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Water Allocation by Comprehensive Permit Systems in the East: Considering a Move away from Orthodoxy

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WATER ALLOCATION BY COMPREHENSIVE PERMIT SYSTEMS IN THE EAST: CONSIDERING A MOVE AWAY FROM ORTHODOXY

Robert H. Abrams*

INTRODUCTION

In the last half of the Twentieth Century a number of states located in the humid Eastern United States have replaced their traditional common law riparian systems governing water allocation with permit systems. The standard explanation accompanying the repudiation of the common law has been that the riparian doctrine provides too little certainty regarding the nature and magnitude of water rights to afford a reliable basis on which to manage water in times of scarcity. A corollary premise has been that effective management of water resources requires that the system adopted in riparianism's stead be a comprehensive one that controls the entire range of water uses within the jurisdiction.

The working hypothesis for the speech from which this article grows was consistent with those premises: a review of Eastern per-

* Professor of Law, Wayne State University, School of Law; Vice-Chairman, American Bar Association Section of Natural Resources, Energy and Environmental Law, Water Resources Committee. This article together with two others form a loosely related trilogy about the future of riparianism in the Eastern United States. The first of the articles attempts to describe and verify a theory of when water law changes and shows that riparianism in the East is at such a juncture, *see* Abrams, *Charting the Course of Riparianism; An Instrumentalist Theory of Change*, 35 Wayne L. Rev. 1381 (1989); this article questions the value of existing permit systems as alternatives to riparianism; the final article focuses more attention on the detailed characteristics of how permit systems and other regulatory mechanisms might operate in the future, *see* Abrams, *Replacing Riparianism in the Twenty-First Century*, 36 Wayne L. Rev. 93 (1989). The author would like to acknowledge the generous research support for these articles provided by the Richard J. and Elizabeth Schomer Barber Foundation and the Wayne State Law School Faculty Research Fund. The views expressed herein are those of the author.

1 *See* infra notes 4-13 and accompanying text.

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mit systems and their experience in coping with water scarcity would demonstrate the general superiority of comprehensive permit systems over both common law riparianism and more fragmented legislative and administrative regulatory efforts. The subsequent inquiry, however, cast doubt on the inherent superiority of comprehensive permit systems as compared with much more targeted regulatory intervention. This article will explore the comparative merits of comprehensive and targeted regulatory systems with an eye toward identifying the conditions under which each is to be preferred.\(^3\)

The first part of the article briefly reviews the common law of riparianism and canvasses its major weaknesses in allocating water in times of even modest shortage. The second part discusses the apparent virtues of a comprehensive permit system as an alternative. The two leading comprehensive permit systems, those of Florida (closely following the Model Water Code) and Iowa, are reviewed as to specific content and perceptions of their performance. This portion of the article provides a generally favorable picture of those systems tempered by measured criticisms of their performance under fire and by political considerations that have limited the ability of comprehensive regulatory systems to win more widespread adoption.

The third part of the article opens with a review of two contemporary water allocation cases that arose in the Eastern United States. One is a groundwater well interference case and the other is an interstate, interbasin water transfer case. Both are offered as a test for the efficacy of comprehensive permit systems; in both settings the permit systems are found wanting. In the former, a comprehensive permit system is far more cumbersome an apparatus than is necessary to govern the well interference setting efficiently. In the latter, most comprehensive permit systems offer little or no guidance to the permitting agency on the advisability of interbasin transfers. These shortcomings in the paradigmatic comprehensive permit system invite a more probing attitude toward comprehensive permit systems as they presently are structured.

The remainder of the article attempts to develop a systematic

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\(^3\) The specific characteristics of the available water sources as either surface water or groundwater is relevant, but only insofar as the type of water source may have a bearing on the best means for its management. Thus, this article will give examples from both arenas, although the preponderance of the material will focus on the management of surface water.
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means for assessing how Eastern states might best supplement or replace their common law of riparianism. Here the initial focus is on the interests of people affected by the performance of the permit system. By categorizing those interests as a permittee's interest in certainty, the agency's interest in a balance between policy guidance and decisional flexibility, and the public's interest in coherent resource management, the article identifies a rough set of objectives that regulatory systems ought to advance. To make that discussion more concrete, the article surveys a small sample of ways in which those objectives can be furthered, none of which is the exclusive province of comprehensive permit systems and some of which are at variance with the standard comprehensive permit systems that have thus far emerged as the models. In this way, the article advocates a move away from orthodoxy.

