted for irrigation purposes, and the amount continuously and gradually increased, an intent to appropriate the quantity eventually used may logically be inferred. This could include enough water to irrigate all irrigable acres.") (citations omitted). In the context of a proposal to capture and use seepage from water to be delivered from a reservoir, the Colorado Supreme Court noted the absence of evidence of intent to use this water as the basis for denying the claim. *Water Supply & Storage Co. v. Curtis*, 733 P.2d 680, 684-85 (1987). In a change-of-use case, the Colorado Supreme Court embraced the notion of "contemplated draft" to quantify the extent of a conditional appropriation. *Twin Lakes Reservoir & Canal Co. v. City of Aspen*, 193 Colo. 478, 485, 568 P.2d 45, 50 (1977).

⁸⁵ First Interim Report of the Special Master at 71, *Montana v. Wyoming*, 131 S. Ct. 1765 (2011) (No. 137, Orig.).

⁸⁶ *Id.* at 72. In support he cited to cases concluding that a party using this unconsumed water as it returns to a stream cannot insist the original appropriator continue to make this water available.

free to recapture the water and apply it to beneficial use.”⁸⁷ He quoted from a decision of the U.S. Supreme Court upholding the right of the Bureau of Reclamation to capture return waters and make them available for use by others in a federal reclamation project.⁸⁸ He identified a second line of cases allowing recapture of water still on the appropriator’s property.⁸⁹ From these cases he concluded: “If appropriators can capture and reuse waste water while it is still on their land, it would seem to follow that appropriators have a right to reduce or eliminate the return flows entirely by increasing irrigation efficiency, lining canals, and similar actions.”⁹⁰ While cases applying the doctrine of recapture seem to support the right of an appropriator to consume more water by using more efficient irrigation techniques, the Master acknowledged such cases are not precisely on point with the issue in this litigation.⁹¹

The U.S. Supreme Court relied on its previous decision in *Ide v. United States*,⁹² a case involving a Bureau of Reclamation project, and on *Arizona Public Service Co. v. Long*,⁹³ a case concerning sale of treated effluent from a wastewater treatment facility. The Court noted that Utah and Colorado cases restrict recapture and reuse of water that returns to the same stream from which it was originally diverted.⁹⁴ But it focused its attention primarily on the relevant cases in Wyoming and Montana which, the Court found, squarely support the right of the original irrigation appropriator to recapture and reuse unconsumed water.⁹⁵

The Master and the Court were entirely correct in finding that the doctrine of recapture provides support for the right of an appropriator to

⁸⁷ *Id.*

⁸⁸ *Id.* at 72-73 (citing *Ide v. United States*, 263 U.S. 497, 506 (1923)).

⁸⁹ *Id.* at 73.

⁹⁰ *Id.*

⁹¹ First Interim Report of the Special Master at 74, *Montana v. Wyoming*, 131 S. Ct. 1765 (2011) (No. 137, Orig.). (“None of these cases, however, involved an appropriator who increased his efficiency and consumption to the detriment of downstream appropriators *on the same waterway from which the water was diverted*. For this reason, they are not on all fours with Montana’s allegation in this case.”).

⁹² 263 U.S. 497 (1924). The Court found the appropriation of water was intended to supply all lands within the project boundaries, with drainage waters from one use intended to provide water to other users. *Id.* at 505-06.

⁹³ 160 Ariz. 429, 773 P.2d 988 (1989). The decision regards sewage effluent as no longer part of the natural flow subject to appropriation, apparently to give cities maximum flexibility in the manner they dispose of the water. This decision takes the doctrine of recapture to an extreme, justifying reuse of the water to avoid waste without regard for downstream users.

⁹⁴ *Montana v. Wyoming*, 131 S. Ct. at 1775.

⁹⁵ *Id.* at 1775-76.

increase consumption without liability by using more efficient irrigation techniques. Yet, independent of this litigation, the doctrine of recapture bears reconsideration and more careful explication. As stated, it seems contrary to the ordinary limitations placed on appropriators to maintain return flows upon which other appropriators depend.⁹⁶ In most cases the right of recapture is not predicated on demonstrated intent at the time of appropriation to recapture water.⁹⁷ It is a doctrine in need of redefinition.

An appropriation of water establishes the right to divert a specified flow of water from a natural source such as a stream for a stated beneficial purpose.⁹⁸ The rate of diversion provides the amount of water reasonably necessary to carry out the beneficial purpose.⁹⁹ In irrigation, it is the amount of water reasonably necessary to grow crops on a specified area of land.¹⁰⁰ Ordinarily the diverted flow is based on a single use of the water to irrigate the crops, with some unconsumed water seeping into the ground and other unconsumed water running off the fields after use.¹⁰¹ Most water unconsumed in irrigation eventually finds its way back to a stream or river unless it is intercepted by other users along the way.¹⁰² Unlike riparian law, prior appropriation does not require the appropriator to return unconsumed water to the source from which it was diverted.¹⁰³

⁹⁶ See discussion accompanying notes 148-52, *infra*.

⁹⁷ The only cases in which intent is mentioned are those discussing whether the water unconsumed after use had been “abandoned” once it leaves the property. See cases discussed with notes 129-31, *infra*.

⁹⁸ See, e.g., *Burlington Ditch Reservoir & Land Co. v. Metro Wastewater Reclamation Dist.*, 256 P.3d 645, 661 (Colo. 2011) (“A Colorado prior appropriation water right arises only by application of a specified quantity of water to an actual beneficial use.”).

⁹⁹ See, e.g., *Rominiecki v. McIntyre Livestock Corp.*, 633 P.2d 1064, 1067 (Colo. 1981) (“An implied limitation is read into every decree adjudicating a water right that diversions are limited to an amount sufficient for the purpose for which the appropriation was made, even though such limitation may be less than the decreed rate of diversion.”).

¹⁰⁰ Often, courts use the concept of “duty of water” to describe an amount of water “which, by careful management and use, without wastage, is reasonably required to be applied to any given tract of land for such period of time as may be adequate to produce therefrom a maximum amount of such crops as ordinarily are grown thereon.” *Farmers Highline Canal & Reservoir Co. v. City of Golden*, 129 Colo. 575, 584-585, 272 P.2d 629, 634 (1954). The appropriation includes not only the amount of water that must be applied on the field for irrigation but also water necessary to carry this amount from the river to the field.

¹⁰¹ See, e.g., *Pub. Serv. Co. of Colo. v. Willows Water Dist.*, 856 P.2d 829, 833 n.8 (Colo. 1993) (“An appropriator of native, tributary water, which historically flows back to the stream from whence it comes, is permitted only one use of the water because the return flows are subject to water rights on the stream in the order of their priority.”).

¹⁰² *Id.*

¹⁰³ See, e.g., *Oppenlander v. Left-Hand Ditch Co.*, 18 Colo. 142, 148-49, 31 P. 854, 856 (1892) (“A riparian proprietor, owning both sides of a running stream, may divert the water therefrom, provided he returns the same to the natural stream before it leaves his own land, so that it may reach the riparian proprietor below without material diminution in quantity, quality, or force.”).

