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New Developments for Conjunctive Management in Idaho: Why Our Expanding Understanding of Science Should Expand How We Address the Doctrine Against Waste in Idaho Water Right Transfers

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NEW DEVELOPMENTS FOR CONJUNCTIVE MANAGEMENT IN IDAHO: WHY OUR EXPANDING UNDERSTANDING OF SCIENCE SHOULD EXPAND HOW WE ADDRESS THE DOCTRINE AGAINST WASTE IN IDAHO WATER RIGHT TRANSFERS

COMMENT

When the well's dry, we know the worth of water.[1]

TABLE OF CONTENTS

I. INTRODUCTION

Idaho's Eastern Snake Plain Aquifer, like many aquifers throughout the West, is facing an impending crisis caused by overuse of existing water supplies.[2] As a

1. BENJAMIN FRANKLIN, POOR RICHARD'S ALMANAC 59 (U.S.C. Pub. Co. 1914) (1746), *available at* http://books.google.com/books?id=o6lJAAAAIAAJ&printsec=frontcover#v=onepage&q=&f=false.

2. IDAHO WATER RES. BD., EASTERN SNAKE PLAIN AQUIFER (ESPA) COMPREHENSIVE AQUIFER MANAGEMENT PLAN 6 (2009), *available at* http://www.idwr.idaho.gov/waterboard/WaterPlanning/CAMP/ESPA/PDFs/ESPA_CAMP_lowres.pdf.

result of the Snake River Plain's semi-arid temperate climate,[3] the Eastern Snake Plain Aquifer (ESPA) receives only eight to fourteen inches of rain per year.[4] Therefore, agriculture in the region has required irrigation since its inception in the 1800s.[5] Initially, irrigators in the area used surface water exclusively, taking water directly from the Snake River and its tributaries.[6] Then, in the 1950s, surface water irrigation gave way to groundwater irrigation, which rose in popularity until the early 1990s.[7] Today, approximately 871,000 acres are irrigated using surface water and 889,000 acres are irrigated from groundwater.[8]

With approximately 2.1 million acres being irrigated every year, agriculture consumes more water in the ESPA than any other use.[9] As a result of the demand, which is outpacing supply, the Idaho State Water Resources Board (Board) found that the continued viability of the state's water using industries will be "adversely impacted if the current water supply trends continue on the ESPA."[10] The Board went on to note that current use trends will likely result in escalation of conflict among water users, increased litigation, increased likelihood of ground water curtailment, limited opportunities for community growth, increases in water prices, and adverse impacts to the state economy.[11] Therefore, to ensure the continued viability of the ESPA, something must be done.

Encouraging conservation and irrigation efficiency, which would shore up surplus water otherwise wasted, is quickly becoming the best of difficult options in a situation where there are "insufficient water supplies to satisfy existing beneficial uses."[12] One method that has been utilized in some communities, such as Southern California, is to transfer excess water generated by water conservation in exchange for some benefit.[13] In one example, the Los Angeles Municipal Water District proposed to help the Imperial Irrigation District (IID) become more efficient with their water use in exchange for a lease to the excess water.[14] While the proposed IID transfer was rejected at the district court level due to funding issues,[15] it serves as a powerful illustration of how states are encouraging efficiency in water use. So far, this model has not caught on in Idaho. If it does, Idaho case law allows a senior appropriator to transfer surplus water, even if it causes injury to another user, if the

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3. D.M. COSGROVE, B.A. CONTOR & G.S. JOHNSON, ENHANCED SNAKE PLAIN AQUIFER MODEL FINAL REPORT 6 (2006).

4. Barbara Cosens, *The Role of Hydrology in the Resolution of Water Disputes*, 133 J. OF CONTEMP. WATER RES. & EDUC. 17, 23 (2006).

5. COSGROVE ET AL., *supra* note 3, at 6.

6. *Id.*

7. *Id.*

8. IDAHO WATER RES. BD., *supra* note 2, at 8.

9. *Id.*

10. *Id.*

11. *Id.*

12. *Id.* at 6.

13. *See generally In re* Imperial Irrigation Dist., Order WRO 2002-0013 (Cal. State Water Resources Control Bd. Oct. 28, 2002) (revised final order) [hereinafter *IID Decision*], *available at* http://www.swrcb.ca.gov/waterrights/board_decisions/adopted_orders/orders/2002/wro2002-13.pdf.

14. *Id.* at 18.

15. *Questions, Answers and Updates About the QSA: What Was the Decision of the QSA Trial Court?*, NEWS FROM THE DITCHBANK (Imperial Irrigation Dist., Imperial, Cal.), Feb. 2010, at 1. *See also* Associated Press, *Judge Tentatively Invalidates Western States' Water Pact*, BILLINGS GAZETTE, Dec. 11, 2009, *available at* http://www.billingsgazette.com/news/state-and-regional/wyoming/article_add8ef96-e663-11de-b594-001cc4c03286.html.

water would be wasted otherwise.[16] The primary purpose of this comment is to argue that while such a relationship between injury and waste may be appropriate, we should broaden our definition of waste in water law to match our current understanding of the hydrological connection between surface water and groundwater.

The difficulty of this issue is compounded by the complexity involved in determining injury in an area like the Snake River Plain, which has complicated aquifer geology.[17] The Idaho Department of Water Resources (IDWR) has determined that computer modeling is the best method of determining injury, using a standard of "best available science."[18] However, modeling to determine injury on such a small scale has yet to be done by IDWR and may not be the best solution to this particular problem.

This comment will first describe the severity of the water issues in southern Idaho. It will then explain how the ESPA is a uniquely complex place, which hinders attempts to solve its hydrological issues. Additionally, this comment will describe the pertinent topics in hydrology that are used to determine injury in a groundwater system. It will go on to provide an overview of the no-injury rule and the rule against waste as competing principles in Idaho transfer law. It will argue that our current definition of waste should be expanded to fit our growing understanding of hydrology and conjunctive management, which would consequently alter the relationship between injury and waste in water transfers. This comment will then go on to discuss the best manner for determining injury in an area as complex as southern Idaho. Finally, this comment will conclude with suggestions on how we can create incentives for water conservation in Idaho.

II. THE SCIENCE BEHIND WATER RIGHTS TRANSFERS

Water law necessarily involves science. While the prior appropriation system simply requires a quick comparison with another user's priority date, water law gets infinitely more complex from there. This section is an attempt to explain some of the scientific principles that are important in questions of water transfers. It will begin with a technical description of the ESPA and then move on to discuss why the ESPA is such a complex place to determine questions of injury and waste. This section will finish by explaining some of the major principles of hydrology that come into play when determining questions of injury and waste in water rights transfers.

16. Application of Boyer, 73 Idaho 152, 163, 248 P.2d 540, 546 (1952). Transferring a water right is a particular type of change in use. Unlike other changes, a transfer is a change from one user to a new user in contrast to where ownership does not change hands. However, the requirements for all changes are the same and are included in Idaho Code section 42-222.

17. COSGROVE ET AL., *supra* note 3, at 9–10.

18. *In re* Distribution of Water to Various Water Rights Held by or for the Benefit of A&B Irrigation Dist., at 11 (Idaho Dep't of Water Res. Sept. 5, 2008) (final order). Though this particular case involved a curtailment call by senior water rights holders, the case is still indicative of how IDWR is handling cases where injury is an issue. *See id.*

A. The Complexity of the Eastern Snake Plain Aquifer

The Eastern Snake River Plain is an area in southern Idaho that is approximately 10,000 square miles.[19] The geology of the area is complex, composed of volcanic rocks, and is usually "covered by a veneer of [eolian] or fluvial sediments" of a depth of between "zero to tens of feet."[20] Because of the complicated geology, the hydrology of the ESPA is also quite complex. The aquifer is composed of a mix of basalt and interbedded sediments, which "[are] the primary conduit for groundwater flow."[21] The total volume of water for the top 500 feet is estimated to be between 200 and 300 million acre-feet.[22] The aquifer has an estimated recharge of roughly eight million acre-feet per year.[23] Adding to the complexity of the hydrology is the composition of the underground basalt in the region, which is riddled with vertical fractures, creating high conductivity[24] conduits that are difficult to model.[25]

B. Importance of Incidental Recharge in the Eastern Snake Plain Aquifer

A major part of the ESPA's water budget comes from incidental recharge. Incidental recharge is comprised of the water that reinfiltrates the aquifer as a result of water being applied to the surface in excess of what is used by the crops.[26] Common sources of incidental recharge include excess "surface water irrigation, tributary underflow, [and] leakage from canals and rivers . . . ."[27] Until the 1980s, the most common form of irrigation in the ESPA was flood irrigation.[28] Flood irrigation (or surface/furrow irrigation) is the practice of flooding a field on one side and allowing gravity to force the water to flow both to the other side of the field and into the soil for the crop.[29] As a result of flood irrigation, incidental recharge from excess water caused aquifer levels to be at their highest in the 1950s.[30] In fact, while flood irrigation was at its peak in the early twentieth century, the ESPA gained approximately fifteen million acre-feet of water.[31] Every year, approximately 340,000 acre-feet of water were being added to the aquifer.[32] By the 1980s, flood irrigation gave way to sprinkler irrigation, which is much more efficient.[33] This