I. COMMON LAW RIPARIANISM AND ITS WEAKNESSES

The common law of riparianism identifies the rights-holders quite readily because it treats water as a usufruct of owning property that adjoins a watercourse. In this facet of its operation, riparianism is at its clearest—the class of rights-holders can be objectively identified with relative ease. In a parallel fashion, the Restatement (Second) of Torts reasonable use groundwater rule plainly grants a usufructuary right to owners of parcels overlying the aquifer from which the water is being withdrawn.

In contrast to the ease of identifying rights-holders, for quantification of the extent of that right, riparianism and its groundwater law sibling both rely on a reasonable use rule that approaches the ultimate in amorphousness. To measure the extent of the permissible use by one member of the user class in competition with other such members, these two regimes both employ a "reasonable under the totality of the circumstances" type of approach. Section 850A of the Restatement (Second) of Torts provides a laundry list of

* Restatement (Second) of Torts § 858 (1970).
* There are several groundwater regimes operative in the United States today. See generally J. Sax & R. Abrams, Legal Control of Water Resources 786-96 (1986). Most of the states in the East follow either a common law reasonable use rule, see, e.g., Metropolitan Utilities Dist. of Omaha v. Merritt Beach Co., 179 Neb. 783, 800-02, 140 N.W.2d 626, 637 (1966), or the reasonable use rule announced by the Restatement (Second) of Torts § 858 (1970). The common law form focuses exclusively on whether the use of water on the overlying tract is, in isolation, reasonable. The Restatement (Second) employs a multifactor context-sensitive approach much more similar to surface water reasonable use riparianism. The text here refers only to the latter type of reasonable use rule.
factors that a court must weigh in either the surface water or groundwater paradigm. Paraphrasing the factors, they are:

(a) purpose of use,
(b) suitability to the watercourse,
(c) economic values at stake,
(d) social values at stake,
(e) harm caused,
(f) accommodation possibilities (adjusting methods of use to avoid the harm),
(g) more accommodation possibilities (adjusting amount used),
(h) protecting existing economies,
(j) justice and loss-bearing ability.\(^6\)

This determination of whether a particular water use is legally protected might be labelled a "gestalt" method of water allocation. It suffers a debilitating unpredictability of outcome which is only partially redeemed by the flexibility to attempt to discern and effect a maximizing compromise outcome.

*Pyle v. Gilbert\(^7\) displays the pivotal weakness of riparianism. There, the Gilberts, as plaintiffs, operated a 140-year-old water-powered gristmill and boat livery as a tourist attraction in rural Georgia. Defendants were several farmers who had begun diverting substantial quantities of water from the same watercourse for irrigation to avoid crop losses with the result that the Gilberts were left trying to market an inoperative gristmill and mudhole to their patrons. In this way *Pyle* is a true water shortage case in which the competing riparians needed the same water at the same time: one user needed it in-stream, while the other needed it off-stream.

The trial court granted the Gilberts' summary judgment motion on the ground that use of water for irrigation was per se unreasonable under Georgia's traditional common law. Quite appropriately under modern riparianism, the Georgia Supreme Court reversed that holding, finding both uses, recreation/tourism and irrigation, to be generally reasonable\(^8\) and remanded the case to the trial court to apply the reasonable use test. Unfortunately, riparianism's nine-factor gestalt method does not point to a clear winner in this user conflict: neither use is, in legal terms, a priori preferable to the other.

The results of this case, and virtually all other cases of true

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\(^6\) Restatement (Second) of Torts § 850(A) (1970).
\(^7\) 245 Ga. 403, 265 S.E.2d 584 (1980).
\(^8\) Id. at 409, 265 S.E.2d at 588.
shortage in which an accommodation of the competing users is not evident, illustrate that the riparian doctrine offers no consistent basis on which to decide disputes between competing users; no hierarchy of uses is suggested by the Georgia Supreme Court. While that court directed the trial court to the Restatement (Second) of Torts Section 850A factors, it cautioned: "we cannot and do not here approve all that is said therein, we refer to it for whatever help it may be."9 Pity the poor trial judge on remand; pity more riparian jurisdictions in general.