The many cases allowing the original appropriator to recapture water unconsumed after use appear to have at least two different bases. One is the view that such unconsumed water is “waste” water and that appropriators should be encouraged to make more efficient use of appropriated water to avoid or reduce waste.¹⁰⁴ Thus the Court in *Lambeye v. Garcia* quoted from the treatise by Kinney: “[T]he original appropriators have the right, and in fact it is their duty, to prevent, as far as possible, all waste of the water which they have appropriated”¹⁰⁵ In *Smithfield West Bench Irr. Co. v. Union Central Life Ins. Co.*, the Utah Supreme Court said: “The appropriator has no right to divert more waters than he can put to a beneficial use, and should waste as little as possible.”¹⁰⁶ And in *Lasson v. Seely*, the court stated:

We therefore do not agree with plaintiff’s contention that defendant or others using irrigation waters as upper appropriators cannot utilize water more efficiently in the future than in the past, if such future use would diminish the quantity of surplus or waste water which has heretofore found its way into the slough¹⁰⁷

Courts often tie this sentiment about reducing waste to an unwillingness to require a continuation of the wasteful uses for the benefit of another party. Thus, in *Application of Boyer*, the Idaho Supreme Court said: “It is axiomatic that no appropriator can compel any other appropriator to continue the waste of water whereby the former may benefit.”¹⁰⁸ In *McNaughton v. Eaton*, the Utah Supreme Court stated: “But the reappropriator of such waters cannot require that the first appropriator shall continue to waste such waters so that they will be available for use by the reappropriator.”¹⁰⁹ The Wyoming Supreme Court has said:

No appropriator can compel any other appropriator to continue the

The appropriator, though he may not own the land on either bank of a running stream, may divert the water therefrom, and carry the same whithersoever necessity may require for beneficial use, without returning it, or any of it, to the natural stream, in any manner.”)

¹⁰⁴ See, e.g., Steven J. Shupe, *Waste in Western Water Law: A Blueprint for Change*, 61 OR. L. REV. 483, 489 (1982) (“Water waste in a particular irrigation operation can be considered as the volume of water diverted from the natural water supply that is not consumptively used by the crops.”).

¹⁰⁵ 18 Ariz. 178, 182, 157 P. 977, 978-79 (1916) (quoting 1 CLESSON S. KINNEY, A TREATISE ON THE LAW OF IRRIGATION AND WATER RIGHTS § 661 (2d ed. 1912)).

¹⁰⁶ 105 Utah 468, 142 P.2d 866, 870 (1943) (Wolfe, C.J., concurring).

¹⁰⁷ 120 Utah 679, 687, 238 P.2d 418, 422 (1951).

¹⁰⁸ 73 Idaho 152, 162, 248 P.2d 540, 546 (1952).

¹⁰⁹ 121 Utah 394, 403, 242 P.2d 570, 574 (1952).

waste of water which benefits the former. If the senior appropriator by a different method of irrigation can so utilize his water that it is all consumed in transpiration and consumptive use and no waste water returns by seepage or percolation to the river, no other appropriator can complain.¹¹⁰

And the Arizona Supreme Court has stated:

The very nature of waste water requires the application of different rules governing the rights of the junior appropriator. Waste water exists only as long as there is waste. No appropriator can compel any other appropriator to continue the waste of water which benefits the former. If the senior appropriator, through scientific and technical advances, can utilize his water so that none is wasted, no other appropriator can complain.¹¹¹

When is unconsumed water “waste,” and when is it simply the residue of that amount of water necessary to properly irrigate the land? The cases make no attempt to distinguish unconsumed water that is truly waste from other unconsumed water.¹¹² As the Master pointed out, courts use a variety of terms to refer to this unconsumed water.¹¹³ Yet when a court characterizes the unconsumed water as waste, that water takes on a special legal status.¹¹⁴ It may be recaptured by the original appropriator

¹¹⁰ Bower v. Big Horn Canal Ass’n, 77 Wyo. 80, 101, 307 P.2d 593, 601 (1957).

¹¹¹ Arizona Pub. Serv. Co. v. Long, 160 Ariz. 429, 437-38, 773 P.2d 988, 996-97 (1989). This case is perhaps the most extreme decision respecting the appropriator’s right to reuse waste water. It involved whether a city must continue to discharge treated effluent from its wastewater facility into a stream or whether it can sell this effluent to another party for use elsewhere. The Court offered this view of the status of waste water: “The very nature of waste water requires the application of different rules governing the rights of the junior appropriator. Waste water exists only as long as there is waste. No appropriator can compel any other appropriator to continue the waste of water which benefits the former.” 773 P.2d at 996. Since effluent is waste water, the discharger is under no obligation to continue discharging it into the stream, the Court held, and may instead sell or otherwise dispose of it. “We therefore hold that the Cities may discontinue the discharge of sewage effluent without violating the rights of those persons or entities which have previously appropriated it.” *Id.* at 997.

¹¹² An exception is *Green Valley Ditch Co. v. Schneider*, 50 Colo. 606, 115 P. 705 (1911). Here the water had been diverted to the stream but not applied to any use before being discharged.

¹¹³ “Depending on the context, courts have called this water ‘seepage,’ ‘waste,’ ‘wastage,’ ‘run-off,’ ‘percolation,’ and various other terms. The use of this terminology, unfortunately, often differs among courts and even among cases in the same jurisdiction, so that too much weight cannot be placed on the particular terminology used in any case.” First Interim Report of the Special Master at 71, *Montana v. Wyoming*, 131 S. Ct. 1765 (2011) (No. 137, Orig.).

¹¹⁴ In *City of Boulder v. Boulder & Left Hand Ditch Co.*, 192 Colo. 219, 557 P.2d 1182 (1986), the Colorado Supreme Court attempted to draw a distinction between waste water and return flows. It provided the following explanation of waste water: “A typical example is that of the irrigator who turns water into individual furrows traversing his field. That portion which is not absorbed into the earth or transpires remains in the furrow at the end thereof, and is collected in a

at any time and reused, even if that water has returned to the stream and been appropriated by others.¹¹⁵ Those who have put that water to beneficial use have no recourse if the recapture of this water by the original appropriator for more efficient use under the original purpose impairs their subsequent use.¹¹⁶

In fact, it is common for some portion of the water applied to irrigate crops not to be consumed in the process.¹¹⁷ Flood and furrow irrigation require the application of enough water to reach the plants across the entire irrigated area. Sufficient amounts of water must be applied at the upgradient side of the field to ensure that water reaches plants at the lower end of the field. That means plants on the upgradient side are somewhat overwatered and, typically, plants at the lower end of the field are underwatered.¹¹⁸ This physical problem is one of the primary reasons irrigators are shifting to sprinklers that can more evenly deliver water to the entire cultivated area. Moreover, the unconsumed water returns to a stream and becomes part of the flows upon which other appropriators depend, whether it is called waste, seepage, runoff, or return flows. To the extent these cases are simply making the point that incidental beneficiaries (those using the water before it returns to a stream) cannot require its continued availability, characterization as waste does not matter. But the cases that have extended this rule to eliminate any continued obligations to maintain return flows simply because the water is characterized as waste are clearly wrong.

waste ditch. The contents of the waste ditch is waste water.” 557 P.2d at 1185. The court defined return flows as follows: “Return flow is not waste water. Rather, it is irrigation water seeping back to a stream after it has gone underground to perform its nutritional function.” *Id.* Apparently based on this distinction, the court went on to conclude: “We are here involved with the effect of a change of place of use because return flow results from use and not from water carried in the surface in ditches and wasted into the stream.” *Id.* at 1186. At issue was whether water appropriated by one ditch company could be shared with another company with which it shared a common diversion ditch without making a formal change of use if the use by the second company resulted in water returning to a different watershed.