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19. COSGROVE ET AL., *supra* note 3, at 5.
20. *Id.* at 9.
21. *Id.* at 13.
22. Idaho State Univ., *The Eastern Snake River Plain Aquifer*, DIGITAL ATLAS OF IDAHO, http://imnh.isu.edu/DIGITALATLAS/hydr/snakervr/esrpa.htm (last visited Dec. 27, 2010).
23. *Id.*
24. Hydraulic conductivity is defined as "a parameter describing the ease with which flow takes place through a porous medium." FRANKLIN W. SCHWARTZ & HUBAO ZHANG, FUNDAMENTALS OF GROUND WATER 49 (2003).
25. COSGROVE ET AL., *supra* note 3, at 10.
26. *Id.* at 61.
27. *See id.* at 38.
28. *Id.* at 6.
29. NYLE C. BRADY & RAY R. WEIL, ELEMENTS OF THE NATURE AND PROPERTIES OF SOILS 193 (2d ed. 2004).
30. COSGROVE ET AL., *supra* note 3, at 16.
31. Gary Johnson, Donna Cosgrove & Mark Lovell, *Eastern Snake River Plain Surface and Ground Water Interaction*, SNAKE RIVER BASIN SURFACE WATER-GROUND WATER INTERACTION (1998), http://www.if.uidaho.edu/~johnson/ifiwrri/sr3/home.html [hereinafter *Surface Water/Groundwater Interaction*].
32. *Id.*
33. COSGROVE ET AL., *supra* note 3, at 16.

switch created the side effect of decreasing the incidental recharge.[34] Though less efficient irrigation practices are looked down upon, they have become an important part of the water budget in southern Idaho.[35] Indeed, one study found that more than fifty percent of the total recharge to the aquifer came from incidental recharge.[36] As irrigation practices have become more efficient, incidental recharge has decreased with dramatic effects on aquifer levels.[37] In fact, aquifer levels have generally declined between five and fifteen feet in recent years, primarily because of changes in irrigation.[38]

C. Scientific Principles Used in Water Transfers

Determining injury where both surface and groundwater are utilized is a very complex task.[39] This is primarily due to the complications surrounding the movement of groundwater in response to pumping.[40] Groundwater is located in an aquifer, which is "[a] rock [or sediment] layer which will absorb water and allow it to pass freely through."[41] Groundwater sits either in the fractures of the rock or between the sediment particles that make up the aquifer.[42]

An aquifer's volume expands or contracts depending on whether a larger volume of water is going in or coming out of the aquifer.[43] Water going in to the aquifer is said to be "recharging" the aquifer,[44] while the water moving out of the aquifer is said to be "discharging" from the aquifer.[45] Think of your kitchen sink: the faucet is recharging the sink and the drain is discharging the sink. A simple mathematical representation of this would be "out" minus "in" equals the rate of recharge or discharge. If the water from the faucet is flowing in at a higher rate than it is draining out, then the level in the sink begins to rise—and vice-versa. Now imagine that a small pump is introduced that takes out an additional volume of water. The result will be a decrease in the volume of water in the sink that is equal to the pumping rate.[46] This modifies the previous equation to:

(Discharge + Pumping Rate) − Recharge = Rate the Aquifer is Rising/Falling

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34. *Id.* at 15.
35. *Id.*
36. *Id.*
37. *Id.* at 16.
38. *Id.* at 17.
39. Gary Johnson, Donna Cosgrove & Mark Lovell, *Water Rights and Conjunctive Management*, SNAKE RIVER BASIN SURFACE WATER-GROUND WATER INTERACTION (1998), http://www.if.uidaho.edu/~johnson/ifiwrri/sr3/home.html [hereinafter *Water Rights and Conjunctive Management*]. *See also* WILLIAM M. ALLEY, THOMAS E. REILLY & O. LEHN FRANKE, U.S. GEOLOGICAL SURVEY, SUSTAINABILITY OF GROUND-WATER RESOURCES 38 (1999).
40. *Water Rights and Conjunctive Management*, *supra* note 39.
41. JOHN WHITTOW, THE PENGUIN DICTIONARY OF PHYSICAL GEOGRAPHY 34 (1st ed. 1984).
42. *Surface Water/Groundwater Interaction*, *supra* note 31.
43. *Id.*
44. WHITTOW, *supra* note 41, at 441.
45. SCHWARTZ & ZHANG, *supra* note 24, at 184.
46. *Surface Water/Groundwater Interaction*, *supra* note 31.

The sink analogy only works for so long for groundwater because of the complexity of the groundwater and the fact that there could be hundreds of points of recharge and discharge. Additionally, unlike a sink, it could take years before the effects of groundwater pumping are felt at the surface, depending on the physical properties of the aquifer.[47]

There are four major variables to consider when determining injury in cases involving groundwater: (1) the interconnectedness of the source for the user who is taking water and the user claiming injury; (2) the distance between the two parties; (3) the rate of pumping; and (4) the physical characteristics of the aquifer.[48]

Whether two locations within an aquifer are connected depends largely on the composition of the aquifer.[49] Water moving through the aquifer may move at drastically different rates depending on the characteristics of the particular medium it is moving through. One such characteristic that is particularly important is the hydraulic conductivity of the medium, which is defined as "a parameter [that describes] the ease with which flow takes place through a porous medium."[50] Hydraulic conductivity is a critical parameter for determining connectivity between two points because any sediment body sitting between them that has a hydraulic conductivity approaching zero would effectively cut off any connection there may be. The other extreme, which is quite common in southern Idaho, is when there are large fractures in rock.[51] Think of a storm gutter flowing in one direction that hits a drain. The drain has the effect of drastically changing the direction of the flow of the water. Large fractures have the same effect, causing water that may have otherwise connected to another point to change direction entirely. Determining whether either of these extremes, or something in between, exists between two disputing parties is an extremely difficult and expensive question of fact that can only be determined by actually understanding the geology of the aquifer between the two parties.

Another variable to consider for questions of injury is the distance between the users.[52] If the two users are directly adjacent to one another, then the sources of water for both are likely to be interconnected and the impact should be immediate and relatively easy to determine.[53] However, as the distance increases, the impact of one user's pumping becomes more distributed. As the impact is distributed spatially, it is felt less by the second user, which means the certainty of the causation of injury becomes more attenuated.[54]

The rate of extraction is another factor that has significant impact on determining injury in a groundwater system. Typically, without any water loss in the aquifer other than a single pump, the impact at one point will be proportional to the pumping rate at the other.[55] Therefore, if a user suddenly doubles his pumping rate, then the impact elsewhere will be twice as drastic as before. This is known as the

47. *Id.*
48. *Id.*
49. *See, e.g., id.* (explaining one example of how heterogeneity within an aquifer can cause variation in interconnectedness).
50. SCHWARTZ & ZHANG, *supra* note 24, at 49.
51. COSGROVE ET AL., *supra* note 3, at 10.
52. *Surface Water/Groundwater Interaction*, *supra* note 31.
53. *Id.*
54. *Id.*
55. *Id.*

concept of proportional impact.[56] However, these factors become much more complicated as more users are introduced to the system and the concept of a proportional impact breaks down if water is reintroduced to the aquifer by incidental recharge or other means.[57]

Finally, the aquifer characteristics need to be considered when determining whether injury may be occurring. Aquifer layering, hydraulic conductivity, and aquifer storage properties are all unique characteristics that "affect the timing and magnitude of [impacts on other users] from pumping."[58] Aquifer layering refers to layers of rock or sediment of different composition within the aquifer.[59] Such a parameter must be considered because, depending on the hydraulic conductivity of each layer, water may flow in a direction completely different from expected because water will always flow through the layer with the highest conductivity. Additionally, the storage properties of the aquifer, which are a series of variables that determine the aquifer's ability to retain and store water in response to pumping, should be considered.[60] Characteristics of a particular aquifer may be anywhere on a spectrum, from the relatively low impact of pumping from an aquifer with low hydraulic conductivity and high storage capacity, to high impact pumping from an aquifer with a high transmissivity and low storage capacity.[61]

These factors are not an exhaustive list in determining injury. However, from these variables, IDWR can begin the process of determining whether injury has occurred and whether the transfer will be allowed to proceed. We now go from the science to the law, which as you shall see, has not evolved nearly as rapidly.

III. THE LEGAL PRINCIPLES OF WATER RIGHTS TRANSFERS

For as long as there have been water rights in the West, there has also been the right to transfer that right.[62] Naturally, such a right led to objection from those who were adversely affected as a result of a transfer. To deal with these issues, courts created a series of doctrines early in the evolution of water law. This section will begin by explaining the keystone of western water law: prior appropriation. It will go on to discuss the no-injury rule and the rule against waste as competing doctrines in western water law.

