Ground Water. Louisiana’s Quasi-Fictional and Truly Fugacious Mineral

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GROUND WATER. LOUISIANA'S QUASI-FICTIONAL AND TRULY FUGACIOUS MINERAL*

Ground water may be defined as fresh water situated beneath the land but within 2500 feet of the surface; it is a natural resource very often taken for granted. Approximately one half of the population of the United States depends upon ground water for its domestic water supply, but despite seeming abundance—an estimated thirty-three to fifty-nine quadrillion gallons of fresh water are beneath the land area of the United States within 2500 feet of the surface—our ground water resources are threatened by unrestrained uses of the resource.

Ground water resources frequently must be considered nonrenewable due to time factors and the physical changes often caused by overuse. An aquifer can be depleted in less than a lifetime, but may take so long to recharge that the depletion is functionally permanent. In addition, excessive withdrawals can cause underground water-bearing formations to compact and lose their ability to store and yield water. Heavy pumping in coastal areas causes salt water contamination of aquifers, destroying them as resources.

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2. Id. (citng U.S. WATER RESOURCES COUNCIL, SECOND NATIONAL WATER ASSESSMENT, THE NATION'S WATER RESOURCES, 1975-2000, at 20 (U.S. Gov't Printing Office 1978)). The 200 to 300 years' supply estimate applies even if no recharge to aquifers, see infra note 3, occurs. Id. Of the 33-59 quadrillion gallons of water, present technology would allow use of just one-fourth. Id.

3. An aquifer is a subterranean geologic formation which stores water and yields it to wells. R. KAZMANN, MODERN HYDROLOGY 137 (1965). Aquifers can provide either salt or fresh water; this note deals solely with fresh water aquifers.

4. Some large aquifers in the United States recharge so slowly that they may be considered nonrenewable on a human time scale. The dry High Plains region of Texas gets most of its usable ground water from the Ogallala Formation. The aquifer has been heavily pumped since the 1930's. By 1962, some High Plains counties had pumped out 30 to 44% of the water originally stored beneath their soil. Pumping in the region exceeds recharge so much that "in this instance the ground-water deposit must be considered exhaustible." R. KAZMANN, supra note 3, at 181.

5. Excessive pumping can cause land subsidence when the deposits making up an aquifer become compacted after the water between them is removed. Land elevation can be reduced by as much as ten feet in this manner. Subsidence also reduces or destroys the ability of an aquifer to transmit water once the water holding structure is destroyed. Id. at 195; see also Lukas, When the Well Runs Dry: A Proposal for Change in the Common Law of Ground Water Rights in Massachusetts, 10 B. C. ENVTL. AFF. L. REV 445, 456-57 (1982).

6. R. KAZMANN, supra note 3, at 183. Underground formations infiltrated by salt water are permanently useless as water resources. See STATE OF THE ENVIRONMENT, supra note 1, at 107

7 R. KAZMANN, supra note 3, at 177
Ground Water: A Neglected Louisiana Resource

Louisiana's law with respect to ground water has not developed with the concerns of conservation and regulation of use as guiding principles. Present law will not prevent one landowner from totally depriving his neighbors of a share of the water which lies below all in a shared aquifer. Liability may be based only on negligence or deliberately harmful conduct; neither the types of competing uses involved nor precedence of use are considered. Furthermore, nothing prevents such a landowner or lessee from entirely depleting the water-bearing structure or formation. Louisiana's legal framework as to ground water has been accurately characterized as "the rule of the biggest pump." It should be revised so that both ground water resources and the users of those resources will receive optimum benefits and protection. This note will discuss the background and development of our current water law and will outline some suggested modifications.

Technical Definition and Legal Classification of Ground Water

Ground water may be defined as potable (drinkable) water found in a bed of sediment porous and permeable enough to allow movement of the water to supply wells, springs, lakes, and streams. This definition of ground water recognizes its role in the hydrologic cycle and its character as a resource.

Water from rainfall is the source of nearly all usable ground water supplies. Rain strikes the earth and percolates downward. It normally passes through an unsaturated zone where a portion of it is retained. Water in the unsaturated zone is called soil water. Part of the water continues to percolate downward until it reaches a zone of saturation in which all open pores in the earth are full of water. Water in the zone of saturation is ground water, and the upper limit of the zone of saturation is the water table.

10. Technically ground water "includes all of the waters found beneath the surface of the ground." R. Kazmann, supra note 3, at 129.
11. Foley, Water and the Laws of Nature, 5 Kan. L. Rev. 492, 495 (1957). Percolation is a hydrologic term for seepage. Although water from rain—meteoric water—is the primary kind of ground water, hydrologists have recognized two additional classes of subterranean water. Juvenile water is water trapped deep beneath the earth long ago; it has been termed "original" water and is insignificant in the water supply. Connate water is trapped with sediments at the time of their deposition. It is difficult to identify and is likely to be high in salts. Id.
12. Id. at 495-96.
14. Foley, supra note 11, at 496.
When this percolating water reaches the zone of saturation, it begins to move slowly towards points of discharge at the surface. The movement of ground water is gravity-controlled and therefore is down slope. Discharge occurs at points where the water table intersects the surface. Examples of such points include stream valleys and springs.

The terms "ground water" and "surface water" both apply to a single, indivisible resource—the fresh water supply. These terms simply describe this water at different points in the hydrologic cycle. In this cycle, water falls as liquid from the atmosphere to the land. It runs along or soaks into the ground before it returns to the atmosphere by evaporation and transpiration. This simple cycle has been eloquently described by a hydrologist for the United States Geological Survey:

Water is like a living thing. Essentially all of it that is usable is in motion—a part of the vast circulatory system known as the hydrologic cycle. In this cycle water evaporates wherever it is exposed to the air, but especially from the oceans; rises into the atmosphere; travels as a part of vast air masses over ocean and land; is condensed when an air mass rises to pass over another or over a mountain range; and falls as rain or snow.

[Water] may be surface water one moment and ground water the next, and vice versa. But it is all water, and it must be considered as a whole—each phase in relation to the others and to the entire hydrologic cycle.

The assertion that the interrelationship of water resources must be recognized and considered has long been echoed by legal commentators. Unfortunately, however, the legal classification of ground water dates from a time when lack of knowledge about the resource forced courts to make

15. See generally R. Kazmann, supra note 3, at 129-210. The essential concept here is that a geological formation, to be classed as an aquifer, must contain water in its interstices and must be capable of yielding that water to wells. Id. at 137
16. Id. at 139.
17. Foley, supra note 11, at 496.
20. Foley, supra note 11, at 497 ("[O]ne cannot separate ground water and surface water. What is surface water at one time is ground water the next. What is ground water today becomes surface water tomorrow. Any concept dealing with all water must correlate ground water and surface water."); E. Maloney, S. Plager & F. Baldwin, supra note 18, § 53.1, at 150-51; Lukas, supra note 5, at 462.
artificial distinctions. This early lack of knowledge is illustrated by an excerpt from the Ohio Supreme Court’s opinion in Frazier v Brown.