¹¹⁵ See, e.g., *Arizona Pub. Serv. Co. v. Long*, 160 Ariz. 429, 773 P.2d 988 (1989).

¹¹⁶ *Id.*

¹¹⁷ “The quantity of water ‘beneficially used’ in irrigation, for example, has always included some measure of necessary loss such as runoff, evaporation, deep percolation, leakage, and seepage (regardless of whether any of it returns to the stream).” *Montana v. Wyoming*, 131 S. Ct. at 1778. Irrigation uses generally consume only about 50% of water diverted. Shupe, *supra* note 104, at 490.

¹¹⁸ See, e.g., *Kansas v. Colorado*, No. 105, Original, 1997 WL 33796878, at *15 (U.S. Sept. 9, 1997) (“Miles testified that it was fairly common practice to run water for about 12 hours, 9 or 10 of which would be required to get the water through the field. As a result, ‘the lower end of the field is usually under-irrigated, while the upper end is often over-irrigated.’”); see also *Estate of Steed Through Kazan v. New Escalante Irrigation Co.*, 846 P.2d 1223, 1227 (Utah 1992) (“With a flood-type irrigation system, crops are somewhat over watered at the upper end and under watered at the lower end.”).

Under the doctrine of beneficial use, water cannot be diverted that is not required to accomplish the use.¹¹⁹ The intention of the beneficial-use requirement is to preclude the waste of water.¹²⁰ Thus, if the unconsumed water is truly waste, the appropriator should have no right to divert it. Rather than according the appropriator a right of recapture, it would seem better to reduce his or her diversion right to eliminate the unnecessary removal of water from the stream.

It seems entirely possible courts started referring to unconsumed water as waste simply because it had not been entirely used up (consumed) in the process of irrigation.¹²¹ The intent was not necessarily to imply the water should never have been diverted but to recognize that, in the water-limited West, the objective is to fully use (consume) every possible drop of water. Nevertheless, it appears that many courts took the meaning of waste water literally and adopted the view the appropriator should seek to stop making this kind of unproductive use of water. The problem arose, however, when they started allowing recapture without regard for uses being made by other appropriators. It makes no sense to treat so-called waste water as if it is not part of the hydrologic system.

An alternative basis for allowing recapture is the view of appropriated water as the property of the appropriator while in his or her possession and thus subject to the appropriator's determination respecting use of the water. Thus, in *Farmers' Irr. Dist. v. Frank*, the court said:

The person making the first application for the use of water to water any particular tract of land is given by the law an exclusive right to the water, so long as he applies it to the beneficial use, and is granted, therefore, in a certain sense, a monopoly of the use of the water which he has been allowed to appropriate.¹²²

In *United States v. Haga*, the federal district court in Idaho stated:

¹¹⁹ *Montana v. Wyoming*, 131 S. Ct. at 1772 (“The scope of the right is limited by the concept of “beneficial use.” That concept restricts a farmer ‘to the amount of water that is necessary to irrigate his land by making a reasonable use of the water.’”) (quoting 1 CLESSON S. KINNEY, A TREATISE ON THE LAW OF IRRIGATION AND WATER RIGHTS § 586 (2d ed. 1912)).

¹²⁰ See, e.g., *Ready Mixed Concrete Co. in Adams Cnty. v. Farmers Reservoir & Irrigation Co.*, 115 P.3d 638, 645 n. 4 (Colo. 2005) (“Wasting water by diverting it when not needed for beneficial use, or running more water than is reasonably needed for application to beneficial use, is ‘waste.’”); see also A. DAN TARLOCK, LAW OF WATER RIGHTS AND RESOURCES § 5:68 (West 2010) (“The principal function of the beneficial use doctrine is to prevent waste.”).

¹²¹ Kinney notes three different meanings for the term waste water: water actually wasted, water used that runs off the land, and water lost to use because of unavoidable causes. 1 CLESSON S. KINNEY, A TREATISE ON THE LAW OF IRRIGATION AND WATER RIGHTS § 523 (2d ed. 1912).

¹²² 72 Neb. 136, 100 N.W. 286, 294 (1904).

One who by the expenditure of money and labor diverts appropriable water from a stream, and thus makes it available for fruitful purposes, is entitled to its exclusive control so long as he is able and willing to apply it to beneficial uses, and such right extends to what is commonly known as wastage from surface run-off and deep percolation, necessarily incident to practical irrigation. Considerations of both public policy and natural justice strongly support such a rule.¹²³

The Utah Supreme Court has stated: “While the water is under his dominion and control, he is entitled to use it on his own land in such beneficial manner as he sees fit,”¹²⁴ and, “[i]t is well established under the authorities cited in our previous opinion that waters diverted from a natural source, applied to irrigation and recaptured before they escape from the original appropriator’s control, still belong to the original appropriator. If the original appropriator has a beneficial use for such waters, he may again reuse them and no one can acquire a right superior to that of the original appropriator.”¹²⁵ That court has also said: “The original appropriator as long as he has possession and control thereof may sell or transfer the right to the use of such waters to someone other than the reappropriator as long as he does so in good faith and they are beneficially used, or he may recapture and use them for further beneficial use if he does so before they get beyond his property and control.”¹²⁶ The Montana Supreme Court said: “The owner of the right to use the water—his private property while in his possession, may collect it, recapture it, before it leaves his possession, but, after it gets beyond his control, it thus becomes waste and is subject to appropriation by another.”¹²⁷

This expansive view of an appropriator’s right to do whatever he or she wants with water diverted and made available for use ultimately gave way to the view that an appropriation may be used only for the purposes for which it was made and in the amounts those purposes require. Samuel Wiel in his treatise on water rights discussed the transition in the law underway at that time (the early 1900s) from what he called a “possessory” to a “specific use” approach.¹²⁸ The possessory system

¹²³ 276 F. 41, 43 (D. Idaho 1921).

¹²⁴ *Lasson v. Seely*, 120 Utah 679, 688, 238 P.2d 418, 422 (1951).