Numerous areas governed by a riparian system face increasing water demands and pressure to engage in more extensive water regulation.10 In some locations these pressures are population-driven. For example, in Southeastern coastal areas, an influx of new residents is generating additional water demands in an area where water supplies are limited by the tidal influence on rivers and by salt water intrusion into aquifers. In other regions, the impetus to greater regulation is drought-driven. Several times in the past decade, and especially in 1988, major droughts have played havoc with the historic balance of water supply and demand. Spurred on by minimal rainfall, many farmers turned to irrigation, escalating demand for a high-volume use of water at precisely the same time when surface water supplies were at low ebb. Emergency measures were adopted in numerous areas of the East.11 Moreover, the best predictions associated with the greenhouse effect on climatic change in this region anticipate decreased summer soil moisture, a sure proxy for increased irrigation.12 Other predictions indicate substantial decreases in surface water availability.13

9 Id. at 411 n.10, 265 S.E.2d at 589.
10 For a more extended discussion of the potential for water shortage in the Eastern United States, see Abrams, Charting the Course of Riparianism; An Instrumentalist Theory of Change, 35 Wayne L. Rev. 1381 (1989).
11 See Drought Triggers Restrictions, Conservation Measures, AWWA Mainstream, September 1988, at 8 (a newsletter of the American Water Works Association). In particular, various states and cities imposed water conservation and rationing programs, some mandatory and others voluntary, to reduce water use. The year 1989 began with more of the same; through April many reservoir levels in the Northeast were 60% below normal and several major metropolitan areas were already restricting water use.
These developments are the heralds of common law riparianism’s undoing and of an increased reliance on alternatives, particularly water use permit systems.

II. THE CHARACTERISTICS OF COMPREHENSIVE EASTERN STATES WATER USE PERMIT SYSTEMS

A permit system for the allocation of water does not rely exclusively on the common law and judicial application of legal rules. Permit systems add the element of an administrative agency possessed of some degree of authority to oversee and direct the allocation of a state’s water resources. This definition is sufficiently broad to claim that most states, both East and West, have permit systems rather than common law systems.14

Temporarily putting to one side the differences between comprehensive and more limited systems, most Eastern permit systems have their roots in the riparian doctrine being replaced. Professor Dellapenna coined the term “regulated riparianism” to describe this phenomenon and gave the following summary:

every direct user of water (excepting only variously defined small users in most states) must have a permit from a state administrative agency to use water. Further the rights of users are determined by the permits, and not by the riparian nature of the use. What this system has in common with pure riparian rights is that the criterion by which permit applications are judged is whether the proposed use is a “reasonable use” of the water (or in some jurisdictions, a “reasonable-beneficial use”).15

This description may understate the differences between permit statutes and traditional riparianism. Despite the linguistic similarity of the governing standards for permit issuance and the common law of riparianism, the permit applications are reviewed before the

14 See generally Sherk, Eastern Water Law, 1 (4) Nat. Resources & Envt. 7 (1986) (for the East); A. Tarlock, Law of Water Rights and Resources (1988) (for the West). To state that permit systems are already a common feature of the water law landscape is not to say that riparianism is moribund; a few states have retained pure common law systems. The common law rules of riparianism continue to have force in a variety of contexts even in jurisdictions that have adopted comprehensive permit systems. For example, basic questions about water recreation or wharfing out still are answered exclusively by reference to riparian doctrine.

use is initiated, and the permitting agency is empowered (and in some instances required) to consider the impact of the permit on competing uses, including public and other in-stream uses, of the water. This authority enables the permitting agency to advance policy goals. For example, because permits quantify uses, permit systems offer a ready opportunity to institute a withdrawal and/or consumption fee on a per unit basis as an inducement to water conservation.