Because the existence, origin, movement and course of such waters, and the causes which govern and direct their movements, are so secret, occult and concealed, an attempt to administer any set of legal rules in respect to them would be involved in hopeless uncertainty, and would be, therefore, practically impossible. Such statements are no longer scientifically or legally warranted. Despite this fact, however, the legal treatment of water resources often follows Frazier v Brown’s fictional division of water into four legal classes:

1. Surface streams which flow in a permanent, distinct and well-defined channel from the lands of one owner to those of another.
2. Surface waters—however originating—which, without any distinct or well-defined channel, by attraction, gravitation or otherwise, are shed and pass from the lands of one proprietor to those of another.
3. Subterranean streams which flow in a permanent, distinct and well-defined channel from the lands of one to those of another proprietor.
4. Subsurface waters which, without any permanent, distinct or definite channel, percolate in mere veins, ooze, or filter from the lands of one owner to the lands of another.

The problem with this legal framework is that it ignores the essential hydrologic unity of all water. Today, the interrelationship between two wells or between a well and a stream can be shown, “and when causality is established, liability can be fairly adjudicated. Thus, a modern ground water doctrine based on hydrological principles can protect a landowner” and other users from the harm caused by overuse of ground water resources, while protecting and conserving the ground water resources themselves.

21. F Maloney, S. Plager & F Baldwin, supra note 18, § 53.1, at 150. The hydrologic cycle has been recognized, however, since biblical times. “All the rivers run into the sea; yet the sea is not full. Unto the place from whence the rivers come, thither they return again.” Ecclesiastes 1.7 (King James).
22. 12 Ohio St. (Critchfield) 294 (1861).
23. Id. at 311.
25. 12 Ohio St. (Critchfield) at 298-99.
26. Lukas, supra note 5, at 462. A successful showing of interconnection and harm will not help a Louisiana plaintiff. See infra text accompanying notes 35-38.
Louisiana Ground Water Resources: Present Problems and Future Pressures

Louisiana, even in flood-free years, is a water-rich state. Its mean annual rainfall of approximately fifty-six inches is nearly twice the national average. Louisiana possesses 1.9 million acres of inland surface water and ranks fourth in the nation in total surface water area. Louisiana's water problems more frequently involve surplus than scarcity.

However, as one commentator observed nearly thirty years ago, "[t]he law of water rights is destined to increase in importance in this state because of the drought conditions which have prevailed in northern Louisiana during the past few years." Recent years have seen recurrence of such droughts, and water shortages in neighboring states may directly affect Louisiana's water supply.

The increasing demand for ground water will be accompanied by increased competition for the resource and an attendant rise in litigation, and, as recently noted by the Office of Public Works of the Louisiana Department of Transportation and Development, "laws on ground water particularly need attention." The type of thinking that led to this situation was described some years ago by a Louisiana hydrologist:

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27 M. Borton & H. Ellis, Some Legal Aspects of Water Use in Louisiana 5 (1960).
30 Louisiana Water Supply—Projections vs. Availability, Water Currents, Apr. 1983, at 1 (Water Resources Study Comm'n, La. Dep't of Transp. & Dev.) ("As recently as last summer, drought situations have occurred in central Louisiana, where agricultural interests were competing for water."). For a popular account of contemporary water problems, some of which could affect Louisiana, see War Over Water—Crisis of the '80s, U.S. News & World Rep., Oct. 31, 1983, at 57.

31 See generally R. Kazmann & O. Arguello, The Mississippi River—A Water Source for Texas?, La. Water Resources Research Inst. Bull. 9 (Mar. 1973). The arid High Plains of Texas have long been using water from the Ogallala Aquifer at a rate faster than natural recharge. J. Klebba, Water Resources Legislation for Louisiana, Office of Public Works, La. Dep't of Transp & Dev 66 (1983). Texas proposed in "The Texas Water Plan" to divert huge amounts of "surplus" water from the Louisiana portion of the Mississippi River and export it to the High Plains. R. Kazmann & O. Arguello, supra, at 2-1. This plan obviously would have a profound effect upon Louisiana, particularly when one considers that Louisiana projects, such as fresh water diversion to rebuild eroding coastal marshes, will also require Mississippi River water. For a discussion of how the Texas Water Plan could be forced upon Louisiana by the United States Congress under the Commerce Clause, see J. Klebba, supra, at 68-71. See also Sporhase v. Nebraska ex rel. Douglas, 458 U.S. 941 (1982) (indicating that ground water is an article of commerce and therefore subject to regulation under the Commerce Clause).
We find that there is one tacit assumption invariably made concerning water. Water is assumed to be a renewable, naturally replenished resource that will be available in perpetuity, like the overlying land. This in addition to its life-giving qualities, makes water a special case in the field of natural resources. [T]his assumption is rarely if ever completely true and it may be almost completely false. The discrepancy between the assumption and the physical fact has been the cause of great dissatisfaction with certain legal doctrines.

Louisiana's law is based upon the false premise of perpetual availability, but it refuses to acknowledge that ground water is "a special case in the field of natural resources." The problems inherent in a legal scheme that insists upon ignoring what is known about water resources in favor of archaic assumptions may best be illustrated by examining the treatment given a ground water rights dispute by a Louisiana court of appeal.

*Adams v Grigsby: A Case and an Analogy*

Louisiana jurisprudence contains only one decision dealing with the rights of adjoining landowners in a common aquifer: *Adams v. Grigsby.* In *Adams,* a Caddo Parish subdivision had obtained fresh water for domestic use by drilling wells 100 to 200 feet into water-bearing sands of the Wilcox formation. Grigsby, an oil operator, pumped more than 100,000 gallons per day of ground water from the same formation for over a year. Grigsby used the water for secondary mineral recovery; he began his operation after the plaintiffs had begun to use the formation for their water supply. The plaintiffs alleged that the activities of the defendant had damaged the aquifer. They sought damages for the expensive modifications to pumps, wells, and piping made necessary by defendant's activity; the plaintiffs also alleged that their property values dropped. The district court dismissed the complaint, and the plaintiffs appealed.