A. Prior Appropriation

Any analysis of Idaho water rights must begin with the principle that a user's right to water is a constitutionally protected right that is never to be denied.[63] As in

56. *Id.*
57. *Id.*
58. *Id.*
59. *Id.*
60. SCHWARTZ & ZHANG, *supra* note 24, at 73.
61. *Id.*
62. *See* Lawrence J. MacDonnell, *Transferring Water Uses in the West*, 43 OKLA. L. REV. 119, 123 (1990).
63. IDAHO CONST. art. XV, § 3.

most states in the West, this constitutional right is tempered by a number of principles designed to address practical issues that arise. The primary limitation is the principle of prior appropriation.[64] Prior appropriation is a uniquely western idea that was developed by miners who could not claim a riparian right because they did not actually own the land along the watercourse and there was insufficient water for all potential uses.[65] As a result, miners developed a custom that the person who appropriated the water first had the first right to the use of the water in times of shortage.[66] This concept was widely accepted by western courts and legislatures, which have since generally applied it to anyone who puts water to a beneficial use.[67]

In Idaho, prior appropriation applies to both surface and groundwater.[68] Yet, addressing them as a unitary body is a relatively new phenomenon.[69] In fact, it was not until 1994 that the Idaho Supreme Court recognized that groundwater pumpers were affecting surface water rights and vice-versa.[70] As a result, IDWR has been ordered to treat surface and groundwater as a single source.[71] The recognition that groundwater and surface water must be managed and regulated together is called conjunctive management.[72] Conjunctive management has made regulating water rights and transfers infinitely more complex.[73] What compounds these issues is that the court has attempted to retrofit rules like the no-injury rule and the rule against waste to questions of conjunctive management. In the following sections, this comment will discuss the principles of injury and waste and how each has been shoehorned to fit the new conjunctive management mold.

B. Injury

The no-injury rule has existed since the earliest decisions under prior appropriation[74] and is followed by all the states in the West.[75] It was created to encourage development of the West by promoting stability.[76] When a user secured his water right there was no way of knowing whether he was securing a right to return flow or water that was occurring naturally.[77] This created uncertainty because it subjected the junior user to the whim of the senior to suddenly take away the water by changing his use.[78] This ran contrary to the "economic policy ... to encourage in-

64. Nielson v. Parker, 19 Idaho 727, 115 P. 488 (1911).
65. *See* DAVID H. GETCHES, WATER LAW IN A NUTSHELL 77 (4th ed. 2009).
66. *Id.* at 78.
67. *Id.* at 77.
68. IDAHO CONST. art. XV, § 3; IDAHO CODE ANN. § 42-103 (2010). *See also* Cosens, *supra* note 4, at 24.
69. Cosens, *supra* note 4, at 24.
70. *See* Musser v. Higginson, 125 Idaho 392, 871 P.2d 809 (1994).
71. *Id.*
72. IDAHO ADMIN. CODE r. 37.03.11.010.03 (2009). *See also* Cosens, *supra* note 4, at 24.
73. *See* Cosens, *supra* note 4, at 24.
74. A. DAN TARLOCK, JAMES N. CORBRIDGE, JR. & DAVID H. GETCHES, WATER RESOURCE MANAGEMENT: A CASEBOOK IN LAW AND PUBLIC POLICY 232 (5th ed. 2002).
75. JOESPH L. SAX ET AL., LEGAL CONTROL OF WATER RESOURCES: CASES AND MATERIALS 230 (3d ed. 2000).
76. TARLOCK ET AL., *supra* note 74, at 233. The no-injury rule first appeared in Idaho case law in 1904. Hard v. Boise City Irrigation & Land Co., 9 Idaho 589, 590, 76 P. 331, 332 (1904).
77. TARLOCK ET AL., *supra* note 74, at 233.
78. *Id.*

vestment" in land, which required a steady supply of water.[79] To combat the apprehension this uncertainty created, the courts developed the policy that "[a] subsequent appropriator has a vested right, as against his senior, to insist upon a continuance of the conditions that existed at the time he made his appropriation . . . ."[80] Such insurance provided the security necessary for people to feel as though they were making a sound investment by settling land in the West.[81] This is the principle upon which the Idaho Legislature was relying when it declared that in evaluating proposed changes to water rights "[t]he director of the [IDWR] shall examine all the evidence and available information and shall approve the change in whole, or in part, or upon conditions, *provided no other water rights are injured thereby* . . . ."[82] Indeed, the purpose of the law is to ensure stability so a junior user can feel secure that a transfer will not take his water away after he has invested everything he has into his land.

In most states, if a transfer is going to cause an injury to another user, then the transfer cannot proceed.[83] However, Idaho has found that a claim of injury is not sufficient if it would compel the transferor to continue to waste water.[84]

C. Waste

A water user has a duty to not unreasonably waste water through inefficient practices.[85] One aspect of the rule against waste is a limitation on a person's water right to the amount of water being put to a beneficial use.[86] In Idaho, a beneficial use is one that "[uses] no more than is necessary according to the standards and practices of good husbandry for the particular crop sought to be grown, soil and all other essential factors and conditions being taken into consideration."[87] Indeed, the Idaho Supreme Court found:

> It is against the public policy of this state . . . for a water user to take more of the water to which he is entitled than is necessary for the beneficial use to which he has appropriated it, . . . public policy demands that whatever be the extent of a proprietor's right to use water until his needs are supplied, *his right is dependent upon his necessities, and ceases with them.*[88]

This is the current state of the law, which focuses on how each individual uses his water and whether the amount he is using is appropriate under the circumstances.

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79. *Id.*

80. Bennett v. Nourse, 22 Idaho 249, 250, 125 P. 1038, 1039 (1912).

81. TARLOCK ET AL., *supra* note 74, at 233.

82. IDAHO CODE ANN. § 42-222(1) (2010) (emphasis added).

83. SAX ET AL., *supra* note 75, at 230.

84. Application of Boyer, 73 Idaho 152, 162–63, 248 P.2d 540, 546 (1952).

85. Stickney v. Hanrahan, 7 Idaho 424, 433, 63 P. 189, 191 (1900) (explaining that "[i]t is the policy of the law to prevent the wasting of water.").

86. SAX ET AL., *supra* note 75, at 124.

87. *In re* Robinson, 61 Idaho 462, 465, 103 P.2d 693, 696 (1940).

88. Colthorp v. Mountain Home Irrigation Dist., 66 Idaho 173, 180, 157 P.2d 1005, 1008 (1945) (quoting Glavin v. Salmon River Canal Co., 44 Idaho 583, 589, 258 P. 532, 534 (1927)) (emphasis added).

The rule against waste does not dictate "a measure of absolute efficiency or to the minimum amount of water necessary to irrigate a specific crop."[89] Indeed, the Idaho Supreme Court has long recognized that "some loss of water through seepage or evaporation is considered a prerogative of the appropriator, so long as the loss is reasonable."[90] This concept recognizes the common sense proposition that there is no perfect system for transporting water and some water will be lost before it can be put to a beneficial use.[91] Therefore, "an appropriator's right include[s] the right to a reasonable amount of water to get the water to its point of use."[92] However, as technology improves, the question becomes to what degree should our notion of beneficial use and waste change?

Indeed, it seems that "the accommodation of new values, together with better science, improving technology and growing demands, have led to changing perceptions as to what constitutes acceptable water use."[93] Therefore, a practice that was reasonable at one point could be considered wasteful now, obligating the user to update his irrigation practices or risk forfeiture of the water that is not being reasonably used.[94] This issue primarily comes up when dealing with questions on incidental recharge. As irrigators have moved from flood to pivot to drip irrigation, those that continue to use the old practices are thought to be "wasting" water because they are using more than technology has deemed to be reasonable. Such a user is encouraged to change to more efficient irrigation practices by Idaho law, which allows him to continue to appropriate the additional water.[95]

This begs the question of what a user is able to do with his newly salvaged water. If he decides to transfer the rights to the water, he must satisfy the requirements of section 42-222, which states that before a user can transfer a water right to another person he must satisfactorily show that the transfer will not injure *any other user's right*.[96] However, Idaho case law indicates that the rule against waste could excuse transferring otherwise wasted water, even when it will cause injury to another user.[97]

In 1952, the Idaho Supreme Court decided *Application of Boyer*,[98] which was an appeal by the Big Lost River and the Three-In-One Irrigation Districts (the Districts).[99] There, the Districts objected to the application by Boyer to change his

89. David P. Jones, Comment, *Meeting Idaho's Water Needs Through the Water Right Transfer Process: A Call for Legislative Reform*, 38 IDAHO L. REV. 213, 218 (2001).

90. Hidden Springs Trout Ranch, Inc. v. Hagerman Water Users, Inc., 101 Idaho 677, 681, 619 P.2d 1130, 1134 (1980).

91. COSGROVE ET AL., *supra* note 3, at 38 (listing "incidental recharge from surface water irrigation, tributary underflow, leakage from canals and rivers . . ." as factors that must be considered, implying that they are inherent in most transmission systems.).

92. *Hidden Springs Trout Ranch*, 101 Idaho at 681, 619 P.2d at 1134.

93. Jones, *supra* note 89, at 218.

94. *See* IDAHO CODE ANN. § 42-222(2) (2010).

95. *Id.* § 42-223(9).