A. The Attraction of Managerialism

It is important to understand the motivations for the move away from riparianism toward administrative control of water allocation. There are a variety of factors that inspire such a shift, but none is more elemental than water shortage. Reviewing water law history of the Western mountain states to put this change in perspective, the immediate rejection of riparianism in favor of prior appropriation was heralded by judicial opinions that included invocations such as, "[i]n a dry and thirsty land . . . ." The rejection of riparianism was a function of the need to allocate water on a predictable basis where there was an insufficient water supply. In the arid West, to fail to repudiate the indeterminacy of outcomes under common law riparianism was to condemn the region to remain largely barren, unable to utilize fully those limited water resources that were present.

It is not taxing to make the case in the abstract that a managerial system, such as a comprehensive permit system, is far preferable to continued adherence to riparianism or common law ground-water allocation rules. Three lines of argument predominate. First, private property rules are ineffective at producing the maximum set of benefits from a common pool resource. Second, managerial

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16 Dellapenna, supra note 15, at 1-35. See also Keeton, Iowa's New Water Statute—The Constitutionality of Regulating Existing Uses of Water, 47 Iowa L. Rev. 549, 615 (1962).


18 This remains a hypothetical possibility, as research has found no Eastern state which in fact makes a substantial charge. Most water pricing in the East is related to the cost of diversion and transmission to users, treating the resource itself as a free good. With limited exceptions, the appropriation of water in the West also treats the water as a free good until rights to its use are perfected by a water user. See infra notes 104-05 and accompanying text.

19 Yunker v. Nichols, 1 Colo. 551, 553 (1872).
allocations offer the possibility of precise quantification of right and thereby the potential for increased security of right. Third, managerial systems are proactive rather than reactive.

Water, with its natural occurrence being in lake and stream systems that usually traverse property boundaries, is a quintessential common pool resource. Under riparianism, while one user’s rights are bounded by a respect for the correlative rights of others, there remains an incentive for every user to increase use of the commons and thereby obtain as large a share of the resource as possible. The selfish incentive to overuse the commons is reinforced in riparian doctrine by the preference favoring existing uses expressed in factor h of Section 850A of the Restatement (Second) of Torts. Although not dispositive of all cases, that factor tacitly encourages a race to put as large a quantity of water to use as possible in hopes of winning judicial protection against subsequent water uses that would usurp the water supply of the first entrant.

In contrast to reliance on the common law, having an administrative body charged with allocational decision-making avoids such over-use. An example from the groundwater area in a jurisdiction that employs the traditional common law of reasonable use doctrine makes this point. Under the common law reasonable use doctrine, an owner of land overlying an aquifer can pump with legal impunity as much water as desired provided that the water is devoted to a “reasonable use” on the overlying tract. The legal right is to withdraw water from the aquifer without regard for the consequences on others who would seek to use it. Consequently, a low-value user, perhaps a gravel pit operator dewatering a pit, may deprive a high-value user, such as a steel mill or other industrial facility, of its water. A managerial system for water allocation can avoid interference with high-value uses by limiting, denying, or conditioning permits issued for low-value uses.

The second advantage of regulatory intervention is the ability to overcome riparianism’s lack of specificity regarding the extent of a water right. Riparian rights are not, by their nature, quantified rights which secure to their possessor a right to take water under

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20 See supra note 6. (Factor h instructs courts to protect existing economies.)

21 In the groundwater context discussed below, reasonable use encourages a “race to the pumphouse” that produces the same type of tragedy of the commons that led to the disastrous over-production in the early history of the oil industry. The response there, like that advanced here, was repudiation of common law property rules in favor of administrative management.

22 See Sax & Abrams, supra note 5, at 786-96.
all conditions. Riparian rights are adjudicated infrequently and decrees in such cases are binding upon only the parties thereto and only so long as the underlying factual conditions remain unchanged. To illustrate, hypothesize that upon remand the trial judge in *Pyle v. Gilbert*\(^2\) holds in favor of the millpond use. That decision would be implemented by a decree forbidding Pyle and the other irrigating defendants from decreasing the flow into the pond below the rate sufficient to protect the Gilberts' use. Presumably, other upstream irrigators, although not bound by res judicata, would find their irrigation efforts blocked by stare decisis. In contrast, no similarly predictable fate necessarily follows for new upstream entrants making non-irrigation water uses such as for manufacturing or residential development. Should such additional competing uses be initiated, the rights of the Gilberts would have to be relitigated, leaving the millpond operation again at risk despite its initial legal victory.