The second circuit held that water is a fugitive mineral and is subject to the rule that a landowner does not own fugitive subsurface minerals in place. Ownership of such minerals can be acquired only by reducing them to possession, and a landowner or other possessor of a right to explore for and produce fugitive minerals cannot be limited as to the quantity taken. Thus, Grigsby had the right to pump as much water as his activities required. The trial court's dismissal of the complaint was

33. R. KAZMANN, supra note 3, at 200.
34. Id.
35. 152 So. 2d 619 (La. App. 2d Cir.), writ refused, 244 La. 662, 153 So. 2d 880 (1963).
36. Grigsby's water consumption was described in "barrels" in the opinion. Each barrel is assumed to be the equivalent of 55 gallons.
37. 152 So. 2d at 623.
affirmed, and the Louisiana Supreme Court, when it denied writs, stated that the "judgment is correct."38

At the time it was decided in 1963, Adams must have seemed an unremarkable case. In the twenty years since its disposition, no case like it has been decided in Louisiana,39 yet Adams is often referred to as a leading case. The rule of capture applies to ground water,40 and "[i]f you can pump it you can have it."41

Adams's application of the rule of capture to ground water was based upon an analogy between subterranean oil and gas and ground water. The oil-water analogy acknowledged in Adams is traceable to an old legal fiction accepted by the Louisiana Supreme Court in Rives v Gulf Refining Co.42

Water and oil and still more strongly gas, may be classed by themselves, if the analogy be not too fanciful, as minerals ferae naturae. In common with animals, and unlike other minerals, they have the power and tendency to escape without the volition of the owner. They belong to the owner of the land, and are a part of it, and are subject to his control; but when they escape, and go into other land, or come under another's control, the title of the former owner is gone.43

This classification of ground water as a fugitive mineral was reinforced in Higgins Oil & Fuel Co. v Guaranty Oil Co.44 "The analogy between the subterranean oil and subterranean or percolating waters is, we believe, near complete."45 Ultimately, it was this oil-water analogy that led the court in Adams to conclude that a rule called "absolute ownership" should control the nature and extent of the parties' property interest in the ground water.46

Adams v Grigsby: What Rule, What Basis?
The first step in a critical examination of the Adams rule must be

38. 244 La. 662, 153 So. 2d 880 (1963).
39. Cases not unlike Adams have arisen in numerous states. See, e.g., cases cited infra note 69.
40. LA. MIN. CODE: LA. R.S. 31:8 & comment (1975) [hereinafter cited as LA. MIN. CODE].
42. 133 La. 178, 62 So. 623 (1913).
43. 133 La. at 183, 62 So. at 625. The Rives court quoted language from an unnamed Pennsylvania Supreme Court case. This case turned out to be Westmoreland & Cambria Natural Gas Co. v. DeWitt, 130 Pa. 235, 249, 18 A. 724, 725 (1889).
44. 145 La. 233, 82 So. 206 (1919).
45. 145 La. at 246, 82 So. at 211.
46. Grigsby's ownership, said the court, was "unrestricted and unregulated." 152 So. 2d at 624.
a determination of whether any Louisiana authority then existed for the application of what is, with respect to its origins in water law, a common law rule. The principle that land ownership rights extend far above and below the land surface, or *ad coelum*, forms the core of the absolute ownership doctrine or “English Rule.” Louisiana Civil Code article 490 expresses the *ad coelum* concept: “Unless otherwise provided by law, the ownership of a tract of land carries with it the ownership of everything that is directly above or under it.” This concept has been a part of Louisiana’s civil law since 1808; thus, a substantial basis for absolute ownership existed in the Civil Code when *Adams* was decided. The *Adams* decision did not mention article 490, but Professor Yiannopoulos has cited *Adams* as authority for the proposition that “an owner cannot be debarred from the legitimate use of his property simply because it may cause a real damage to his neighbor. It would be contrary to the fundamental legal principle according to which the exercise of a right cannot constitute a fault or wrong.”

The operation of the *ad coelum* principle is tempered in the Civil Code by the *sic utere* doctrine, which limits the right of a landowner by not allowing him to harm his neighbors as a result of the use of his land. The *sic utere* principle is expressed in Civil Code article 667: “Although a proprietor may do with his estate whatever he pleases, still he cannot make any work on it, which may deprive his neighbor of the liberty of enjoying his own, or which may be the cause of any damage to him.” Article 667 would seem applicable to a dispute such as occurred in *Adams*. Nevertheless, the plaintiffs’ *sic utere* argument was rejected by the *Adams* court, which was probably influenced by the traditional limits of the *sic utere* doctrine. The court also stated that a grant of relief would “inevitably involve our courts in a long, unauthorized and complicated series of judicial regulations.”

Despite these assertions, however, the *Adams* court expressed dissatisfaction with the law it felt constrained to apply. The court termed

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47. The “English Rule” or “rule of capture” as well as the concept of absolute ownership was first introduced in the English decision, Acton v. Blundell, 12 M. & W. 324, 67 Rev. Rep. 361 (Ex. 1843). See Lukas, *supra* note 5, at 469.

48. Article 490 was formerly article 505 which read in pertinent part: “The ownership of the soil carries with it the ownership of all that is directly above and under it.” 1972 *COMPILED EDITION OF THE CIVIL CODES OF LOUISIANA* art. 505 (J. Dainow ed. 1973) [hereinafter cited as 1972 *COMPILED EDITION*]. Article 497 of the Civil Code of 1825 was very similar to former article 505, and the *ad coelum* principle was present in article 9 of title II of book II of the Civil Code of 1808 as well as article 552 of the Code Napoleon of 1804. *Id.*


51. 152 So. 2d at 624. Civil Code article 2315 was also a component of this unsuccessful argument.
the reasonable use rule the "more modern and popular rule," and one commentator has observed that the court "practically invited" legislative action in the ground water area. The court wisely noted: "We are not unaware of the growing value and importance of water as a natural resource and are cognizant of the fact that, in some instances, it is more valuable and necessary than oil or gas."

Notwithstanding the expressions of doubt in Adams, the oil-water analogy and the absolute ownership (rule of capture) principles were later codified in the Louisiana Mineral Code. The term "mineral rights," as used in the Mineral Code, includes water rights, and article 4 of the Mineral Code gives a landowner the right to explore for and mine or remove "from land the soil itself, gravel, shells, subterranean water, or other substances occurring naturally in or as a part of the soil or geological formations on or underlying the land." Liquid or gaseous subterranean minerals are not owned in place, but the landowner has the exclusive right to develop his property for such minerals and to reduce them to possession and ownership. Thus, had the Mineral Code been in force when Adams was decided, the result would not have differed. No search for a rule would have been necessary; the Mineral Code provides ample authority for the denial of recovery to the Adams-type plaintiff.

The theory of absolute ownership is consistent with existing codal norms. The Mineral Code's approach to ground water is identical to its regime for all fugacious minerals; its present application to ground water, however, is a serious error None of the highly developed and constitutionally tested mechanisms for the regulation of oil and gas—mechanisms that operate as restraints on the rule of capture—apply to ground water

52. 152 So. 2d at 623.
54. 152 So. 2d at 624.
55. LA. MIN. CODE art. 8 (1975).
57 Emphasis added.
58. The comment to article 6 of the Mineral Code states: "Article 6 is a retention of the theory articulated in Frost-Johnson Lumber Co. v Salling's Heirs, 150 La. 756, 91 So. 207 (1922)." And article 8 of the Mineral Code contains language plainly rooted in the ad coelum concept and reminiscent of absolute ownership:

A landowner may use and enjoy his property in the most unlimited manner for the purpose of discovering and producing minerals, provided it is not prohibited by law. He may reduce to possession and ownership all of the minerals occurring naturally in a liquid or gaseous state that can be obtained by operations on or beneath his land even though his operations may cause their migration from beneath the land of another

Emphasis added.
Absent such modifications and controls, the Mineral Code, like the absolute ownership doctrine, encourages unbridled use of ground water and, in turn, depletion of aquifers.