¹²⁵ *Smithfield W. Bench Irr. Co. v. Union Cent. Life Ins. Co.*, 113 Utah 356, 363, 195 P.2d 249, 252-53 (1948).

¹²⁶ *McNaughton v. Eaton*, 121 Utah 394, 403-04, 242 P.2d 570, 574 (1952).

¹²⁷ *Rock Creek Ditch & Flume Co. v. Miller*, 93 Mont. 248, 17 P.2d 1074, 1080 (1933).

¹²⁸ SAMUEL C. WIEL, *WATER RIGHTS IN THE WESTERN STATES* 500 (3d ed. 1911). Wiel was not altogether sure the transition was good. He seemed concerned that the specific-use approach might constrain irrigation by being overly limiting in the amount of water that can be appropriated: “Whether a complete change from a possessory to a specific purpose system is desirable is a difficult

accorded an almost unlimited right to the party capturing the water to determine its use so long as that use was not wasteful. The specific use system limited the appropriation to the beneficial use for which it was made.

This status of ownership is lost only when the water leaves the appropriator's possession and control, at which point the appropriator is regarded as having abandoned his or her ownership. According to a federal district court in Idaho, "One who diverts or develops water loses his superior right only when and so long as he is out of possession, or when he voluntarily abandons the water, or ceases to have a beneficial use for it."¹²⁹ The Washington Supreme Court has offered this view:

Upon the principle that the law of appropriation as applied to the arid regions will not tolerate a waste of water, it has been held that water that is allowed to run to waste after use on the land of the appropriator is abandoned, and that lower appropriators are entitled to the surplus. But abandonment, like appropriation, is a question of intent, and to be determined with reference to the conduct of the parties. The intent to abandon and an actual relinquishment must concur, for courts will not lightly decree an abandonment of a property so valuable as that of water in an irrigated region.¹³⁰

The Eighth Circuit placed abandonment of the unconsumed water at the time it reaches the stream from which it was diverted: "Seepage and waste water may be said to have been abandoned by the original appropriator when it is returned or allowed to return to its natural channel, with no intention on the part of the appropriator of recapturing it."¹³¹ These cases allow the incidental beneficiary of the unconsumed water to put it to use but, again, without the power to require the original appropriator to continue to make it available.

Recapture cases often seem concerned primarily with limiting responsibility of the appropriator to continue to make unconsumed water available to downgradient users. Such a view makes eminent sense because it is obvious the original appropriator cannot be compelled to continue diverting and using water. Incidental beneficiaries may be able to use this water so long as it is available but without right to compel its availability. An Oregon court described the ability to use return water in the following terms:

question in the policy of the law." *Id.*, § 477, at 501.

¹²⁹ *Griffiths v. Cole*, 264 F. 369, 374 (D. Idaho 1919).

¹³⁰ *Miller v. Wheeler*, 54 Wash. 429, 435, 103 P. 641, 643 (1909) (citations omitted).

¹³¹ *Ramshorn Ditch Co. v. United States*, 269 F. 80, 83-84 (8th Cir. 1920).

The better authorities held that a claimant to waste water acquires a temporary right only to whatever water escapes from the works or lands of others, and which cannot find its way back to the natural stream from which it was taken; that such a use of the water does not carry with it the right to any specific quantity of water, nor the right to interfere with the water flowing in the ditches or works of others lawfully appropriating it, and the appropriators are under no obligation, nor have they the right to permit any specific quantity of water to be discharged as 'waste water' for his benefit.¹³²

The cases have been uniform in denying prescription as a basis for protecting uses by incidental beneficiaries.¹³³

Indeed, it is difficult to find a case reciting the doctrine of recapture in which the original appropriator is in fact wanting to recapture unconsumed water for use on the lands irrigated under the appropriation. In *Burkhart v. Meiberg*, for example, the original appropriators constructed a ditch on their lands to collect unconsumed water so they could convey it to other lands they wanted to irrigate.¹³⁴ In *Binning v. Miller*, the original appropriator constructed a dam in a swale on his land to collect unconsumed water that he wanted to use on other lands.¹³⁵ The cases seem more intent on denying rights to subsequent users than affirming rights in the original appropriator. Thus, in *Garns v. Rollins* the Utah Supreme Court decided that even though the incidental beneficiary had been collecting and using the water for thirty years, no right as against the original appropriator could vest.¹³⁶ While the litigation was triggered by actions of the appropriator to recapture the unconsumed water, there was no discussion of the uses to which this water was to be

¹³² *Vaughan v. Kolb*, 130 Or. 506, 515, 280 P. 518, 521 (1929). The court went on to state: "We see no reason why the right to waste or spring water may not be permanent, even though the use thereof may be interrupted; that is, the right exists to be exercised when there is water available." 280 P. at 522.

¹³³ *See, e.g., Thompson v. Bingham*, 78 Idaho 305, 308, 302 P.2d 948, 949 (1956): "It is a rule long recognized that a landowner cannot acquire a prescriptive right to the continued flow of waste or seepage water from the land of another, that is, seepage water or waste water running from one's land to that of another need not be continued and it may be intercepted and taken by such owner at any time and used on the land to which it is appurtenant. *Garns v. Rollins*, 41 Utah 260, 125 P. 867; *Burkart v. Meiberg*, 37 Colo. 187, 86 P. 98, 6 L.R.A.,N.S., 1104, 119 Am.St.Rep. 279; *Smith Canal or Ditch Co. v. Colorado Ice & Storage Co.*, 34 Colo. 485, 82 P. 940, 3 L.R.A., N.S., 1148; *Petersen v. Cache County Drainage District No. 5*, 77 Utah 256, 294 P. 289. For collection of authorities see Ann.Cas.1915C, 1165."

¹³⁴ 37 Colo. 187, 86 P. 98 (1906).

¹³⁵ 102 P.2d 54, 61 (Wyo. 1940) ("Binning does not claim that he can use the waste and seepage water in question upon the land for which the water was appropriated, but wants to use it on land, about 100 acres in extent, which is adjoining.")

¹³⁶ 125 P. 867 (Utah 1912).

put. As in most of these cases, the court was concerned only with establishing the principle that the incidental recipient of the water cannot demand its continued availability.