The characteristic uncertainty of riparian rights does not promote the establishment of security of right. Stated rhetorically, would a prudent bank or thrift institution lend large sums of money in reliance on the Gilberts' riparian right to receive sufficient flow to operate their enterprise? In contrast to riparianism, a permit system can provide certainty of right as permits are usually quantified and normally will not be issued in the absence of available water sufficient to satisfy the entitlements of all permit holders.\(^2\)

The final attraction of a regulatory system is its ability to act before serious allocational problems mature into water crises. Riparianism in particular, and the common law in general, resolve legal disputes only after they have ripened sufficiently to allow either a concrete claim, or threatened infringement, of right. The entire thrust of a permit system is a managerial approach which attempts to match allocation of available water supply with the state's discernible water needs. For example, rather than reacting to a groundwater overdraft situation, a state with a permit system can limit the total withdrawals from an aquifer to an amount equal to the average annual recharge of the aquifer, thereby avoiding the possibility of serious overdraft of the aquifer and reducing the possibility of widespread well interference claims.\(^2\)

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\(^2\) 245 Ga. 403, 265 S.E.2d 584 (1980). See *supra* notes 7-9 and accompanying discussion.

\(^2\) See *infra* note 41 and accompanying text.

\(^2\) Overdraft is an aquifer-wide condition in which the rate of groundwater withdrawals...
conditions regarding well-spacing can prospectively reduce even further the possibility of well interference.\textsuperscript{26} Returning to the \textit{Pyle v. Gilbert} setting as another example, a permit system can proactively mediate in-stream/off-stream user conflicts by prescribing as a permit condition for off-stream users a minimum streamflow that must be maintained.

The claimed advantages of the administrative allocation of water are not free goods. Offsetting the anticipated gains are predictable pitfalls of managerialism that can be lumped into two camps: monetary costs needed to support the operation of the system and inefficiencies resulting from bad administrative judgment. Importantly, the monetary costs extend beyond the salaries of the bureaucratic personnel necessary to staff the permit agency and the space required to house them. Rather, costs accrue to the permit applicants and other interested parties for the time and hired expertise that must attend their participation in the permit system. Additional monetary costs surely arise as a result of the delays inherent in the operation of any quasi-adjudicative body in which multiple perspectives are represented and administrative decisions are subject to several layers of agency and judicial review.

The costs associated with bad administrative judgments are more difficult to identify and assess.\textsuperscript{27} In a farm belt state, for example, the administrative agency might be too generous with farm-related water use permits and too niggardly with industrial permits despite the fact that in almost all instances industrial uses will be of far higher value.\textsuperscript{28} From an economist’s perspective, this alloca-

\textsuperscript{26} See \textit{infra} notes 79-81 and accompanying text.

\textsuperscript{27} An intermediate form of inefficiency between administrative overhead and administrative malallocation of the water resource is administrative overmanagement. In a basin with no foreseeable potential for shortage, to have any managerial system whatsoever is to overmanage and to incur costs that produce no benefit. Sophisticated rules of permit system inclusion and exclusion can be drawn to limit the cost of overmanagement. See \textit{infra} notes 96-99 and accompanying text.

\textsuperscript{28} The bad judgments may include those by the legislature in fixing policy guidelines for the administrative agency. The preference for a less valuable use over a more valuable one could issue from the legislature and be beyond the authority of the agency to change. See, \textit{e.g.}, Iowa Code Ann. § 455B.266(2) (West Supp. 1989) (preferring livestock production use to manufacturing and industrial or power generation use); \textit{but see infra} note 45.
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In the abstract, it is difficult to draw firm conclusions regarding the net benefits of permit systems over common law allocation of the water resource. Provided that water use conflicts actually exist within an Eastern state, the flaws of the common law and the strengths of permit systems in that setting appear sufficient to indicate a preference for the managerial approach despite its costs. To move beyond that gross judgment requires a more intimate understanding of how comprehensive administrative systems operate.