Ad Coelum Realism

Absolute ownership as a rule of water law is a near-literal application of the *ad coelum* doctrine. Even so, absolute ownership is deceptively named:

It is a misnomer to call the English rule the absolute ownership doctrine. Since a landowner has no rights against an adjoining landowner who withdraws all of the water under his land and dries up his wells, it is inaccurate to say that he owns the percolating water under his land. Actually, under the English rule, the landowner does not “own” the percolating water until he has reduced it to actual possession.60

Consistently, the Mineral Code vests actual ownership of fugacious minerals in a landowner once he captures them.61 Ground water cannot be divided into discrete parcels until captured and therefore is unowned until capture. This means that someone may be pumping vast amounts of ground water, but in theory he owns none of the resource while it is still in the ground. Once the water is captured and out of the ground, a fundamental shift in classification occurs; water is at that point a private thing and the law simply ignores the earlier-recognized lack of ownership. The effect of unlimited right to capture, then, is *de facto* ownership of water still in place. This is the essence of the underdevelopment of our ground water law. The classification shift eradicates the public interest in ground water, and in the final analysis, betrays private users by encouraging them to destroy the resource.

Neither the *ad coelum* doctrine nor the rule of capture which derives from it, as expressions of a person’s property interests in land, need be so literally applied. Limits upon *ad coelum* have always been present in our law. The precursors of Civil Code article 490 all limited landowner rights by means of “the laws and regulations of the police,”62 and the current version of article 490 not only begins by qualifying a landowner’s rights immediately (“Unless otherwise provided by law”) but also ends with a limitation (“unless he is restrained by law or the rights of others”). The doctrine was designed to define and fix ownership interests and has yielded to practical considerations such as those involved with overflight of aircraft.63 In fact, the rule of capture, which is very similar to the *ad coelum* doctrine, is applied with far less rigidity with respect to oil

60. F. Maloney, S. Plager & F. Baldwin, *supra* note 18, at 155.
and gas than it is with respect to ground water, since the extraction of oil and gas is highly regulated by the state.\textsuperscript{64}

**Major Ground Water Legal Systems**

Absolute ownership is just one of five distinct approaches to ground water rights found among American jurisdictions. The five approaches are known as absolute ownership, reasonable use, correlative rights, the Restatement (Second) of Torts rule, and prior appropriation.\textsuperscript{65} Each is the product of jurisprudential development,\textsuperscript{66} and each of these approaches will briefly be discussed and evaluated.

**Absolute Ownership**

Absolute ownership or the English Rule\textsuperscript{67} is the current Louisiana rule.\textsuperscript{68} Absolute ownership was initially applied in twenty-eight American jurisdictions,\textsuperscript{69} but it has "been criticized by writers and repudiated by most American jurisdictions."\textsuperscript{70} The rule gives a landowner absolute access to water underlying his land; he possesses the exclusive right to drill a well and, absent intentional harm to neighbors or waste, he can pump as much water as he is able.\textsuperscript{71}

**Reasonable Use**

The reasonable use approach was the first modification of the absolute ownership doctrine; it is also known as the American Rule. Reasonable use, which is followed in the majority of eastern jurisdictions,\textsuperscript{72} limits a landowner's use to beneficial uses having a reasonable relationship to the use of his overlying land.\textsuperscript{73} Beneficial uses are those possess-
ing some commonsense link to economic or domestic activities.\textsuperscript{74}

The reasonable use approach does not analyze particular interferences or conflicts between ground water users for reasonableness. Instead, particular water uses are characterized as reasonable or unreasonable \textit{per se}.\textsuperscript{75} Use of ground water upon overlying land for agricultural, domestic, mining, or manufacturing purposes is reasonable under this rule, even if neighbors' supplies are interfered with.\textsuperscript{76}

This rule has been described as "essentially the rule of absolute ownership with exceptions for wasteful and off-site use."\textsuperscript{77} In time, reasonable uses tend to become synonymous with ordinary uses, undermining the mild restraint of the doctrine.\textsuperscript{78} Like absolute ownership, reasonable use does not acknowledge the common pool aspects of ground water, and it will not protect ground water resources from depletion.\textsuperscript{79}

\textit{Correlative Rights}

The doctrine of correlative rights in water law is "an outgrowth of the reasonable use rule."\textsuperscript{80} The features of the doctrine are well illustrated by the leading correlative rights case, \textit{Katz v Walkinshaw},\textsuperscript{81} which involved a dispute between agricultural users and a city water supplier.

Two of the propositions established in \textit{Katz} form the basis of the correlative rights doctrine. Under the first, a water transporter "can protect its right against wasteful or malicious pumping by local users and against interference by other transporters."\textsuperscript{82} Prior to \textit{Katz}, transporters lacked any rights \textit{vis a vis} local users\textsuperscript{83} and could pump ground water only until their use interfered with that of local users.\textsuperscript{84} Under the second proposition established in \textit{Katz}, disputes between local users during times of insufficient supply would be settled by the court by allowing each "a fair and just proportion" of the available water\textsuperscript{85}

\begin{thebibliography}{99}
\bibitem{74} 1 \textit{WATER RIGHTS}, \textit{supra} note 66, § 54.1, at 367-68.
\bibitem{75} \textit{id.}, § 54.3, at 370-76; Lukas, \textit{supra} note 5, at 484.
\bibitem{76} F. Maloney, S. Plager & F. Baldwin, \textit{supra} note 18, § 54.2(b)(2), at 156; J. Klebbra, \textit{supra} note 31, at 17
\bibitem{77} Lukas, \textit{supra} note 5, at 484.
\bibitem{79} Lukas, \textit{supra} note 5, at 484-86.
\bibitem{80} J. Klebbra, \textit{supra} note 31, at 17 Some confusion between correlative rights and reasonable use has occurred over the years; for a discussion and clarification, see Note, \textit{Water Law—Groundwater Rights in Missouri—A Need for Clarification}, 37 \textit{Mo. L. Rev} 357 (1972).
\bibitem{81} 141 Cal. 116, 74 P 766 (1903).
\bibitem{82} Lukas, \textit{supra} note 5, at 487-88.
\bibitem{83} \textit{id.} at 483 n.262.
\bibitem{84} \textit{id.} at 487.
\bibitem{85} 141 Cal. at 136, 74 P at 772. This standard applies only between landowners who

Furthermore, the correlative rights doctrine distinguishes between local users and transporters, favoring the former. Thus, unlike reasonable use and absolute ownership, the correlative rights doctrine does not recognize an absolute right of access to ground water coupled with a normally unlimited right to pump—it asserts that the power to allocate water resources resides in the courts. Owners of overlying land and non owners or transporters have co equal or correlative rights in the reasonable, beneficial use of ground water.

The most important distinguishing feature of the correlative rights doctrine, however, is its recognition that adjoining lands may be underlain by a common, shared aquifer. Since the correlative rights doctrine acknowledges this phenomenon, the judicial power to allocate water permits protection of both the public's interest in the resource itself and the interests of private users.