96. *See id.* § 42-222(1). *See also* Hard v. Boise City Irrigation & Land Co., 9 Idaho 589, 590, 76 P. 331, 332 (1904); Bennett v. Nourse, 22 Idaho 249, 250–51, 125 P. 1038, 1039–40 (1912); *In re* Johnson, 50 Idaho 573, 575, 300 P. 492, 494 (1931); Beecher v. Cassia Creek Irrigation Co., 66 Idaho 1, 7, 154 P.2d 507, 509 (1944); Basinger v. Taylor, 36 Idaho 591, 593, 211 P. 1085, 1085 (1922).

97. Application of Boyer, 73 Idaho 152, 162–63, 248 P.2d 540, 546 (1952).

98. *Id.*

99. *Id.* at 156, 248 P.2d at 541–42.

point of diversion and place of use[100] because each relied on the water "applied to [Boyer's] land, [which] because of its extreme porosity immediately seeps and percolates back into the river . . . ."[101] The Districts claimed that the water was reused by downstream junior appropriators.[102] However, the supreme court was not convinced that injury was likely to occur. Indeed, it pointed out, "[the Districts] made no definite study or determination of a definitive amount of water that would get back into the river . . . ."[103] The court also placed great weight on the fact that the Big Lost River engineer concluded no one would be injured by the transfer.[104]

The court went on to apply the rule against waste to the case, though it was not necessary to reach its holding. The court declared "[i]t is axiomatic that no appropriator can compel any other appropriator to continue the waste of water whereby the former may benefit."[105] The court reasoned:

> If respondent, by a different method of irrigation . . . could so utilize his water that it would all be consumed in transpiration and consumptive use . . . and thus no waste water return by seepage or percolation to the river, no other appropriator–from the evidence herein–could complain. . . . [R]espondent accomplishes the same result by changing the point of diversion . . . .[106]

Finally, the court seemingly disposed of the no-injury rule by stating that "[t]he rule that a junior appropriator has the right to a continuation of stream conditions as they were at the time he made his appropriation, could not compel respondent to continue to waste his water . . . ."[107] Therefore, the rule against waste seemingly can trump the no-injury rule in Idaho transfer cases.

This has the potential to free users in Idaho to easily conserve and transfer surplus water to other, more needy users. Such practices have the potential to drastically improve the hydrological situation in southern Idaho. However, before Idaho fully endorses such an idea, we should also consider another aspect of waste that is rapidly coming to light—whether our current definition of waste fits with the current scientific reality.

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100. Although *Boyer* addressed the question of a change in use and not a transfer, there is very little legal distinction between the two, and the criteria for approving them are both found in the same statute. IDAHO CODE ANN. § 42-222(1) (2010).

101. *Boyer*, 73 Idaho at 156, 248 P.2d at 541.

102. *Id.*

103. *Id.* at 161, 248 P.2d at 545.

104. *Id.*

105. *Id.* at 162, 248 P.2d at 546 (citing Sebern v. Moore, 44 Idaho 410, 418, 258 P. 176 (1927); Colthorp v. Mountain Home Irrigation Dist., 66 Idaho 173, 179, 157 P.2d 1005 (1945); Johnson v. Twin Falls Canal Co., 66 Idaho 660, 669, 167 P.2d 834 (1946)).

106. *Boyer*, 73 Idaho 152, 162–63, 248 P.2d at 540, 546 (1952).

107. *Id.* at 163, 248 P.2d at 546.

IV. THE TRANSFER PROCESS AS A MEANS OF ENCOURAGING EFFICIENCY

The current state of the law for Idaho water right transfers seems to dictate that the court should allow a transfer of otherwise wasted water to move forward even if such a transfer would cause injury. On the surface, this seems to be a good policy that encourages the movement of wasted water to new users who would put it to a better use. However, as our understanding of the hydrologic system improves, we are coming to realize that the current definition of "waste" is too narrow. This section will begin by explaining the procedure for water rights transfers in Idaho. It will go on to explain how transfers could be used to encourage water conservation. Finally, it will finish by arguing that before we get too far down the path of encouraging water transfers, we should reexamine how we look at waste and perhaps redefine it to match our current scientific understanding.

A. The Transfer Process

In Idaho, transfers of water are controlled by Idaho Code section 42-222, which requires the holder of a water right to show that (1) no other water rights are injured by the transfer; (2) the change does not enlarge the original water right; (3) the change "is consistent with the conservation of water resources within the state of Idaho"; (4) the change is in the local public interest; and (5) it will not adversely affect the local economy of the watershed.[108]

The procedures for a successful transfer begin with an application to IDWR.[109] Such an application must include, among other things, the name and address of the applicant, a list of water rights to be changed, a list of water rights that share a system with the water rights that are to be changed, the reason for the change, a description of the proposed change, and a map of the system where the change is to occur.[110]

Upon completion of the application, IDWR does an initial review of the application to determine whether the application must be published or whether it should be rejected as not meeting the minimum standards for a transfer application.[111] This review is preliminary and is to determine whether the application is complete and if it has any glaring issues such as the lack of existence of the water right or whether the applicant is the actual owner of the water right.[112] If the application passes this initial review by IDWR and it is determined that publication is necessary, the Regional Office of IDWR will publish notice of the application to provide the public the opportunity to review the application.[113]

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108. IDAHO CODE ANN. § 42-222(1) (2010).

109. *Id. See also* Memorandum from Jeff Peppersack, Water Mgmt. Div. Manager, Idaho Dep't of Water Res., to Water Mgmt. Div. Staff, Idaho Dep't of Water Res. 7 (Dec. 21, 2009), *available at* http://www.idwr.idaho.gov/WaterManagement/WaterRights/WaterRightTransfers/PDFs_09/20091221_TransferProcessing_No24.pdf.

110. Memorandum from Jeff Peppersack to Water Mgmt. Div. Staff, *supra* note 109, at 8–11.

111. Telephone Interview with John Homan, Deputy Att'y Gen., Idaho Dep't of Water Resources (Feb. 25, 2010).

112. *Id.*

113. IDAHO CODE ANN. § 42-222(1) (2010).

Regardless of whether another water user protests the application, IDWR is obligated to conduct another, more formal, internal review to determine whether the application meets the criteria of Idaho Code section 42-222.[114] An application will be denied if IDWR determines that it fails to comply with any of the requirements from section 42-222.[115] The injury analysis conducted by IDWR will entail the use of a regional groundwater model if a model is available.[116] To date, the only aquifer with a ready-to-use regional groundwater model is the ESPA.[117] Absent a model, applicants must look to other sources of information such as hydrologic and pumping test records in order to make an attempt at showing that injury will not occur.[118] Geographical information systems (GIS) analysis is often, but not necessarily, used to manage data sets and perform analysis where IDWR considers the locations of other users' points of diversion, how much water each user has under his right, and the available hydrological data for the area to make an attempt at determining whether it believes injury, enlargement, or any of the other issues listed above will occur.[119] On the other hand, the question of injury to senior surface water right holders is determined in the ESPA primarily by use of the Eastern Snake Plain Aquifer Model (ESPAM).[120] If the ESPAM suggests that the transfer would not result in regional injury to surface water rights, there are no protests filed, and all other transfer criteria are met, then the regional office will approve the transfer, subject to any conditions IDWR finds necessary.[121] Usually, IDWR will safeguard its finding of no-injury by imposing the condition on the transfer that no other user is in fact injured once it has gone through.[122] If another user protests, however, then a hearing may be necessary to determine whether an injury would occur if the proposed transfer took place.[123]

B. How the Transfer Process Can Encourage Efficiency in Idaho

As water users turn to more efficient irrigation practices, a surplus of water that would otherwise have been used for irrigation is created. However, putting less water on the ground creates tension because other users have come to rely on the surplus water being incidentally recharged into the aquifer.[124] This tension has been addressed in Idaho by the rule against waste, which, among other things, prevents a user from forcing another user to continue inefficient practices even if he is reliant

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114. *Id.*
115. *Id.*
116. Telephone Interview with Shelley Keen, Section Manager, Idaho Dep't of Water Resources (Feb. 25, 2010).
117. *Id.*
118. Telephone Interview with John Homan, *supra* note 111.
119. Telephone Interview with Shelley Keen, *supra* note 116.
120. *Id.*
121. *Id.*
122. Telephone Interview with John Homan, *supra* note 111.
123. *Id.*
124. *See, e.g.*, Hidden Springs Trout Ranch, Inc. v. Hagerman Water Users, Inc., 101 Idaho 677, 679, 619, P.2d 1130, 1132 (1980) ("Hagerman repaired its diversion works in 1976, causing a spring located on Hidden Springs' land . . . to dry up.").

on the water that the inefficient practice generates.[125] While incidental recharge may be appropriated in Idaho,[126] "no appropriator of waste water ... [is] able to compel any other appropriator to continue the waste of water which benefits the former."[127] Therefore, incidental recharge is subject to the right of the original appropriator to cease wasting it, to recapture it, or to change his place of use so long as it is applied to a beneficial use.[128] This right has been codified under Idaho law, which prevents a person's water right from being "lost or forfeited for nonuse if the nonuse results from a water conservation practice" and the practice maintains the full beneficial use authorized by the water right.[129]

Because a user keeps the right to use surplus water that is generated from conservation measures, he is free to use this water in any matter he sees fit so long as it complies with Idaho law. This includes the right to transfer the rights to the surplus water to another user. The right to transfer surplus water creates a large incentive for a user to become more efficient in order to sell the rights of the surplus water for a profit. A large-scale example of this is the effort in California's Imperial Irrigation District where certain municipalities in the region helped the district become more efficient in exchange for the right to use the excess water.[130] In most jurisdictions, including California,[131] a user seeking a transfer bears the burden of proving that the transfer will not cause injury to any other user's water right.[132] However, the Idaho Supreme Court, in *Application of Boyer*, held that a junior whose injury is caused by loss of water that was only available due to wasteful practices may not "compel [a senior] to continue to waste his water."[133] In that case, the court specifically extended the rule against waste to a case where the defendant was attempting to change his use.[134]

The purpose of this comment is not to argue that the conclusion drawn in *Boyer* is incorrect. Indeed, perhaps a user should not be allowed to compel another to waste water. Nonetheless, as our understanding of conjunctive management has grown, our understanding of waste should grow with it. Indeed, we should begin to consider whether we should broaden our definition of waste to recognize that perhaps a user's practices are not wasteful if others depend upon their continuance.