B. Reviewing Major Permit System Initiatives

Turning to the specifics of Eastern permit systems, two Eastern states are acknowledged leaders in the field of comprehensive water permit systems. Both Iowa, in 1957, and Florida, in 1972, attempted a deliberate and wide-ranging repudiation of common law riparianism in favor of comprehensive permit systems. Although among the earliest Eastern permit systems, they remain prototypical as both states proceeded along readily predictable general lines: the central elements of the systems include a permit requirement for all non-domestic uses of water exceeding a prescribed volume; the permits, when issued, are specific to both location and use and are of limited duration; finally, the systems are administered by a regulatory agency pursuant to legislative policy guidance.

To give a fuller understanding of how such a permit system works, it is helpful to review the Iowa law in substantially greater detail. Originally, Iowa employed a list of exempt, “non-regulated” uses to define the scope of the water permit requirement. Some exemptions from regulation were based on type of use, (e.g., domestic), some on water source (e.g., interstate rivers), and still others on volume. In 1985, the matter of exemption was made largely quantitative, with 25,000 gallons per day (gpd), a mere one-thirteenth of an acre-foot, being the regulatory threshold.

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29 The Iowa law has undergone revision and recodification. Originally, it appeared in Chapter 455A of the Iowa Code. In 1982, those provisions were repealed by Acts of 1982 (69 G.A.) ch. 1199, § 97, eff. July 1, 1983. The repealed sections were reenacted with some changes in Chapter 455B of the Code of 1983. Those provisions have, periodically, been amended further.

As revised, the statute now requires a permit for all "regulated" water uses that are characterized as "depleting" uses. In theory, there may be a class of non-depleting uses which are free from regulation without regard to their quantitative extent. On the statute books, however, depleting uses (and therefore regulated uses) are defined with a broad brush, encompassing "the storage, diversion, conveyance, or other use of a supply of water if the use may impair rights of lower or surrounding users, may impair the natural resources of the state, or may injure the public welfare if not controlled." Once coverage is determined, the state agency is charged with accepting and granting permit applications for the "diversion, storage or withdrawal [of water] . . . consistent with the principles and policies of beneficial use and ensuring conservation." "Beneficial use" is defined as "the application of water to a useful purpose that inures to the benefit of the water user and subject to the user's dominion and control but does not include the waste or pollution of water." Permit applications are not considered in a vacuum (in comparison with, for example, common law reasonable use groundwater rules); rather, the agency is to consider the impact on streamflow requirements and adverse third-party effects. No express authority to protect water table depths is found in the statute, but that power appears implicit in a prohibition against permit issuance that "will unreasonably impair the long-term availability of water from a surface or groundwater source . . . ." In fact, specific administrative regulations covering some groundwater management issues were enacted early in the statute's history.

Under Iowa's comprehensive system, permits are an appurtenance of the land and are thus transferable only when the land itself is conveyed. All permits are of ten years duration and are renewable for a like period, although storage permits may be

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31 Id. §§ 455B.261(9), .268.
32 Id. § 455B.261(6).
33 Id. § 455B.265.
34 Id. § 455B.261(7).
35 The administrative agency is expressly empowered by Iowa Code Ann. § 455B.261(15) (West Supp. 1989) to set minimum streamflow requirements.
36 Id. §§ 455B.264, .267.
37 Id. § 455B.267(4).
granted for a duration equal to the life of the storage structure.\textsuperscript{40} Permits may be granted subject to specific conditions affecting duration, frequency of withdrawal and amount to be withdrawn.\textsuperscript{41} All permits may be modified or revoked prior to their expiration (1) if violated, (2) if non-use occurs, (3) if necessary to protect "public health or safety, to protect the public interests in lands or waters, to require conservation measures or to prevent substantial injury to persons or property in any manner," or (4) if necessary because of a water shortage emergency.\textsuperscript{42} Non-use is a special case in that non-use for three years is grounds for revocation except when the reason for non-use is a failure to irrigate because of adequate rainfall.\textsuperscript{43}