An unlimited right of recapture is contrary to the basic principle of prior appropriation that limits the amount of water to the quantity actually beneficially used.¹³⁷ This understanding has developed especially clearly in the law governing changes of use in which courts have stated that the extent of an appropriation is measured by historic use.¹³⁸ The Colorado Supreme Court has noted: “Over an extended period of time a pattern of historic diversions and use under the decreed right at its place of use will mature and become the measure of the appropriation for change purposes.”¹³⁹ The recapture of unconsumed water for use on lands included as part of the original appropriation would be consistent with that appropriation only if contemplated when the appropriation was made.¹⁴⁰ The cases supporting use of unconsumed water because its possession had been “abandoned” by the original appropriator indirectly support the view that recapture should be based on intent.¹⁴¹

Many federal reclamation projects were specifically designed to recapture return flows from irrigation on higher lands to deliver water to irrigators on lower lands. This situation is illustrated in *Ramshorn Ditch Co. v. United States*,¹⁴² in which the United States sought to prevent non-project irrigators in Nebraska from diverting “seepage, drainage, and waste” water provided from the North Platte project.¹⁴³ The Eighth Circuit noted:

Seepage and waste water may be said to have been abandoned by the original appropriator when it is returned or allowed to return to its natural channel, with no intention on the part of the appropriator of recapturing it. To constitute abandonment, however, there must be an

¹³⁷ See, e.g., *Ready Mixed Concrete Co. in Adams Cnty. v. Farmers Reservoir & Irrigation Co.*, 115 P.3d 638, 645 (Colo. 2005) (“Because actual beneficial use under a decreed water right defines the genesis, maturation, and limitation of every appropriative water right in this state, we have held that every water decree includes an implied limitation that diversions cannot exceed that which can be used beneficially . . .”).

¹³⁸ See, e.g., *id.* at 645-46 (“[T]he right to change a water right is limited to that amount of water consumed beneficially over a representative historical period of time by use pursuant to the decree at the appropriator’s place of use.”).

¹³⁹ *High Plains A & M, LLC v. Se. Colo. Water Conservancy Dist.*, 120 P.3d 710, 719 (Colo. 2005).

¹⁴⁰ A common example would be the gradual development of lands intended to be irrigated by the original appropriator eventually requiring more complete use of the diverted water.

¹⁴¹ See, e.g., *Ramshorn Ditch Co. v. United States*, 269 F. 80, 83-84 (8th Cir. 1920).

¹⁴² 269 F. 80 (8th Cir. 1920).

¹⁴³ *Id.* at 83.

intent to abandon, the existence or nonexistence of which is a question of fact to be determined according to the evidence presented in each particular case, and one whose rights depend on an alleged abandonment must assume the burden of proving such abandonment.¹⁴⁴

Similarly, in *United States v. Haga*,¹⁴⁵ the Court noted the appropriation of water for the project by the United States specifically included a provision expressing its intent to use waste water.¹⁴⁶ Consequently, the Court upheld the right of the United States to capture this water, even when it had returned to a natural stream, for use by other project beneficiaries.¹⁴⁷

An obvious concern about unlimited recapture is possible effects on return flows upon which downstream appropriators depend. The potential problem is illustrated in the Colorado case, *Comstock v. Ramsay*.¹⁴⁸ In this case, the Colorado Supreme Court noted that upstream diversions from the South Platte completely dried up the channel for a distance until return flows from irrigation reached the channel, thus providing a supply for the next set of appropriators on the river.¹⁴⁹ The court stated: “We take judicial notice of the fact that practically every decree on the South Platte River, except possibly only the very early ones, is dependent for its supply, and for years and years has been, upon return, waste and seepage waters.”¹⁵⁰ On this basis the court denied an appropriation of seepage water that would interfere with its return to the stream.¹⁵¹ This concern seems especially pronounced in situations where

¹⁴⁴ *Id.* at 83-84 (citations omitted).

¹⁴⁵ 276 F. 41 (D. Idaho 1921).

¹⁴⁶ *Id.* at 47 (“The form of application for water rights prepared by the reclamation service contained a provision reserving to the government the right to reclaim waste water.”).

¹⁴⁷ *Id.* at 43 (“Nor is it essential to his control that the appropriator maintain continuous actual possession of such water. So long as he does not abandon it or forfeit it by failure to use, he may assert his rights.”); *see also* *Ide v. United States*, 263 U.S. 497 (1927).

¹⁴⁸ 55 Colo. 244, 133 P. 1107 (1913).

¹⁴⁹ *Id.* at 247-48.

¹⁵⁰ *Id.* at 254.

¹⁵¹ *Id.* at 255 (“Every appropriation of water on this stream, claimed and decreed for irrigation purposes, has been so claimed and decreed upon the theory that all waste and seepage water arising from the irrigation of land, or from the construction and maintenance of reservoirs using water from the river, and naturally returning to it, is available to supply such appropriations and decrees. To now permit independent appropriation and diversion of these waters in a way to adversely affect prior appropriations and decrees, is in direct conflict alike with the spirit of the law under which such priorities have been decreed and the practical purposes for which these appropriations have been made and recognized.”). The Court emphasized the fact-specific context of the decision: “We do not hold that there can be no independent appropriation of seepage, return and spring waters; but on the contrary, where such appropriation does not interfere with a prior right, that it may be done upon

courts have suggested the original appropriator can recapture and use the water to extinction or even sell the water to others.¹⁵²

How then to restate the doctrine of recapture to better accord with established principles of prior appropriation? The doctrine should be limited to those appropriations that contemplated the necessity for such recapture to achieve their intended beneficial purpose. Otherwise, water properly diverted and applied to beneficial use that remains unconsumed after use should be regarded as returned to the hydrologic system and available for use according to state laws once it leaves the appropriator's lands.¹⁵³ This rule should govern whether the water can be captured on the appropriator's land and whether the water is called waste, seepage, or anything else.

VI. THE CHALLENGE OF IRRIGATION WATER USE EFFICIENCY

The Supreme Court's decision is perhaps most important for its analysis concerning whether installation of sprinklers or other more efficient irrigation systems is within the scope of the original appropriation. Because such a large portion of the American West's limited water supply is used to irrigate crops,¹⁵⁴ much attention has been given to the importance of improving the efficiency with which water is used in agriculture.¹⁵⁵ The primary means by which such improvements are being made is through the replacement of traditional surface irrigation methods, such as flood or furrow irrigation, with sprinkler

facts and conditions which warrant it." *Id.* at 256.

¹⁵² See, e.g., *McNaughton v. Easton*, 121 Utah 394, 403-04, 242 P.2d 570, 574 (1952) ("The original appropriator as long as he has possession and control thereof may sell or transfer the right to the use of such waters to someone other than the reappropriator as long as he does so in good faith and they are beneficially used, or he may recapture and use them for further beneficial use if he does so before they get beyond his property and control."); *Bower v. Big Horn Canal Ass'n*, 77 Wyo. 80, 101, 307 P.2d 593, 601 (1957) ("No appropriator can compel any other appropriator to continue the waste of water which benefits the former. If the senior appropriator by a different method of irrigation can so utilize his water that it is all consumed in transpiration and consumptive use and no waste water returns by seepage or percolation to the river, no other appropriator can complain.").

¹⁵³ The states take widely differing approaches regarding legal rights to use such water, particularly before it returns to the source from which it was diverted. The confusion in the law applying to this water is properly the subject of another law review article.

¹⁵⁴ "Irrigation is critical to agriculture in the United States: nearly half of the value of all crops sold comes from the 16 percent of harvested cropland that is irrigated. In the process, agriculture accounts for over 80 percent of water consumed (i.e., withdrawn from surface- or groundwater sources and lost to the immediate water environment through evaporation, plant transpiration, incorporation in products or crops, or consumption by humans or livestock)." U.S. Department of Agriculture, Economic Research Service, *Data Sets, Western Irrigated Agriculture*, www.ers.usda.gov/data/westernirrigation/ (last updated July 20, 2004).