C. Expanding the Definition of Waste to Fit Our Current Scientific Understanding

As our understanding of hydrology expands, we should modify the rule against waste to be more flexible to recognize the interconnection between ground

125. *Id.* at 680–81, 619 P.2d at 1133–34.

126. Colthorp v. Mountain Home Irrigation Dist., 66 Idaho 173, 179, 157 P.2d 1005, 1007 (1945).

127. *Hidden Springs Trout Ranch,* 101 Idaho at 681, 619 P.2d at 1134 (quoting Crawford v. Inglin, 44 Idaho 663, 258 P. 541 (1927)).

128. *Id.* at 680, 619 P.2d at 133.

129. IDAHO CODE ANN. § 42-223(9) (2010).

130. *IID Decision*, *supra* note 13, at 18. This decision was overturned in the district court because of issues surrounding funding. *See* Imperial Irrigation Dist., *supra* note 15, at 1. *See also* Associated Press, *supra* note 15. However, the merit of the case regarding transferring water in exchange for a benefit was not addressed.

131. CAL. WATER CODE § 1736 (West 2009). *See also IID Decision*, *supra* note 13, at 12.

132. GETCHES, *supra* note 65, at 175.

133. Application of Boyer, 73 Idaho 152, 163, 248 P.2d 540, 546 (1952).

134. *Id.*

and surface water. The primary issue with the rule against waste as currently applied is that it is a relic from the days of surface-only irrigation, which has been shoehorned into today's conjunctive management mold. Both the rule against waste and the no-injury rule hail from long before groundwater use was thought to affect surface water. Indeed, this interaction was not legally recognized in Idaho until 1994,[135] while the no-injury rule dates to 1904[136] and the rule against waste has been firmly within the Idaho case law since 1900.[137] Much has changed in our scientific understanding of hydrology and how groundwater and surface water interact[138] and, yet, instead of reworking the laws to reflect this understanding, Idaho has attempted to make the old rules fit. When the rule against waste was developed, the idea that it was wasteful to use more water than what was needed to grow crops seemed fairly straightforward. However, we now recognize that such water may be the starting point of a system that is the source of another user's water right.

The crux of the problem with the rule against waste as it stands is that it is regarded as a limit on how an *individual* may use his water.[139] It considers only the individual because at the time the rule was first conceived no one knew that anyone else might be able to re-appropriate someone else's wasted water because the belief was that surface and groundwater were separate sources that did not interact.[140] However, we now know that a single user's "wasteful" practices may be the starting point of an entire system of appropriators.[141]

Indeed, we should ask ourselves: if another user is dependent on the water that is supposedly being "wasted," is that particular use of water by the senior an actual waste? This cuts to the very purpose of the rule against waste, which is to prevent the unnecessary use of water that could be beneficially used by someone else. As our understanding of the relationship between groundwater and surface water has developed, it seems more and more apparent that the rule against waste as we know it unnecessarily narrows the scope of how "waste" should be defined. We should not be so quick to determine that a user is necessarily wasting water when another user has come to need it and that re-use actually results in greater overall system efficiency.

To be sure, the rule against waste is still a valuable rule that has a place within western water law. Nonetheless, the common law rule against waste should be stat-

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135. Musser v. Higginson, 125 Idaho 392, 871 P.2d 809 (1994).

136. Hard v. Boise City Irrigation & Land Co., 9 Idaho 589, 590, 76 P. 331, 332 (1904).

137. Stickney v. Hanrahan, 7 Idaho 424, 63 P. 189 (1900).

138. *Compare* R. ALLAN FREEZE & JOHN A. CHERRY, GROUNDWATER (1979) (explaining the current principles of groundwater hydrology), *with* TARLOCK ET AL., *supra* note 74, at 532 ("Unfortunately for the development of the law, groundwater was early subdivided into three arbitrary and unscientific categories: artesian, percolating, and underground watercourses.").

139. Colthorp v. Mountain Home Irrigation Dist., 66 Idaho 173, 180, 157 P.2d 1005, 1008 (1945) (stating that a person may not appropriate more water than is "necessary for the beneficial use to which *he* has appropriated it," and that a person's water right "is dependent upon *his* necessities, and ceases with them.") (emphasis added).

140. *See* TARLOCK ET AL., *supra* note 74, at 532.

141. *See In re* Distribution of Water to Various Water Rights Held by or for the Benefit of A&B Irrigation Dist., at 7 (Idaho Dep't of Water Resources Apr. 29, 2008) (recommended order) [hereinafter *Schroeder Opinion*].

utorily broadened to parallel our current hydrological understanding. Currently, IDWR has a prohibition against waste in its conjunctive management rules, but it never explains how waste is defined.[142] The Idaho legislature should authorize IDWR to define waste and mandate that it do so in a manner that looks at a user's water use from a more holistic perspective. IDWR should not look at a user as an individual when determining questions of wasteful practices, but should look at that individual's use in the context of the local system to determine whether water being "wasted" by the individual actually benefits the system as a whole.[143] To do this, IDWR should make an inquiry into whether that local system would be more or less efficient *as a whole* if the transfer were to proceed.

This new definition of waste would benefit the water users that Idaho transfer law and the no-injury rule seek to protect by reworking the relationship between waste and injury. Any new rule would still have to work in conjunction with existing criteria for transfers, which require that no user be injured.[144] Additionally, the rule established in *Boyer*, that a party objecting to a transfer cannot prevail if it forces the applicant to waste water, would still be in effect. However, under the new definition of waste, the scope of this rule would be significantly narrowed to apply only where the system, not individuals, became less efficient. Under such a regime, in order to find that a user is actually wasting water, trumping the no-injury rule, IDWR would have to determine that the system would become more efficient as a result of the transfer. In that case, the rule against waste would continue to trump the no-injury rule, and the transfer would be allowed to move forward. However, if the system as a whole became less efficient as a result of the transfer, then the no-injury rule would apply and the transfer would not be allowed to proceed, regardless of whether the individual's use seemed wasteful.

Transferring surplus water generated from an increase in efficiency could soon be generally accepted as an efficient means of moving water to those in need.[145] However, before we allow someone who is currently using more water than is technologically reasonable to transfer his excess water, we should consider whether such practices are actually part of a system upon which a group of users rely. If so, perhaps we should not be so fast to declare the applicant's practices wasteful and allow him to transfer his excess water. However, this raises a whole new set of inquiries—namely, how IDWR should go about determining injury.

142. *See generally* IDAHO ADMIN. CODE r. 37.03.11.010 (2009).

143. The purpose of this comment is limited in scope to issues of transfer because it seems the majority of cases where injury will result will be from a user attempting to transfer water out of the local system. Indeed, if a user is simply being more efficient, then no one should complain because the surplus water would stay in the aquifer for others to use. Additionally, a new definition of waste should be beneficial to users in general, not just those objecting to a transfer. For most users, the rule against waste is not a convenient way of getting around the no-injury rule; it is a limitation on their water right that could potentially result in a loss of at least part of their water. However, under the new rule, a user whose excess water use was necessary further down the system would no longer fear a charge of waste because there would be a recognition that while he was not putting all of his water to a beneficial use, someone else would be, which would prevent his loss of the water due to waste.

144. IDAHO CODE ANN. § 42-222(1) (2010).

145. *See, e.g., IID Decision*, *supra* note 13.

V. DETERMINING INJURY

Determining injury to a user's water right as the result of a transfer is a question of fact. Historically, it was rather easy to determine whether a change in use was causing an injury to another user's water right because addressing the complexity of groundwater was not necessary.[146] A "water master could monitor water he or she could see and understand the immediate effect of curtailment . . . . When it is surface water it may be tracked with some certainty as to amount, direction, and speed or flow."[147] However, "the relationship between surface water and ground water rights is much more complex" because "[w]hen it is ground water its course is hidden."[148] This complexity, which is introduced when groundwater is involved, is the primary difficulty with determining injury once conjunctive management is used.