Restatement (Second) of Torts Approach

Section 858 of the Restatement (Second) of Torts contains an approach to water law derived from the correlative rights doctrine. This scheme does not favor local users over transporters, but it does recognize co equal rights in neighbors who share in a common ground water pool. The correlative rights basis of this approach is particularized in two of the section's tests for liability for interference with the use of ground water by another: (1) a relatively general analysis of reasonableness of withdrawals based upon the size of the parties' withdrawals and the total amount of supply, and (2) a more specific multifactor test for situations when

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use ground water on their own land.

86. Lukas, supra note 5, at 486.
87 Id. at 490.
88. F. Maloney, S. Plager & F. Baldwin, supra note 18, § 54.2(b)(3), at 156-57.
89. See Wiel, Natural Communism: Air Water Oil, Sea, and Seashore, 47 Harv. L. Rev. 425 (1934).
90. Lukas, supra note 5, at 493. Section 858(1) of the Restatement (Second) of Torts reads:

(1) A proprietor of land or his grantee who withdraws ground water from the land and uses it for a beneficial purpose is not subject to liability for interference with the use of water by another, unless:
   (a) the withdrawal of ground water unreasonably causes harm to a proprietor of neighboring land through lowering the water table or reducing artesian pressure,
   (b) the withdrawal of ground water exceeds the proprietors' reasonable share of the annual supply or total store of ground water, or
   (c) the withdrawal of the ground water has a direct and substantial effect upon a watercourse or lake and unreasonably causes harm to a person entitled to the use of its water.

91. Restatement (Second) of Torts § 858(1)(a) & comments c, e, f (1977); Lukas, supra note 5, at 495.
a use is not disproportionately large relative to existing uses but still affects other users.\textsuperscript{92}

Wisconsin, in \textit{State v. Michels Pipeline Construction},\textsuperscript{93} was the first, and thus far the only, state to adopt this rule. In \textit{Michels Pipeline}, the Wisconsin Supreme Court reconsidered its longstanding recognition of absolute ownership principles. After a thorough examination of absolute ownership the court overruled its endorsement of that doctrine\textsuperscript{94} and adopted the \textit{Restatement (Second)} rule as a "rule of law more in harmony with present scientific and legal principles."\textsuperscript{95}

Some commentators believe that the \textit{Restatement}'s scheme retains the basic rationality of correlative rights but also provides a more objective standard of reasonableness.\textsuperscript{96} Other commentators, however, have criticized its relative uncertainty as to liability and have labeled the multifactor test as "nebulous."\textsuperscript{97}

\textbf{Doctrine of Prior Appropriation}

The doctrine of prior appropriation developed in response to the surface water requirements of nineteenth century California gold miners, and it has been extended to ground water.\textsuperscript{98} This approach to water rights

\textsuperscript{92} \textit{Restatement (Second)} of Torts § 858(1)(b), (2) & comments c, d, g (1977); see also id., § 850A. Factors listed in section 850A are:
(a) The purpose of the use,
(b) the suitability of the use to the watercourse or lake,
(c) the economic value of the use,
(d) the social value of the use,
(e) the extent and amount of the harm it causes,
(f) the practicality of avoiding the harm by adjusting the use or method of use of one proprietor or the other,
(g) the practicality of adjusting the quantity of water used by each proprietor,
(h) the protection of existing values of water uses, land, investments and enterprises, and
(i) the justice of requiring the user causing harm to bear the loss.

\textsuperscript{93} 63 Wis. 2d 278, 217 N.W.2d 339 (1974).

\textsuperscript{94} The court overruled its longstanding decision in Huber v. Merkel, 117 Wis. 355, 94 N.W. 354 (1903), which held that a person injured by interference with ground water underlying his land had no cause of action.

\textsuperscript{95} 63 Wis. 2d at 298, 217 N.W.2d at 348.

\textsuperscript{96} Lukas, supra note 5, at 499.

\textsuperscript{97} See Lowe, Ruedisili & Graham, Beyond Section 858: A Proposed Ground-water Liability and Management System for the Eastern United States, 8 Ecology L.Q. 131 (1979). The authors write: "Section 858 misses the fundamental issue of a ground-water dispute in stating that because ground water is generally abundant, both parties have rights; it is because ground-water supplies are not abundant that such disputes arise." Id. at 141. This statement may or may not be correct, but the criticism is consistent, in part, with that of Dr. Kazmann.

is characteristic of the arid western jurisdictions. Under the doctrine of prior appropriation, a priority of right is obtained by the first actual user of a particular ground water source. Most states using this doctrine have administrative permit systems, but even among those which do not, priority is fixed by the first substantial act which leads to diversion and use. Thus, reasonable diligence in putting water to use is expected.

The prior appropriation doctrine is similar to the ground water law approaches that are centered around land ownership in that an appropriative water right is a right of use or access and is not an interest in the actual corpus of the water supply. However, the doctrine differs from the land ownership-centered approaches previously discussed in one very important respect—appropriative rights do not depend upon land ownership and they need not be exercised on the overlying land. Absent utilization of the supply, such rights do not exist.

Under the prior appropriation rule, the use of water must be beneficial in order for the user to acquire appropriative rights. Theoretically, such a requirement prevents wasteful use of a scarce resource, but the beneficial use requirement, without more, may allow a user to totally deplete a water source as long as he does so in a purportedly beneficial manner. The prior appropriation doctrine, however, has modified the beneficial use concept to include the interests of the public in maintaining water supplies or to include a requirement of reasonableness with respect to other private users.

The Shape of a Solution

A judicial "better rule" is not a practical, legally sufficient, or comprehensive answer to Louisiana's future ground water allocation problems. Because the rule of capture has been adopted by the Mineral Code, no Louisiana court is likely to overrule it. Even if this were not the case, however, several connected factors militate against judicial solutions in this area. The role of courts is limited to the solution of individual private disputes, the resolution of which is necessarily piecemeal. In addition, protection of the public interest in natural resources is a modern necessity,

100. 1 Water Rights, § 51.6, at 295-96.
101. Id. § 51.6, at 295-96 (1967); § 51.6, at 85 n.67 (Supp. 1978).
102. Id. § 51.9, at 299.
103. Id. § 51.6, at 296.
104. Id.
105. Id. § 54.1, at 368; see also, Wiel, What Is Beneficial Use of Water?, 3 Calif L. Rev 460 (1915).
and the courts, saddled with the constraints imposed by the Mineral Code, which recognizes no public interest in ground water, cannot provide such protection.

California has had a long history of water shortages, water disputes, and litigation over water rights. In Meridian, Ltd. v City & County of San Francisco, the California Supreme Court expressed its dissatisfaction with judicial resolutions: "[t]he judgement is necessarily confined to the issues presented by the parties to this action. This method of resolving controversies involving the rights of the users is necessarily piecemeal, unduly expensive, and obviously unsatisfactory." These sentiments were reiterated by that court in In re Waters of Long Valley Creek Stream System. 