¹⁵⁵ See, e.g., NATIONAL RESEARCH COUNCIL, *A NEW ERA FOR IRRIGATION* (1996).

systems.¹⁵⁶ It was the installation of sprinklers in the Tongue and Powder River basins of Wyoming that concerned Montana.

Some analysts have cautioned against promoting the installation and use of more efficient means of irrigation, arguing that the resultant increased consumption in existing uses will produce a net reduction in the usable water supply.¹⁵⁷ They are responding to the simplistic view that water “saved” in irrigation use can then be made available for other, non-irrigation uses.¹⁵⁸ Using what they call a “basinwide” perspective, they emphasize that water unconsumed in use by one irrigator becomes the supply for another irrigator.¹⁵⁹ Assuming the objective is to irrigate as many acres as possible with the available water supply, they argue existing patterns of use accomplish this objective.¹⁶⁰

It is common for there to be a gap between irrigation “requirements,” the ideal water supply that would maximize production of the crop, and actual water availability—especially in the late irrigation season. With improved ability to control the delivery of water to plants, it is likely that more per unit of water diverted or withdrawn from its

¹⁵⁶ According to the Department of Agriculture’s Economic Research Service, between 1979 and 1994 the use of traditional surface methods of irrigation methods declined from 63% to 51%. Terry A. Howell, *Enhancing Water Use Efficiency in Irrigated Agriculture*, 93 AGRONOMY J. 281, 284 (2001). During this period the use of sprinklers increased from 36% to 44%, with the use of center pivot sprinklers increasing from about 17% to over 30%. *Id.*

¹⁵⁷ See, e.g., Frank A. Ward & Manuel Pulido-Vasquez, *Water Conservation in Irrigation Can Increase Water Use*, 105 PROC. NAT’L ACAD. SCI. 18,215, 18,218 (2008) (“We conclude that in river basins where downstream users and future generations depend on the unconsumed portion of diversions in the form of returns to the stream and raised aquifer storage, subsidies for conservation technology investments are unlikely to bring about a new supply of water but will likely lead to increased depletions.”). They are particularly focused on whether public subsidies for improved irrigation efficiencies are warranted. Their study location, the Rio Grande, is an extremely water-short part of the western United States. See also Ray Huffaker & Norman Whittlesey, *The Allocative Efficiency and Water Conservation Potential of Water Law Encouraging Investments in On-Farm Efficiency*, 24 AGRIC. ECON. 47, 54 (2005) (“Conservation policy encouraging irrigators to invest in increased on-farm irrigation efficiency is economically inefficient because illusory water savings cannot generate the additional basinwide economic benefits needed to offset the cost of investment.”).

¹⁵⁸ See, e.g., George W. Pring & Karen A. Tomb, *License to Waste: Legal Barrier to Conservation and Efficient Use of Water in the West*, 25 ROCKY MTN. MIN. L. INST. 25-1, pt. II (1979) (“One study indicates that, by increased conveyance and on-farm efficiency, total U.S. irrigation diversions could be reduced from the present 195 million af/y to 147 million, while still providing for a 10% projected acreage increase, thereby freeing nearly 50 million af/y for other uses.”) (footnote omitted); see also articles cited in Huffaker & Whittlesey, *supra* note 157, at 47.

¹⁵⁹ Ward & Pulido-Vasquez, *supra* note 157, at 18,216 (“One user’s water inefficiency often serves as the source of another user’s water supply.”).

¹⁶⁰ See, e.g., David B. Schorr, *Appropriation as Agrarianism: Distributive Justice in the Creation of Property Rights*, 32 ECOLOGY L.Q. 3 (2005) (purpose of prior appropriation was enable widespread availability of water rights for irrigated agriculture).

source will be used and consumed by the crop.¹⁶¹ Thus, these analysts conclude, irrigators will consume more water than they have historically, reducing the supply of water normally available to downstream appropriators.¹⁶² Indeed, such a result seems likely in water-short locations where appropriators have not been able to provide sufficient water to their fields—the case in many areas of the West.¹⁶³ It also seems likely that crop production on these lands will improve—an obvious benefit for the farmer.¹⁶⁴ And, contrary to the view of those opposing improved on-farm water use efficiency, it is not clear the net result would be an economic loss.¹⁶⁵

Existing patterns of water use in the western United States have developed over as much as 150 years. Much of that development responded to the manner in which existing irrigation uses already had altered stream hydrology, using the remaining water then available in different locations and at different times.¹⁶⁶ In this way, virtually the

¹⁶¹ See, e.g., Ward & Pulido-Vasquez, *supra* note 157, at 18,216, tbl.1 (comparing water requirements for flood compared to drip irrigation).

¹⁶² Thus, Ward and Pulido-Vasquez state: “Our findings also suggest that where return flows are an important source of downstream water supply, reduced deliveries from the adoption of more efficient irrigation measures will redistribute the basin’s water supply, which could impair existing water right holders who depend on that return flow.” *Id.* at 18,219; see also Huffaker & Whittlesey, *supra* note 157, at 59 (“In effect, the efficiency improving farm’s additional consumptive use is funded by an involuntary water transfer and tradeoff of agricultural benefits from a downstream irrigator.”).

¹⁶³ Venn found the use of sprinklers resulted in substantially increased flows in the river in May and June and somewhat diminished flows in August and September. Brian J. Venn, et al., *Hydrologic Impacts Due to Conversion from Flood to Sprinkler Irrigation Practices*, (May/June 2004) (Master of Science Thesis, Department of Civil and Architectural Engineering, University of Wyoming), at 200, available at ascelibrary.org/iro/resource/1/jidedh/v130/i3.

¹⁶⁴ Ward & Pulido-Vasquez, *supra* note 157, at 18,216 (“A linear relationship is typical between ET and crop yield over a wide range of crops and water applications. So, irrigation technologies that apply water at optimal times and locations in plant root zones increase crop consumptive use of water and crop yield as irrigation efficiency increases. When yield goes up, ET typically rises.”) (citation omitted); see also Venn et al., *supra* note 163, at 197 (reporting increases in crop yields for alfalfa from an average of 1.6 tons/acre to an average of 2.11 tons/acre when converting from flood to sprinkler irrigation in the Salt River of western Wyoming).

¹⁶⁵ Ward and Pulido-Vasquez conclude there would be economic loss measured at the national level because they emphasize the public subsidy involved in promoting more efficient use of water. Ward & Pulido-Vasquez, *supra* note 157, at 18,219 (“Where the taxpayer’s cost of the irrigation subsidy is included in total costs, national net benefits fall from a high of \$0.543 billion with no subsidy to a low of \$0.537 billion with a 100% subsidy.”).