Because of the relative simplicity of determining injury in a surface water system, the question of who has the burden of proof in cases of injury is a relatively new concept in Idaho case law. In fact, as of 1991, there had been "no Idaho case that clearly states who has the burden of proof in a proceeding involving a change in use of a water right."[149] Until that point, the courts seemed to rely on the general rule that the burden of proof is on the party seeking relief.[150] This question was formally addressed in the 2001 case of *Barron v. Idaho Department of Water Resources*.[151] There the court recognized that "[the party seeking the transfer] necessarily bears the burden of providing the Department with sufficient information to show non-injury to other water rights . . . ."[152]

The court held that Barron had the burden of proof to show there would be no injury, even though no one actually objected to the transfer.[153] Barron argued that because no one objected, his application should have been approved because he had provided sworn statements that the change would not cause injury.[154] However, the court found this insufficient; the fact that no one came forward to claim an injury did not discharge IDWR from its duty to ensure no injury.[155] The court held that IDWR was right to require "a prima facie showing on the issues of injury, enlargement, and public interest."[156] Therefore, before a permit to transfer would be ap-

146. TARLOCK ET AL., *supra* note 74, at 233 (explaining that in the nineteenth century, water rights were direct flow rights); *see also Schroeder Opinion*, *supra* note 141, at 31.

147. *Schroeder Opinion*, *supra* note 141, at 31.

148. *Id. See also* Douglas L. Grant, *The Complexities of Managing Hydrologically Connected Surface Water and Groundwater Under the Appropriation Doctrine*, 22 LAND & WATER L. REV. 63 (1987).

149. A. Lynne Krogh-Hampe, *Injury and Enlargement in Idaho Water Right Transfers*, 27 IDAHO L. REV. 249, 253 (1991).

150. *Id.*

151. 135 Idaho 414, 420, 18 P.3d 219, 225 (2001).

152. *Id.* at 418, 18 P.3d at 223.

153. *Id.* at 421, 18 P.3d at 226.

154. *Id.*

155. *Id.*

156. *Id.*

proved, Barron needed to provide sufficient evidence showing no injury, no enlargement, and that the transfer would be favorable to the public interest.[157]

As can be seen above, the burden of proof for a successful application to transfer can be staggering. This burden is compounded when dealing with issues of conjunctive management.[158] In a transfer proceeding, the burden is on the applicant to show that the application meets the criteria of Idaho Code section 42-222.[159] Even though proving lack of injury can be extremely difficult, the applicant must "present sufficient evidence" to the Department so that the Director can make an informed determination that no injury will result from the transfer.[160]

Additionally, the protestant also bears some burden of proving injury may occur. Before a user can object to a transfer, he must have standing.[161] To have standing, a user must "allege a sufficient imminent injury" to an actual water right that can be traced back to the transfer.[162] The junior user must show that a substantial injury will occur—not simply "a fanciful injury but a real and actual injury."[163] However, aside from showing sufficient injury to gain standing, the burden remains on the applicant throughout the hearing.[164] Generally, IDWR will find injury where the "change makes a junior appropriator subject to a priority to which the junior was not previously subject or where a change increases the burden on the stream or reduces the volume of water flowing in the stream."[165] Specifically, IDWR has found injury when a transfer has (1) reduced the quantity of water available to other water rights, (2) forced other users to only be able to retrieve water under their right at an unreasonable cost, or (3) significantly reduced the quality of other users' water.[166]

If a protest is filed, an injury analysis occurs at a hearing where the hearing officer takes evidence from both sides, and possibly IDWR.[167] From this evidence, the hearing officer makes a determination regarding whether the protestant has standing and whether the applicant has met his burden that no injury will occur.[168] One such piece of evidence that the applicant must provide is the results from the Eastern Snake Plain Aquifer Model (ESPAM). When submitting an application to change or add a point of diversion to water rights in the ESPA, the applicant must submit the results of an analysis using the ESPAM or other equivalent tool to show whether injury is occurring on a regional level.[169] IDWR typically reviews the ap-

157. *Id.*
158. *See* Cosens, *supra* note 4, at 24.
159. Telephone Interview with John Homan, *supra* note 111.
160. *Barron*, 135 Idaho at 420, 18 P.3d at 225 (2001).
161. Jones, *supra* note 89, at 230.
162. *Id.*
163. Beecher v. Cassia Creek Irrigation Co., 66 Idaho 1, 7, 154 P.2d 507, 509 (1944).
164. Telephone Interview with John Homan, *supra* note 111.
165. Krogh-Hampe, *supra* note 149, at 260.
166. Memorandum from Jeff Peppersack to Water Mgmt. Div. Staff, *supra* note 109, at 24.
167. Telephone Interview with Garrick Baxter, Deputy Att'y Gen., Idaho Dep't of Water Resources (Feb. 25, 2010).
168. *Id.*
169. Memorandum from Jeff Peppersack to Water Mgmt. Div. Staff, *supra* note 109, at 12. The applicant, not IDWR, runs the model. This is for reasons of efficiency. The ESPAM indicates where mitigation will be required to avoid injury to senior surface water users. Because the applicant is the one running the model, he or she is able to come back to the table armed with a mitigation plan. If IDWR were to run the model, then it would have to inform the applicant how much mitigation is required and at what locations.

plicant's ESPAM analysis and augments the application file with information about all the statutory criteria that must be met for a transfer to be approved.[170] While a finding of no injury by the model is not conclusive, it does significantly relieve the burden placed on the applicant, who would otherwise have to prove no injury on his own.[171] The ESPAM has been determined to be the "best science available" in determining questions of injury on a regional scale.[172] Even though there are significant limitations to the model, those limitations "do not preclude reliance upon it."[173] How much reliance each hearing officer places on the model is a factor that varies with the hearing officer's experience and comfort with relying on the result of the model.[174] However, there is a concern that the precedent, which states that the model may be relied upon, may encourage some hearing officers to use it in situations where it may not be appropriate.

The ESPAM has been calibrated using a twenty-two-year data set and divides the ESPA into a grid of one-square-mile units.[175] Each square in the grid is assumed to be homogeneous in composition.[176] However, the aquifer's geology is not homogeneous on such a large scale.[177] "It is composed of fractured basalt that may lie in random patterns, sometimes interspersed with soil of a different composition."[178] This complexity very well could be on a scale that is much finer than the one-square-mile grid that is currently implemented.[179] Additionally, the model is designed to determine injury on a regional scale.[180] Therefore, as noted in the model's final report, "the user should avoid the temptation to model localized impacts, such as impacts to a specific spring."[181] Therefore, while IDWR should use it to determine the regional impacts of a transfer, it should be leery of using the ESPAM for questions of injury in water right transfers occurring on a local level.

The ESPAM promises to be an amazing resource in determining questions of injury and conjunctive management on a regional scale. However, any hearing officer who is using it should take into consideration its limitations when making any decision based on it. Specifically, the user should be aware that it assumes homogeneous geology on a scale of one square mile when that is almost certainly never going to be the case.[182] Additionally, until the ESPAM or another model can be retooled to properly determine injury on a local scale, IDWR should avoid the temptation to use it for such purposes. At this point, in determining questions of

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Therefore, having the applicant run the model will allow for a greater expediency in water rights transfers. Telephone Interview with Shelley Keen, *supra* note 116.

170. Telephone Interview with Shelley Keen, *supra* note 116.
171. *Id.*
172. *Schroeder Opinion*, *supra* note 141, at 32–33.
173. *Id.* at 34.
174. Telephone Interview with Garrick Baxter, *supra* note 167.
175. *Schroeder Opinion*, *supra* note 141, at 31.
176. *Id.* at 32.
177. *Id.*
178. *Id.*
179. Telephone Interview with Garrick Baxter, *supra* note 167.
180. COSGROVE ET AL., *supra* note 3, at 110.
181. *Id.*
182. *See Schroeder Opinion*, *supra* note 141, at 32.

local injury, the ESPAM is not the "best available science," but rather a computer model, which is often confused with the best available science. The best available science for determining local injury is still a case-by-case inquiry that would require an in-depth analysis of the site in question. Such an obligation would be quite onerous, but still necessary if we are truly interested in guaranteeing that no injury occurs as a result of a transfer.

Instead of relying so much on the ESPAM, Idaho should continue to place the burden on the applicant but look for ways to relieve that burden slightly. For example, Montana requires an applicant to "prove that the [substantive criteria of the transfer statute] have been met only if a valid objection is filed."[183] This is similar to Barron's argument that was rejected by the Idaho Supreme Court;[184] however, it could still be a viable alternative on the condition that the transfer would be voided if injury actually did occur. Montana also shifts some of the burden to the party objecting, requiring that "[a] valid objection . . . contain substantial credible information establishing to the satisfaction of the department that [one of the substantive provisions] may not be met."[185] Another idea might come from Colorado, which shifts the burden to the objecting party to prove injury once the applicant has made a prima facie case proving no injury will result to other users who have water rights on that body of water.[186] Both Montana and Colorado place more burden on the objector than Idaho, which seems only to require that the objector prove standing. Idaho could impose more of the burden on the objector or shift the entire weight of the burden to him or her after the applicant made a prima facie showing of no injury. Either approach may be a viable alternative method of relieving some of the burden that is currently placed on the shoulders of the applicant to determine local questions of injury.