In the 1980s, Iowa extensively revised its permit system. A number of the legislative alterations have already been described above and represent a fine-tuning of the existing orthodox permit system rather than a significant departure. The legislature, however, added a major section expanding the allocative directives to the management agency and adopted priorities to determine which types of uses would be curtailed in time of shortage. Upon the occurrence of specified triggering events such as actual or imminent water shortage, or a gubernatorial declaration of a disaster emergency, the administrative agency is \textit{required} to insist on emergency conservation measures by all permittees and is also empowered to suspend or restrict permitted uses in accordance with the list of priorities.\textsuperscript{44} The list is worth noting as an example of extreme legislative precision in the policy making arena—again a break with orthodoxy in these matters. Uses will be curtailed in the following order:

(a) water to be conveyed interstate;
(b) water for recreation and aesthetics;
(c) water for irrigation of specified crops, mostly grains;
(d) water for irrigation of other crops;
(e) water for manufacturing and industrial use;
(f) water for public power generation;
(g) water for livestock production;
(h) publicly supplied water for human use;

\textsuperscript{40} Id. § 455B.265(3).
\textsuperscript{41} Id. § 455B.265.
\textsuperscript{42} Id. § 455B.271(2)-(3).
\textsuperscript{43} Id. § 455B.272.
\textsuperscript{44} Id. § 455B.266(1).
(i) privately supplied water for human use.\textsuperscript{46}
This additional section, with its series of allocative priorities, is a major break with orthodoxy in Eastern permit systems and merits special attention.

C. Evaluating the Performance of Eastern Permit Systems

A number of commentators have reviewed the performance of Eastern permit systems in allocating water. Looking first at the commentary on the comprehensive permit systems comparable to those in Florida and Iowa, the praise is almost universal, but the tone is muted. Professor Ausness, one of the drafters of the Model Water Code\textsuperscript{46} which provided the basis for Florida's program, found that Florida had encountered significant problems in coordinating actions taken by local water management agencies with the larger state planning effort.\textsuperscript{47} Moreover, he found the state planning effort itself lacking, citing its failure to coordinate water use consumption permits with water quality concerns.\textsuperscript{48} A second, more pragmatic critique of Florida's permit system, giving off echoes of the earlier criticism levelled at Pyle v. Gilbert,\textsuperscript{9} pointed to the necessity of "those institutions responsible for formulating water policy in Florida to articulate a means for allocating water among competing applicants."\textsuperscript{50}

Professor Hines' exhaustive early study of Iowa's permit system found that the law had scarcely been tested in the relatively wet decade that followed its enactment.\textsuperscript{51} Even so, he mused about the failure of the legislation to prepare a series of priorities among uses that would serve as a basis for the management of anticipated fu-

\textsuperscript{46} Id. § 455B.266(2). The first option may be unconstitutional as a violation of the dormant Commerce Clause in light of Sporhase v. Nebraska ex rel. Douglas, 458 U.S. 941 (1982). The preference for livestock over industrial use was criticized previously. See supra note 28. It is defensible on the ground that temporary deprivation of water to industry results in loss of output where, in contrast, deprivation of water to livestock destroys the capital asset on which much of the regional economy is built.


\textsuperscript{49} Id. at 27-28.

\textsuperscript{50} See supra notes 7-9 and accompanying text.


\textsuperscript{52} See Hines, A Decade of Experience Under the Iowa Water Permit System—Part Two, 8 Nat. Resources J. 23, 71 (1968).
ture shortages. In 1980, after several dry years had come and gone, a later commentator soundly criticized the Iowa permit system for its failure to respond adequately to dry times. In spite of the permit system, Iowa public water systems had been forced to adopt rationing, irrigation had been halted to protect streamflow and hundreds of farm wells had gone dry.