[A] context in which water rights are determined through piecemeal adjudication will settle disputes among only a small number of those persons who claim a right to the use of water. The judgement in this type of adjudication necessarily can bind only those who are parties to the litigation. [T]here is a limitation inherent in the ability of private lawsuits to provide clarity, certainty, and security to water rights and water users.

The requirements for a comprehensive modern system are a second reason why legislative action is the preferable answer to ground water problems. Some of these requisites, as listed by the California Supreme Court in In re Waters of Long Valley Creek, are clarty, certainty, and security of water rights. A legal system must accommodate differing parties whose various interests will cause them to define each requirement differently Professor Trelease has provided a "water law professor's credo" as a broad overview of a ground water regulatory scheme, a view which emphasizes private property rights and which supports public regulation "only when private economic action does not protect the public interests." A writer who has extensively surveyed the legal literature

107 Adams v. Grigsby is cited in the comment to article 8 of the Mineral Code in the context of the definition of the rights of landowners. Nowhere in the Adams opinion is a public interest in the resource acknowledged.

108. The volume of litigation and commentary dealing with California water law is truly impressive. See, e.g., Hutchins, California Ground Water: Legal Problems, 45 CALIF. L. REV 688 (1957).


110. 13 Cal. 2d at 457, 90 P.2d at 553.


112. 25 Cal. 3d at 347, 599 P.2d at 660-61, 158 Cal. Rptr. at 354.

113. 25 Cal. 3d at 354-57, 599 P.2d at 663-67, 158 Cal. Rptr. at 357-61.

114. Trelease, Policies for Water Law: Property Rights, Economic Forces, and Public Regulation, 5 NAT. RESOURCES J. 1, 2 (1965). Professor Trelease wrote that an "oversimplified statement" might say something like this:
on groundwater stated that five criteria most commonly are used to evaluate judicial rules, while another such survey provided thirteen "useful factors" for analysis of water law systems (including legislative solutions as well). All of these particularized criteria may be distilled into three basic elements: (1) ground water is a resource possessed of a public interest; (2) good law will protect ground water users from each other, and (3) good law will protect the resource itself and will maximize its benefits to users.

Water law should provide for maximum benefits from the use of the resource, and this end should be reached by means of granting private property rights in water, secure enough to encourage development and flexible enough for economic forces to change them to better uses, and subject to public regulation only when private economic action does not protect the public interests.


Lukas, supra note 5, at 460-67 ((1) protection of usufructuary rights, (2) recognition of hydrologic relationships, (3) encouragement of maximum beneficial use, (4) response to public needs, and (5) fairness in allocation).

Weston and Gang, Law of Ground Water in Pennsylvania, 81 DICK. L. REV 11 (1976). The thirteen factors are phrased as questions in subheadings of the article:

A. Does the Legal System Correspond to Hydrologic Fact?
B. How Well Is the Relative Availability or Scarcity of the Resource Addressed?
C. Is the System Capable of Managing Ground Water as a Renewable Resource?
D. How Does the Legal System Define Allowable Uses?
E. Does the System Control Consumptive Use?
F. Is Economic Efficiency Encouraged?
G. Does the System Provide Sufficient Security of Water Rights to Protect Beneficial Investments?
H. Does the System Allow Flexibility to Meet Changing Water Needs?
I. Does the System Allow for Considerations of Distributional Fairness?
J. Does the System Provide for Recharge of Aquifers and Use of Underground Reservoirs for Artificial Storage?
K. Does the System Allow Pooling of Resource Rights?
L. Are Environmental Values Protected?
M. Is the Legal System Administrable?

Id. at 45-62.

Several states have undertaken ambitious legislative programs with the goal of water law reform. In 1972 Florida adopted the Florida Water Resources Act of 1972 (FWRA), which was "[d]esigned to provide comprehensive state regulation of Florida's water resources on a hydrologically sound basis through consideration of the interrelationship of all types of water resources in the hydrologic cycle." Maloney, Capehart & Hoofman, Florida's "Reasonable Beneficial" Water Use Standard: Have East and West Met? 31 U. FLA. L. REV 253, 253 (1979). See generally F MALONEY, R. AUSUES & J. MORRIS, A MODEL WATER CODE WITH COMMENTARY (1972). Because Florida, like Louisiana, has abundant water supplies but, unlike Louisiana, has already experienced significant ground water problems (suds or salt water infiltration of aquifers in the Miami area), this legislative effect should be well scrutinized by Louisianans concerned with reform of this state's law.

Governmental Authority for Regulation of Ground Water in Louisiana

The stage is already set for adoption of a ground water code in Louisiana. Article IX, section 1 of the Louisiana Constitution of 1974 provides that "[t]he natural resources of the state, including air and water shall be protected, conserved, and replenished insofar as possible and consistent with the health, safety, and welfare of the people. The legislature shall enact laws to implement this policy." However, because this language may be regarded as hortatory or aspirational, rather than mandatory, the presence of article IX, section 1 in the Constitution may not, without more, mandate reform of Louisiana ground water law.

In the oil and gas area, article IX, section 1 has been better followed. Subterranean oil and gas are res nullius and a landowner has the right to drill for them and to reduce them to possession and ownership. However, the operation of the rule of capture with respect to oil and gas is restricted. Recognition that the resource may occur in pools underlying more than one tract of land is accompanied by conservation legislation and unitization techniques which limit a landowners right to drill in exchange for an interest in a unitized production area and his right to retain production from wells that are present on his land. A state officer, the Commissioner of Conservation, has broad regulatory authority. A Louisiana ground water code utilizing a similar scheme would put the entire oil-water analogy to work and would avoid many of the problems spawned by Adams. This would be preferable to the present law, but it would also be much more expensive. Water is likely to remain less valuable as a market item than oil and gas.

Theories as to how the state could regulate ground water involve either a state claim of ownership in the public interest of the resource or the development of the usufructuary nature of the rule of capture-based rights to the corpus of the water itself. Under the first concept, ground water (similarly to oil and gas) is seen as res nullius in place. This is consis-
tent with the present law applicable to oil and gas. A landowner owns a right of capture only and that right may be limited or taken away by the state.122

This approach is open to a constitutional attack based upon the argument that the right to drill is vested, and if the state impairs the right, a taking without due process will occur.123 Such rights have been recognized by the United States Supreme Court.124 A reply to constitutional attack could analogize state regulation of wildlife resources. Divestiture, partial or total, of the right to take wild animals has been held constitutional; wild animals have been classified as a fugitive resource just as oil, gas, and ground water have been.125 In the past, the state actually claimed title to wildlife, but this view has been replaced by the proposition that wildlife, as res nullius, are owned by the public and managed in a kind of trust for the public by the state.126 The strength of state power over wildlife is due at least in part to a long-term, judicially recognized strong state interest in animal resources.127 There is no such traditional state interest in ground water, but contemporary conditions call for Louisiana to declare and establish such an interest.