Though the use of a single, standard model such as the ESPAM has its advantages, it is not currently designed to be useful on such a small scale. Therefore, it seems that until the state has the necessary data that would allow the ESPAM to determine injury on the local level, the state should be leery of its use. Indeed, the ESPAM may have a place in determining injury, but the hearing officer should keep that role limited to questions of regional impact until it is retooled to determine local questions of injury. This may seem like a harsh conclusion, but there are alternatives to transferring water that would be just as profitable for the user seeking to dispose of surplus water while also preventing injury to junior users.

VI. OTHER METHODS OF ENCOURAGING WATER CONSERVATION

The ramifications of forcing a senior to prove that he is not injuring any other users are quite striking. Indeed, such recognition would have the effect of essentially killing a large incentive for water users in Idaho to become more efficient with their water. However, all is not lost. Idaho's Comprehensive Aquifer Management Plan (CAMP) may be able to take enough stress off the ESPA that injury as the result of a transfer would become far less likely. Additionally, groundwater bank-

183. MONT. CODE ANN. § 85-2-402(3) (2009).

184. *See* Barron v. Idaho Dep't of Water Res., 135 Idaho 414, 418, 18 P.3d 219, 223 (2001).

185. MONT. CODE ANN. § 85-2-402(3).

186. Wagner v. Allen, 688 P.2d 1102, 1108 (Colo. 1984). *See also* COLO. REV. STAT. § 37-92-305(3)(a) (2010); City of Aurora v. Div. Eng'r for Water Div. No. 5, 799 P.2d 33, 37 (Colo. 1990).

ing could become a viable alternative to transferring the right to excess water that would have the same result as a transfer but prevent injury to other users in the system.

A. The Comprehensive Aquifer Management Plan

The CAMP is designed to decrease the stress on the ESPA, which will hopefully prevent some of the harm that transfers can create by implementing strategies to increase aquifer levels and reduce demand.[187] The ultimate goal is to establish a 600,000-acre-foot annual change to the aquifer water budget over a twenty-year period.[188] This change will significantly decrease the pressure on users because it allows for much more water to be in surplus in the ESPA. Therefore, a change in use, such as a transfer, will likely have less drastic effects on other users. The CAMP utilizes a range of practices, all designed to reduce the stress on the aquifer.[189] The techniques used in the CAMP can be roughly split into those that decrease the extraction of water from the ESPA and those that recharge the ESPA.

The primary method the CAMP implements to decrease aquifer extraction is groundwater-to-surface water conversions.[190] Under this plan, surplus surface water from irrigation districts will be given to groundwater users so that less water will have to be extracted. To do this, the state of Idaho will acquire the remaining surface water rights to ensure that the former groundwater users will continue to have sufficient water into the future.[191]

There are multiple methods that the CAMP will include to increase aquifer levels. First, and most significantly, the CAMP calls for managed aquifer recharge.[192] Under this plan, the state will inject water, in increments that will increase as time goes on, into the aquifer in strategic locations that have a higher likelihood of generating water disputes.[193] Managed aquifer recharge in these locations could be a step in decreasing instances of curtailment of juniors by seniors as well as objections to transfers due to injury because it will significantly reduce the stress caused by current irrigation practices.

There are several additional methods by which the CAMP looks to decrease the stress on the ESPA. First, the CAMP calls for the state to provide incentives to alternate cropping patterns in certain parts of the Snake River Plain that would decrease consumptive use by up to 1,000 acre-feet per year.[194] Second, the CAMP calls for incentives to increase overall surface water conservation.[195] Another option that the CAMP is designed to utilize is user buyouts, buy-downs, and subordi-

187. *See* IDAHO WATER RESOURCE BD., *supra* note 2, at 11.
188. *Id.* at 10.
189. *See generally id.*
190. *Id.* at 11.
191. *Id.* at 10.
192. *Id.* at 11. The strategic locations at the present time are above Blackfoot, American Falls, and the Thousand Springs reach on the North Side Canal Company, Milner Gooding Canal. *Id.*
193. *See id.*
194. *Id.* at 20.
195. *Id.*

nation agreements.[196] Under this option, the state would set aside money that would be used to buy water rights to decrease use in certain areas. This could be used in conjunction with fallowing and dry-year lease agreements.[197] Finally, the CAMP is committed to looking into a pilot modification program under which the state would consider the possibility of cloud seeding to increase precipitation.[198]

The idea behind the CAMP is to sufficiently reduce the pressure on the aquifer so the negative aspects of conjunctive management, such as curtailment and objections to transfers, would no longer be necessary. However, the CAMP is not without its detractors. Those critical of the CAMP seem to have focused their attention on the plan's generality, the difficulty of actual implementation of each of the projects, and the sufficiency of the data used to make conclusions regarding the CAMP.[199] These issues all revolve around the general lack of information available regarding actual implementation of the CAMP. The document itself has very general goals and contains very little regarding actual implementation.[200] Additionally, many feel that the plan's goals are lofty or that they cannot be reached within the timeframe the plan calls for.[201]

Further, funding seems to be a concern that is shared among many user groups. The primary concern stems from the lack of a sufficient cost analysis.[202] There are groups that are concerned with ensuring that all user groups share in the burden of implementing the plan.[203] The CAMP offers very little in the way of explaining who will be responsible for funding the various projects it plans to implement. The issues of funding have recently come to the forefront due to the recent economic situation, which has resulted in budget cuts to the CAMP.[204]

The CAMP's plan to convert groundwater users to surface water seemed to be met with general approval. The only issue raised was that care is needed as it is implemented to avoid adverse affects on upper Snake stream flows.[205] Reduction of aquifer demand was also generally approved of. Most users who commented on the demand reduction portion of the CAMP noted that it needs to be flexible so it can adjust to "changing economic and water supply conditions."[206] Another major concern regarded the effect demand reductions would have on agriculture.[207] Commenters requested that the final plan make it clear that "reducing agricultural production is nobody's objective."[208]

Though barely mentioned in the administrative report, a major concern regarding the CAMP is that it "covertly supplants the prior appropriation doctrine."[209]

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196. *Id.* at 21.
197. *Id.*
198. *Id.* at 22.
199. *See generally* IDAHO DEP'T OF WATER RES., ESPA CAMP WRITTEN PUBLIC COMMENTS (2009) [hereinafter CAMP COMMENTS], *available at* http://www.idwr.idaho.gov/waterboard/WaterPlanning/CAMP/ESPA/PDFs/1-6-09FinalComments.pdf.
200. *See generally* IDAHO WATER RES. BD., *supra* note 2.
201. *See, e.g.*, CAMP COMMENTS, *supra* note 199, at 6–7.
202. *See id.* at 13–14.
203. *See id.* at 7.
204. Telephone Interview with Shelley Keen, *supra* note 116.
205. CAMP COMMENTS, *supra* note 199, at 59.
206. *Id.* at 60.
207. *Id.* at 60–62.
208. *Id.* at 62.
209. *Id.* at 2.

To these users, generally senior users, there already are "laws on the books to manage the aquifer, i.e. the prior appropriation doctrine; the laws are just not followed."[210] They feel that the CAMP is simply a method by which the state can avoid curtailment.[211] These users seem frustrated that IDWR is hesitant to enforce curtailment, some going so far as to accuse IDWR of having "abandoned the law."[212] They see the CAMP as nothing more than continued "[m]anagement which accepts declines of senior priority water rights."[213] However, these users seem to miss the point of the CAMP, which is not to end prior appropriation in Idaho, but to create a situation where curtailment is rare if necessary at all. The CAMP does not eliminate prior appropriation; it is an attempt to create a system by which parties work together to better manage the aquifer for everyone rather than protecting the rights of a few.

The goals being implemented by the CAMP are lofty. Many details need to be filled in between the general goals and concepts presented. In spite of this, if the reductions in aquifer extraction are completed in conjunction with aquifer recharge, the CAMP promises to take pressure off of an aquifer system that is being strained to the breaking point. While there are many issues, primarily surrounding its implementation, the CAMP could be a cutting-edge method of managing the ESPA in the coming decades.