¹⁶⁶ It is common for about half the water diverted from a stream to be consumed by plants or evaporated; the other half returns to the hydrologic system in a variety of ways, including as groundwater. See Shupe, *supra* note 104, at 490 (“Nearly one-fourth of the streamflow withdrawn by a typical irrigation fails to reach the farm boundary, while only fifty-three percent of the remainder is actually used by the crop.”) (citing INTERAGENCY TASK FORCE, U.S. DEP’T OF THE INTERIOR, U.S. DEP’T OF AGRICULTURE, & U.S. ENVTL. PROT. AGENCY, IRRIGATION WATER USE AND MANAGEMENT 12, 22 (1979)). Especially this groundwater recharge is likely to return to the stream after some delay, thus providing flows at times that often were not available under natural

entire water supply of many western rivers became fully utilized during the irrigation season. Those concerned about the adverse effects of irrigation efficiency recognize that improved efficiency is likely to reduce water availability to those users.

The difficulty with this view is that it implies no changes can be made in the manner in which water is now used unless all other users are kept whole.¹⁶⁷ It presumes that a hydrologic system that has been totally transformed for human uses now must be maintained to continue those same uses. It has the undoubted merit of providing protection to existing users but at the expense of preventing or seriously discouraging the kinds of changes needed today. We constructed these complex hydrologic networks to meet irrigation demands in the nineteenth and twentieth centuries, and we can reconstruct these networks to better meet contemporary needs and interests.

More to the point, irrigators are installing sprinklers because they help increase crop yields.¹⁶⁸ Water applied by sprinklers can be managed much better than traditional surface irrigation methods. Over-saturation of soils, impairing crop growth, can be avoided. Water temperature may be able to be better managed. While sprinklers represent a significant capital investment, they save labor and are far more convenient than traditional irrigation practices.¹⁶⁹ In many situations they are simply more profitable than traditional irrigation methods. It would not make economic sense to deny irrigators the ability to make such improvements simply because they reduce return flows.

There are other benefits associated with use of sprinklers. Since they require less water, less is diverted from streams and withdrawn from groundwater aquifers during the irrigation season.¹⁷⁰ Reduced return flows mean less fertilizers and pesticides coming into streams and groundwater aquifers in those places where they are widely used. Reduced return flows also mean less salinity, selenium, and other potentially harmful soil constituents being leached and carried into

conditions—especially in the late summer irrigation season.

¹⁶⁷ Ward and Pulido-Vasquez suggest some gains might be possible through better “accounting,” through use of less water-consumptive crops, restricting expansion of irrigated lands, and use of deficit irrigation. Ward & Pulido-Vasquez, *supra* note 157, at 18,219.

¹⁶⁸ Venn et al., *supra* note 163, at 197. This study found crop yields for alfalfa improved by between 50-100%. *Id.* at 21.

¹⁶⁹ KAN. STATE UNIV., IRRIGATION MANAGEMENT SERIES, THE ECONOMICS OF CONVERTING FROM SURFACE TO SPRINKLER IRRIGATION FOR VARIOUS PUMPING CAPACITIES 1 (Nov. 2000), available at www.ksre.ksu.edu/library/ageng2/MF2471.pdf (“Labor savings are also commonly thought to be a major consideration in switching from furrow surface irrigation to center pivot irrigation systems.”).

¹⁷⁰ See, e.g., Venn et al., *supra* note 163, at 198.

surface and groundwater sources.

Prior-appropriation law is generally very solicitous of protecting existing water rights. Senior appropriators are accorded absolute protection in times of shortage, entitled to place a “call” on a river that may require every other appropriator to totally curtail its water use.¹⁷¹ That call is honored without regard to the value of the use to which the water is placed and even without regard to whether the senior absolutely requires the use of all of the water to which it is entitled.¹⁷² Other appropriators are said to be protected in the flow conditions present at their headgates at the time their appropriations were established.¹⁷³ All appropriators are protected from injury resulting from changes of point of diversion, place of use, and purpose of use.¹⁷⁴ Appropriators are allowed to use sometimes highly inefficient methods of diversion, delivery, and application of water so long as those methods are the norm in the area.¹⁷⁵ Even the use of the term water “right” is intended to suggest that an appropriation is accorded a special status that trumps other interests.¹⁷⁶

Of course, water is a public resource. Appropriation is the authorized mechanism by which private uses of water are established. An appropriation established under state water law is not a guarantee of any fixed amount of water. It authorizes the diversion, in priority, of a maximum rate of flow from a particular source for a specified use. The extent of the diversion is limited to the amount of water reasonably necessary to achieve the purpose of the appropriation.¹⁷⁷ The actual

¹⁷¹ As stated in *Empire Lodge Homeowners Ass'n v. Moyer*, 39 P.3d 1139, 1144 n.5 (Colo. 2001), “A call is placed on a river when a senior appropriator forces upstream juniors to let sufficient water flow to meet the requirements of the senior priority.” (quoting *USI Props. E., Inc. v. Simpson*, 938 P.2d 168, 171 n.2 (Colo.1997)).

¹⁷² An increasingly common situation involves senior surface water rights calling out junior groundwater pumping. No consideration is given to relative merits of the water uses, only the priorities. See, e.g., *Well Augmentation Subdistrict of Cent. Colo. Water Conservancy Dist. v. City of Aurora*, 221 P.3d 399 (Colo. 2009); *Simpson v. Bijou Irrigation Co.*, 69 P.3d 50 (Colo. 2003).

¹⁷³ *Montana v. Wyoming*, 131 S. Ct. at 1773 (“Because each new appropriator is entitled to the stream as it exists when he finds it, the general rule is that ‘if a change in these conditions is made by [a senior] appropriator, which interferes with the flow of the water to the material injury of [the junior appropriator’s] rights, he may justly complain.’”) (citing 2 KINNEY, *supra* note 121, § 803).

¹⁷⁴ The Special Master reviewed this issue at length. First Interim Report of the Special Master at 66-69, *Montana v. Wyoming*, 131 S. Ct. 1765 (2011) (No. 137, Orig.).

¹⁷⁵ See, e.g., TARLOCK, *supra* note 120, § 5:67.

¹⁷⁶ Joseph L. Sax, *The Constitution, Property Rights, and the Future of Water Law*, 61 U. COLO. L. REV. 257, 260 (1989); see also Joseph L. Sax, *The Limits of Private Rights in Public Waters*, 19 ENVTL. L. 473, 475 (1989).