The second concept has been the basis for state control of water resources in other jurisdictions. Laws which embody it have withstood constitutional attack despite their effect of state-imposed divestiture of drilling rights.128 The theory is that "since only vested rights are constitutionally protected from taking, one has no protection in those rights not vested, and it has been concluded that there is no vested right in underground water not appropriated and applied to beneficial use by the landowner."129 A landowner is seen to have vested rights only in water that he has actually appropriated and put to beneficial use, and the state can appropriate the resource in place for the benefit of the public. Under this theory, the opposite of absolute ownership principles obtains: There is no de facto ownership by the landowner of the aquifer because his right to extract does not somehow insulate him from restriction as to how much he can extract. Yet, the basic tenets of absolute ownership—

121. Pennsylvania Coal Co. v. Mahon, 260 U.S. 393 (1922) (holding that a statute which impaired a landowner’s right to mine underground coal was a taking).
122. Id. at 229-30.
123. Id. at 230.
124. Id. at 231 & n. 13 (citing Baumann v. Smrha, 145 F. Supp. 617 (D. Kan.), aff’d, 352 U.S. 863 (1956)).
125. Id. at 230. See Eddy v. Simpson, 3 Cal. 249, 252 (1853) ("It is laid down by our law writers, that the right of property in water is usufructuary and consists not so much of the fluid itself as the advantage of its use.").
126. Id. at 230.
nonownership of the mineral in place and recognition of the exclusive right in the landowner to explore for and produce the mineral—are given true force. Water already put to beneficial use and rights to drill extant at the time legislation is passed would be protected from divestiture under this theory. This scheme is perfectly consistent with existing Louisiana law (Mineral Code, Civil Code, and Adams v Grigsby) because the usufructuary nature of a landowner's right to the water underlying his property is preserved. This is the conceptual base upon which a Louisiana ground water code ought to be constructed.

Proposals for Specific Elements of a Ground Water Code

Louisiana's legal structure appears to contain a niche that will readily accommodate state regulation of ground water. Proof of this may be found in the existence of statutory law concerning ground water; these provisions are the remnants of a comprehensive, statewide ground water bill that died in committee in 1972. This legislation basically does two things. First, it gives the Office of Public Works of the Department of Transportation and Development, as an agency, some authority to regulate ground water. This authority, however, does not extend to small wells such as those owned by the Adams v Grigsby plaintiffs.

To deal with situations like Adams, at least in one area of the state, the legislation creates a regional district—the Capital Area Groundwater Conservation District. The District was established in 1974 and includes East Baton Rouge, East Feliciana, Point Coupee, West Baton Rouge, and West Feliciana Parishes. The District possesses authority to regulate and restrict ground water use by persons within it, even where the water has been produced by effort of the landowner. The authority clearly is designed to recognize that one landowner's use of ground water may materially affect his neighbors' use of it.

Within the District, the operation of the pure rule of capture announced in Adams has been severely curtailed. Ground water is never

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130. Hargrave, supra note 121, at 230.
131. La. H.R. 440, 35th Reg. Sess. (1972); see J. KLEBBA, supra note 31, at 34-35. The bill would have given the Office of Public Works of the Department of Transportation and Development the authority to require permits for the drilling of wells, to restrict pumping during periods of excessive withdrawal or when the quality of the water supply is otherwise endangered, and to establish water use priorities. Id.
136. J. KLEBBA, supra note 31, at 52.
137 Id.
expressly described as *res nullius*, but the board of commissioners of the district has, for example, the following powers:

(2) To require permits for the drilling or construction of all wells drilled after July 31, 1974, having a capacity in excess of fifty thousand gallons per day

(6) To specify spacing of wells upon a showing that the water quality, quantity of withdrawal or subsidence in such area threatens the public interest.

(12) To establish groundwater use priorities

These powers necessarily recognize that the public has an interest in ground water. The governing body of the District has not yet found it necessary to exercise any of its more specific powers; thus, no judicial test of its statutory power to restrict has yet occurred. The District presently functions primarily as a data gathering and monitoring entity.

It is submitted that the framework set forth in this legislation should be expanded and amended to form a comprehensive statewide authority over Louisiana's ground water. Authority should not be vested in numerous small local districts, but should instead be placed in an Office of Water Resources under either the Department of Transportation and Development, the Department of Natural Resources, or the Department of Environmental Affairs.

Such legislation should incorporate the primary conceptual elements of the Capital Area Groundwater Conservation District. It should: (1) expressly declare that "[t]he orderly utilization of groundwater resources is hereby found and declared to be a matter of public interest;" (2) recognize that the capacity of an aquifer is knowable and that pumpage is to be apportioned justly and equitably; (3) give the office of Water Resources authority to control well spacing "upon a showing" that current usage in an area "threatens the public interest"; (4) provide for the maximum practicable data collection; (5) incorporate the implied limits

140. See Johnson, *Texas Groundwater Law: A Survey and Some Proposals*, 22 NAT. RESOURCES J. 1017 (1982) (discussing some shortcomings of the district approach). Basically, statewide districting is a piecemeal approach, permitting "balkanization" of what should be a uniform, statewide authority over ground water. If regulatory authority is to be locally delegated, this should be organized into a small number of loose regional districts, as has been done in Florida. See *supra* note 117
of Civil Code article 490 by stating that “[n]o order limiting rates of production as authorized in Subsection A of this section shall have the effect of in any way denying to any owner of the land a reasonable opportunity to produce and beneficially use his just and equitable share of the groundwater supply,” and (6) establish administrative procedures sensitive to constitutional requirements.

The major areas of the existing framework which would require change if the scheme were to be applied statewide involve small wells and user liability. Louisiana Revised Statutes 38:3070 exempts small wells from the control of the governmental authority. Small wells and domestic users may have a relatively small impact upon the capacity of an aquifer, but numerous disputes involving small users are likely as the competition for quality water resources grows. A truly comprehensive regulatory scheme would minimize the need for ad hoc judicial determination by regulating all users of ground water.

Cost is the major problem with small users. If the underlying policies of a ground water code are to recognize the hydrologic nature of the resource, beneficially and justly apportion the resource among users, and provide a rational means for determining liability for behavior which damages the resource or a fellow user, then every user should be aware of ground water movements below his land and of uses which could injure the resource or his neighbors. The tests necessary to determine ground water movements and injurious use consequences are expensive; a small or domestic user cannot reasonably be expected to employ them. If a user cannot afford the tests, he cannot justly be held liable, via constructive knowledge, for the damages caused by his pumping. The imposition of liability under such circumstances would be as absurd as the absolute ownership decisions which “presume that a landowner does not know the results of such tests when, in fact, he has made them.”

Two possible solutions are suggested. First, the state could assume responsibility for the calculation and dissemination of necessary ground water data. Again, cost is a problem because testing is expensive. If the state does the work, however, costs would be distributed through society and two other advantages would result: the state could more closely monitor fluctuations or changes in the resource and more effectively safeguard the public’s interest. Incidental to these efforts, it could distribute its results to local users. Testing accomplished by a single public agency, a second possible solution; would produce better results than would piecemeal efforts by individuals.