B. Groundwater Banking

Another alternative that could prevent injury caused by water transfers of surplus water is to create a groundwater banking system. The concept of groundwater banking centers around the idea that an aquifer provides "a common pool of water accessible to many users and uses."[214] Such a pool has the capacity to hold water in storage from wet years that could be used and applied in dry years.[215] Water banking serves both to create seasonal stability in the water supply and to ensure a future water supply.[216] Additionally, water banks "promot[e] water conservation by encouraging water-right holders to conserve and deposit water rights into the bank" while at the same time preventing the injury that a transfer would cause.[217] The backbone of the concept is to create a system similar to a bank where an "accounting system [is set up] that tracks the hydrologic effects of human activities that increase recharge or reduce discharge, and assigns ownership to these hydrologic effects."[218] Idaho law currently authorizes surface water banking that is to be man-

210. *Id.*
211. *Id.* at 4.
212. *Id.* at 9.
213. *Id.* at 7.
214. Gary S. Johnson, Bryce A. Contor & Donna M. Cosgrove, *Efficient and Practical Approaches to Ground-Water Right Transfers Under the Prior Appropriation Doctrine and the Snake River Example*, 44 J. AM. WATER RESOURCES ASS'N 27, 34 (2008).
215. *Id.* at 34–35.
216. WASH. STATE DEP'T OF ECOLOGY, PUB. NO. 04-11-011, ANALYSIS OF WATER BANKS IN THE WESTERN STATES 3 (2004).
217. *Id.* at ii.
218. Johnson et al., *supra* note 214, at 35.

aged by IDWR.[219] These statutes could possibly be used as a starting point upon which IDWR could begin a groundwater banking system.[220]

Water banking "is emerging as an important tool to meet growing and changing water demands throughout the United States."[221] Water banks "have been either proposed or [are] in operation in almost every western state."[222] Idaho, which started its first state water supply bank in 1979, with rental pools existing as long ago as 1932, is one of the first states to use such a concept.[223] However, these banks have always been used to exchange surface water. Groundwater banking takes water banking one step further by providing a "mechanism for exchanging credits or entitlements for water withdrawals within an underlying aquifer."[224]

The concept of groundwater banking is the same as water banking; if a user has surplus water he can add it to the bank and receive credits in return.[225] A number of activities could be considered deposits. First, intentional infiltration of surface water that is injected into the aquifer could generate credits.[226] Under this option, surplus water would first have to be conserved and then purposely re-injected back into the aquifer. Incidental recharge would also result in eligibility for credits so long as it could be reasonably quantified.[227] Credits could also be awarded for either permanent or temporary cessation of groundwater pumping or other reductions in consumptive use.[228] These credits could then be bought and sold depending on the market Idaho set up.

Water markets throughout the West are set up differently depending on the amount of freedom the state wants to allow to those that participate in the banking. To begin, states either set up a market where credits are given to depositors or where depositors are given cash.[229] If the state chose the latter, then it would gain control of the use of the water for that season, and individuals looking to rent water would have to purchase it from the state. However, if Idaho developed a credit system, then it would next have to determine how much freedom it wanted the market to have to trade the credits distributed. On one end of the spectrum is a water bank that is only available to depositors, which is the most rigid arrangement.[230] On the other end of the spectrum is a free market, which is completely controlled by private transactions.[231] Finally, the middle ground is a market in which anyone could participate but is facilitated by IDWR.[232] The market that would work the best in a system attempting to encourage the transfer of unused water but maintain no injury would be for IDWR to regulate the market. IDWR could approve the sale of

219. IDAHO CODE ANN. § 42-1761 (2010).

220. BRYCE A. CONTOR, IDAHO WATER RESOURCE RESEARCH INST., GROUNDWATER BANKING AND THE CONJUNCTIVE MANAGEMENT OF GROUNDWATER AND SURFACE WATER IN THE UPPER SNAKE RIVER BASIN OF IDAHO 12 (2009).

221. WASH. STATE DEP'T OF ECOLOGY, *supra* note 216, at ii.

222. *Id.*

223. *Id.*

224. *Id.* at 5.

225. Johnson et al., *supra* note 214, at 35.

226. CONTOR, *supra* note 220, at 12.

227. *Id.*

228. *Id.* at 12–13.

229. *Id.* at 13–14.

230. *Id.* at 13.

231. *Id.*

232. *Id.*

groundwater bank credits after a determination that the potential buyer would not cause harm to other users by extracting the excess water.

Groundwater banking is not without its drawbacks. Namely, there is the uncertainty associated with the physical response of the aquifer as a result of water banking. Indeed, if groundwater banking is to be conducted on a regional scale, it will be difficult to determine whether there is any interconnectedness between the area of injection and the area where water is being used.[233] The result could lead to injury on the local level because the injection of water may not actually be reaching the area where extraction is taking place, which means that additional water that was not otherwise being taken from the aquifer would be used. The most reasonable method of addressing this uncertainty would be to apply the no-injury rule to the purchase of credits to use additional water. Before IDWR could issue credits to a user, it would have to make a determination that the use of the additional water by that particular user would not cause injury to adjacent water rights.

Determining how groundwater banking would impact the aquifer is done by computer modeling, which "offer[s] approximations of complex and imperfectly understood natural systems."[234] One way to decrease the uncertainty would be to break the ESPA into "banking zones" small enough that the impacts of adding or taking water from the aquifer could be calculated with a reasonable level of certainty. Under such a plan, IDWR would not be allowed to distribute credits from one zone to a user in another zone. How large the zones would be would depend on degree of certainty with which IDWR could determine the impacts associated with the groundwater banking. As our scientific understanding and the modeling of the ESPA improve,[235] the zones could get bigger.

Despite its drawbacks, groundwater banking is a useful alternative to water right transfers because it allows the same result as a transfer while avoiding the harm to the junior user who has become reliant on the incidental recharge. Additionally, there would be the added benefit of providing tangible ownership to the incidental recharge. In other words, a user would be able to claim ownership of what would otherwise be water lost due to incidental recharge while at the same time eliminate the harm that would come to other users as a result of an increase in efficiency and a transfer of surplus water. Furthermore, he would not have to transfer his right, which would prevent him from actually having to sever ownership. Rather, he would bank the water on an annual basis in a manner that would be similar to a lease, which would allow him to retain the right to the water the following year. This would have the added benefit of enabling users to determine how much water they believe they will need for the year and bank the rest for others to use. Therefore, a user would be able to keep his water in a dry year and bank it when he felt it would be surplus.

233. *See id.*
234. *Id.* at 69.
235. *Id.* at 70.

VII. CONCLUSION

Idaho is at a crossroads with its water use.[236] If it continues at its current pace, water supply in southern Idaho will quickly reach a breaking point.[237] Such an occurance promises to increase conflict over an already contentious topic.[238] One method of addressing these issues is to encourage water conservation by allowing users to transfer their rights to surplus water. Unlike most states, Idaho precedent indicates that a transfer of otherwise wasted water will be approved even where such a transfer will injure another user.[239] However, Idaho has not defined "waste,"[240] deferring instead to the common law notion that using anything in excess of what is reasonable to fulfill the purposes for which the water was appropriated is considered waste.[241] Idaho's current rule against waste definitely has a place in Idaho water law. Nevertheless, as our understanding of the science of conjunctive management grows, our understanding of waste should grow with it. We should not be too quick to declare a user's practices wasteful if he is supporting a system of water users who depend on the continuance of his practices. This would effectively bring Idaho transfer law back into equilibrium by only allowing the rule against waste to trump the no-injury rule where a user's practices are truly wasteful, meaning that the water being used is not only being wasted by the individual but is also not part of a larger system upon which other appropriators rely.

Additionally, Idaho should be careful when using computer modeling to determine injury and reaffirm that the burden is on the user petitioning for a transfer. Using groundwater models may be the future of determining injury, but the ESPAM is not currently designed to answer questions of injury between individuals in a water right transfer dispute. Until modeling is reliable enough to answer such questions, the person in the best position to prove that no injury exists is the person requesting the transfer. There may be methods that can be adopted from other states to relieve the burden, but, in the end, the applicant must show he is not injuring anyone by transferring his right.

Finally, other methods exist that can readily encourage water conservation even if the no-injury rule is enforced. First, a user will still have a right to transfer surplus water so long as it causes no injury. The CAMP has the potential to go a long way to create such a reality by significantly reducing the burden on the ESPA.[242] Additionally, through the CAMP, a user may be able to sell his surplus water to the state, which would then use it to recharge the aquifer. This would encourage conservation while at the same time protect the junior user relying on the groundwater. Though the CAMP has not gone without criticism—namely, that it is an attempt to do away with prior appropriation[243]—it has the potential to create a situation where curtailment and injury are a thing of the past.

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236. IDAHO WATER RES. BD., *supra* note 2, at 6.
237. *Id.* at 7.
238. *See id.*
239. Application of Boyer, 73 Idaho 152, 162, 248 P.2d 540, 546 (1952).
240. *See* IDAHO ADMIN. CODE r. 37.03.11.010 (2009).
241. Colthorp v. Mountain Home Irrigation Dist., 66 Idaho 173, 180, 157 P.2d 1005, 1008 (1945) (quoting Glavin v. Salmon River Canal Co., 44 Idaho 583, 589, 258 P. 532, 534 (1927)).
242. *See generally* IDAHO WATER RES. BD., *supra* note 2.
243. CAMP COMMENTS, *supra* note 199, at 2.

Another method that could be used to encourage conservation is groundwater banking. If Idaho extended its surface water banking to groundwater then it could go a long way in encouraging efficiency and conservation. Under such a plan a person could either actively capture waste water and reinject it into the aquifer, or, if he could accurately quantify it, he could simply get credit for his incidental recharge.[244] Groundwater banking would create an incentive to conserve water for others to consume while at the same time preventing injury that would almost definitely occur if a transfer were attempted.

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244. CONTOR, *supra* note 220, at 11–12.

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