¹⁷⁷ See, e.g., COLO. REV. STAT. § 37-92-103(4) (Westlaw 2012) (“‘Beneficial use’ is the use of that amount of water that is reasonable and appropriate under reasonably efficient practices to accomplish without waste the purpose for which the appropriation is lawfully made . . .”).

amount of water that is diverted varies widely across the period of use and from year to year, dependent on a variety of factors.¹⁷⁸ While courts have generally been unwilling to require appropriators to become more efficient,¹⁷⁹ they have been very supportive when appropriators have themselves made such improvements.¹⁸⁰

The concept of beneficial use evolved over time into a standard for reviewing the purpose of use but also for evaluating the measure of the amount of water required and for establishing a limit to that amount.¹⁸¹ The concept of the duty of water emerged to help explain how the amount actually required to irrigate crops should be determined.¹⁸² Courts emphasized the importance of taking the steps necessary to allow water to do its “duty” of growing crops.¹⁸³ While courts have been cognizant of the practical realities that often limit an individual irrigator’s ability to do everything that might be desirable to maximize that duty, they have consistently encouraged taking the steps possible in that direction.¹⁸⁴ When appropriators have lined ditches to increase the amount of diverted water that reaches the fields, the courts have approved such efforts.¹⁸⁵ When appropriators have shifted from open ditches to pipes to reduce loss of water and to make water usable by sprinklers, the courts have approved those efforts.¹⁸⁶ Viewed most charitably, the doctrine of recapture is just another example of courts

¹⁷⁸ Irrigation appropriators from surface water sources have only a general idea of the amount of water they will be able to divert and use when they plant their fields. Actual flows are dependent on snow pack, runoff, temperatures, precipitation, and variety of other factors beyond their control.

¹⁷⁹ See, e.g., Janet C. Neuman, *Beneficial Use, Waste, and Forfeiture: The Inefficient Search for Efficiency in Western Water Use*, 28 ENVTL. L. 919 (1998); see also *Rogers v. Pitt*, 129 F. 932, 944 (C.C.D. Nev. 1904) (“The court cannot, in the absence of any law upon the subject, compel the farmers to use any particular system, but it might, in a case where an extravagant and wasteful system is used, which demands more water than they are entitled to by virtue of their appropriations, declare that under such circumstances they were not entitled to the quantity of water they were using, and give the excess to subsequent appropriators.”).

¹⁸⁰ See, e.g., *Estate of Steed Through Kazan v. New Escalante Irrigation Co.*, 846 P.2d 1223, 1228 (Utah 1992).

¹⁸¹ See text accompanying note 133, *supra*.

¹⁸² See TARLOCK, *supra* note 120, § 5:66.

¹⁸³ See, e.g., *Hough v. Porter*, 51 Or. 318, 417, 98 P. 1083, 1101-02 (1909).

¹⁸⁴ See, e.g., *Schodde v. Twin Falls Land & Water Co.*, 161 F. 43 (9th Cir. 1908).

¹⁸⁵ See, e.g., *Bower v. Big Horn Canal Ass’n*, 77 Wyo. 80, 101-02, 307 P.2d 593, 601-02 (1957) (“Applying the enunciated rules of this court to the instant case, we find that plaintiff cannot insist upon defendant’s continuing to make the seepage available to him. On the contrary, defendant company may abandon its canal, relocate it, or line it with an impervious substance so that seepage ceases.”).

¹⁸⁶ *Estate of Steed Through Kazan v. New Escalante Irrigation Co.*, 846 P.2d 1223 (Utah 1992).

encouraging irrigators to make efficient use of diverted water.¹⁸⁷

The critical aspect of the U.S. Supreme Court's analysis in *Montana v. Wyoming* was its focus on what, under principles of prior appropriation, is the scope of a water right and whether the scope of the right includes the ability to utilize diverted water to accomplish the purposes of the appropriation more efficiently.¹⁸⁸ While the Master and the Court arrived at their conclusion indirectly,¹⁸⁹ they might just as well have simply acknowledged the long-standing purpose of the beneficial-use requirement to encourage efficient use of diverted water and noted that such improvements are easily within the scope of an appropriation.¹⁹⁰ Thus, use of sprinklers does not run contrary to Article V(A) of the Compact, which states: "Appropriative rights to the beneficial uses of the water of the Yellowstone River System existing in each signatory State as of January 1, 1950, shall continue to be enjoyed in accordance with the laws governing the acquisition and use of water under the doctrine of appropriation."¹⁹¹

Use of sprinklers will change stream hydrology to some degree. Downstream appropriators will have to adjust, perhaps by installing sprinklers as well. The changes are not likely to be dramatic, though in very dry years their effects may well be measurable in some places. Adoption of sprinklers is attractive to irrigators for many reasons, not just to improve water use efficiency. It is part of a broader process of change in irrigated agriculture itself in response to the inexorable economics of a world economy. By holding that changes in stream conditions resulting from improvements in irrigation approaches are not the sort of changes that are subject to the no-injury restriction,¹⁹² the U.S.

¹⁸⁷ See text accompanying notes 105-07, *supra*. Particularly those cases characterizing return water as waste are seeking to encourage more efficient use of water.

¹⁸⁸ *Montana v. Wyoming*, 131 S. Ct. at 1772-73 ("Montana's pre-1950 users can therefore 'insist that [Wyoming's pre-1950 users] confine themselves strictly within the rights which the law gives them, that is, to the amount of water within the extent of their appropriation which they actually apply to some beneficial use.' That general proposition is undisputed; the dispute here is in its application. Is a switch to more efficient irrigation with less return flow within the extent of Wyoming's pre-1950 users' existing appropriative rights, or is it an improper enlargement of that right to the detriment of Montana's pre-1950 water users?") (quoting 2 KINNEY, *supra* note 121, § 784).

¹⁸⁹ They did so by determining a change of irrigation method is not a change of use and by comparing irrigation improvements to improvements encouraged under the rule of capture.

¹⁹⁰ The Court suggested this approach when it noted: "The scope of the right is limited by the concept of 'beneficial use.' That concept restricts a farmer 'to the amount of water that is necessary to irrigate his land by making a reasonable use of the water.'" *Montana v. Wyoming*, 131 S. Ct. at 1772 (quoting 1 KINNEY, *supra* note 121, § 586).

¹⁹¹ Yellowstone Compact, Act of Oct. 30, 1951, Pub. L. No. 82-231, 65 Stat. 663, 666.

¹⁹² *Montana v. Wyoming*, 131 S. Ct. at 1774 ("Improvements to irrigation systems seem to be the sort of changes that fall outside the no-injury rule as it exists in Montana and Wyoming.").

Supreme Court's decision is likely to encourage further irrigation water use efficiency.

VII. CONCLUSION

While several issues still remain in the *Montana v. Wyoming* litigation, the U.S. Supreme Court has now resolved the matter of liability for increased consumption associated with conversion to sprinklers. This decision has importance far beyond the meaning of the Yellowstone River Compact. Despite the Court's disclaimer, its analysis and conclusions are likely to be adopted by prior-appropriation states, thus removing a potential legal cloud from efforts to move to sprinkler and drip irrigation. Although this process will not be without its challenges for some irrigators, it is a necessary and beneficial step in the long road to rationalizing water uses in the western United States.

The litigation also had the benefit of focusing attention on one of the less-well-examined areas of prior-appropriation law, the so-called doctrine of recapture. This Article has argued for clarifications in this area of law, suggesting an intent requirement for recapture. The widespread adoption of the recapture doctrine may have made sense in earlier times, but the doctrine no longer fits within the water-constrained world that exists today in the American West.