144. LA. R.S. 38:3076(B) (Supp. 1984).
146. Davis, Wells and Streams: Relationship at Law, 37 Mo. L. REV 189, 236 (1972).
147 Id. at 202.
148 Id. at 235.
An alternative solution could be predicated upon presumptions which are tailored to the size of the use. Wells that a reasonable person would not install without first making hydrologic tests would be defined as high-capacity wells, and owners of such wells would be charged with knowledge revealed by the tests and could be liable for unreasonable injurious consequences. Small wells would be defined as those which a reasonable person would install without expensive testing. Owners of small wells would be charged only with knowledge reasonably available to them.

Tailoring the Scheme to Local Conditions

Louisiana has an abundance of ground water overall. This does not mean, however, that the statewide statutory scheme should be insensitive to local conditions or the interrelationship of different areas of the state. Different portions of Louisiana possess very different ground water resources and use characteristics. A just and equitable share for a type A user in Caddo Parish will probably differ from what that share is for the same type of user in East Feliciana Parish, and, therefore, a ground water code must address these considerations. And as one writer has suggested, the most effective means of addressing these concerns in a statewide regulatory scheme is to divide the state into "critical" and "noncritical" areas, with different principles applicable to ground water use in these two types of areas.

Noncritical areas. As the label suggests, noncritical areas would be portions of Louisiana within which adequate ground water resources exist for current and projected uses. Three alternatives are suggested for water allocation within noncritical areas: the first user principle, the priority use rule, and the comparative cause rule.

The first user principle adopts an element typical of western ground water appropriation law: an area's first user is entitled to water rights superior to those of his neighbors. Advantages of the rule are certainty and some logical fairness, but it suffers from serious disadvantages. First, it assumes a scarcity of water, an assumption that would probably not be valid in a Louisiana noncritical area. In addition, older uses are not always more beneficial than or preferable to more recent uses. One fundamental premise of a statutory scheme is recognition of the public interest, and that interest is not well served by a relatively rigid rule which does not scrutinize types of use.

149. Id. at 236
150. Id.
151. Id. at 236-37
152. Lowe, Rueisili & Graham, supra note 97 at 150.
153. Id. at 150-55.
154. Id. at 151.
Under the *priority use rule*, the legislature would establish the ranking of uses. Like the first user principle, a priority use approach provides certainty at the expense of balance; too much weight is given a single facet of ground water management. This rule also assumes a basic scarcity of water, and it is possible that political forces could unduly influence ranking of uses.

In application, a priority use rule could produce problems when disputes arise. When two users having the same priority clash, the rule would be of no help, and recourse to a different rule, such as the first user principle, would be necessary. This tends to offset one of the virtues of the priority use rule—simplicity.

A third approach to ground water resource allocation in noncritical areas may be found in the *comparative cause rule*. Comparative cause would hold each ground water user liable only in proportion to his use during the period of damage. This principle is derived from the correlative rights doctrine. It explicitly recognizes that ground water problems in water-rich areas are frequently temporary and that legal fault is not always a viable issue in a dispute.

The results produced by a comparative cause rule would be fairer than those obtained under the previous two rules, but they would also be less certain. It is reasonable to state that in a noncritical area of a water-rich state, fairness and flexibility should outweigh certainty as desirable attributes of a ground water law. The need the rule creates for reliable, available ground water data could be a major weakness of the comparative cause rule. Situations involving multiple parties would be difficult to solve with such data and nearly impossible to solve without it.

On the whole, the comparative cause approach seems to be the best of the three alternatives for Louisiana. It is conduct-based, rather than property-based, and for this reason, it shifts the focus of the law towards the resource and its management and away from the individual landowner and his property rights. Furthermore, because comparative cause flows from correlative rights, it is consistent with certain aspects of land ownership and mineral rights already present in the Civil Code and the Mineral Code. Comparative cause also contains room for the necessary role of the public interest in ground water because the common pool nature of the resource is explicit in the rule.

155. *Id.* at 152.
156. It should be noted here that the progressive Louisiana water resource legislation was killed largely by rice-growing interests from southwestern Louisiana. See J. Klebba, *supra* note 31, at 35 & n.111, *supra* note 131 and accompanying text.
158. *Id.*
159. *Id.*
160. *See supra* notes 80-89 and accompanying text.
Critical areas. An area may be defined as critical if it is chronically short of water or if its ground water is absolutely depended upon by numerous users. A Louisiana ground water code could classify critical ground water areas by the relative severity of the water situation in each area, an approach which would provide flexibility. Since the underlying assumption in a critical area is scarcity of water, priorities for a statutory system would include the ability to recognize and react to potential shortages. Uses and sources would require adjustment during shortages, and administrative action, subject to judicial review, would assure fair and speedy resolution of such problems.

Of course, cooperation and interplay between noncritical and critical areas within the state are essential. If a problem occurs in a critical area, effective transfer of water from the nearest noncritical area would be essential. Protectionist statutes like those currently in force in two parishes would have to yield before a uniform statewide ground water code.

Conclusion

Louisiana is in an enviable position. The state possesses vast water resources, including abundant supplies of ground water. Our ground water law is undeveloped, however, and will not serve the state well in a future that, without question, will place severe demands upon the resource.

Much of the framework for an adequate system is already firmly

162. Id. at 150.
163. LA. R.S. 14:224 (1974) states:
   A. No person, firm, corporation, public body, quasi-public body or political subdivision shall transport under ground water or surface water from the parish of St. Tammany to any person, firm, corporation, municipality or city located outside of said parish; provided, however, that the provisions of this section shall not be construed to prohibit any person, firm or corporation engaged in the business of selling or furnishing to consumers bottled water from wells which are situated within the said parish.
   B. Any violation of this law shall be punishable by a fine of not more than five thousand dollars or by a jail sentence of not more than six months, and each day of continued violation shall constitute a separate offense.

LA. R.S. 33:1236.9 (Supp. 1984) states:
   A. The governing authority for the parish of Tangipahoa may adopt ordinances prohibiting any person, firm, corporation, public body, quasi-public body, or political subdivision from transporting underground or surface water from the parish of Tangipahoa to any person, firm, corporation, municipality, or city located outside of said parish; provided, however, that the provisions of this Section shall not be construed to permit prohibiting any person, firm, or corporation engaged in the business of selling or furnishing to consumers bottled water from wells which are situated within said parish from selling or furnishing such bottled water.
   B. Any such ordinance may provide penalties for violation thereof, which penalties may include a fine of not more than five thousand dollars or a jail sentence of not more than six months, or both. Such ordinance may provide that each day of continued violation constitutes a separate offense.
established in Louisiana law. An internally consistent and logically complete expansion of the oil-water analogy can protect private rights and the public interest.

Ground water is truly the most massive of common pools. It is linked with the rivers, the sea, and the sky. The wisdom or lack of wisdom with which ground water is managed will, in the foreseeable future, directly affect all Louisianans.

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