Despite the generally favorable reaction to comprehensive regulatory systems, not all states have followed in Florida’s and Iowa’s wake. Professor Butler suggests that this resistance is the product of “the high cost of implementing the comprehensive reforms . . .” In Indiana, for example, a well-conceived comprehensive regulatory program was proposed in 1982, but it proved so politically controversial that it won enactment only in a greatly weakened form. Commentators see this failure of legislatures to enact additional comprehensive statutes as particularly unfortunate insofar as non-comprehensive permit systems have come in for more vitriolic criticism. The most thorough study to date of non-comprehensive systems offered a pessimistic assessment:

Piecemeal . . . laws concerning dams, water use by non-riparians, acquisition of water by political subdivisions of the state, environmental protection, and streamflow requirements . . . [have] not resulted in the replacement of the riparian doctrine with comprehensive state water codes. If anything, more uncertainty has resulted because of the inconsistencies inherent in any piecemeal approach.

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83 See generally Note, supra note 38. As discussed previously, the Iowa legislature responded to this problem directly during the 1980s. See supra notes 44-45 and accompanying text.

84 See also, e.g., Ausness, supra note 17; Ausness, Water Rights Legislation in the East: A Program for Reform, 24 Wm. & Mary L. Rev. 547 (1983); Davis, Eastern Water Diversion Permit Statutes: Precedents for Missouri?, 47 Mo. L. Rev. 429 (1982).

85 Butler, Allocating Consumptive Water Rights in a Riparian Jurisdiction: Defining the Relationship Between Public and Private Interests, 47 U. Pitt. L. Rev. 95, 100-01 (1985) (footnote omitted). Elsewhere, Professor Butler stresses the need for comprehensive water planning to reflect a tripartite water ethic that considers equity, environment and efficiency. She suggests that the failure to account for these more diverse concerns is a central reason for the failure of more jurisdictions to enact comprehensive reform. See Butler, Defining A Water Ethic Through Comprehensive Reform: A Suggested Framework for Analysis, 1986 U. Ill. L. Rev. 439, 479-80.

III. THE CASE FOR EMBRACING VARIETY IN APPROACHES

The conventional wisdom sounds a chorus of recurrent, rather well-worn arguments bemoaning the failings of riparianism and extolling the potential virtues of comprehensive permit systems. Nevertheless, several Eastern states have spurned the advantages of such permit systems and water allocation remains the province of common law jurisprudence, be it riparianism or the several groundwater regimes. Even in permit-based jurisdictions, allocative standards make little effort to distance themselves from their riparian ancestors. These points raise the question of why riparianism has been so hearty, especially when comprehensive water management offers so highly touted an alternative. As suggested above, riparianism's persistence may stem from a lack of political courage in the face of vocal opposition (or a lack of political will in the face of inertia). There is, however, a second possibility: dissatisfaction with comprehensive permit systems as an alternative. This possibly calls into question the view that the conventional comprehensive permit systems described thus far are generally what is called for in Eastern states water law.

A. Contemporary Action/Reaction Scenarios

To test the alternate thesis, one starting point is to determine whether contemporary water allocation problems which are inadequately addressed by the traditional common law are in fact better suited to resolution by the standard comprehensive permit systems. To answer this question, one approach is to survey the universe of recent Eastern water allocation cases in search of those which would test the efficacy of various approaches to water allocation (i.e., common law, comprehensive permit systems and non-comprehensive regulatory approaches).

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87 Sherk, supra note 14, at 7.


89 Admittedly, the water allocation problems arising in reported opinions are not a perfect reflection of the set of water allocation problems actually occurring during the period, but they are one indicator. This sort of approach is acceptable methodologically when, as here, the purpose of the inquiry is not to disprove the utility of comprehensive permit systems in all instances, but merely to demonstrate the existence of situationally attractive
This survey of a six-year period found that mixed with a good number of drainage cases, local nuisance cases and a few boundary disputes, there were two quite significant water allocation cases: Prohosky v. Prudential Ins. Co. of America\(^\text{60}\) and State of North Carolina v. Hudson.\(^\text{61}\) The former is a well interference problem and the latter involves litigation over an interstate, interbasin diversion of surface water to the Tidewater area of Virginia.

Looking at these two specific scenarios, a strong case can be made that neither the common law nor a standard permit system performs well. The criticisms of common law conform to expectations. A comprehensive permit system involves vast over-regulation in the well interference context while the same permit system provides far too little regulation to manage interbasin water transfers effectively.

1. Groundwater for Irrigation Causing Well Interference

In Prohosky v. Prudential Ins. Co. of America,\(^\text{62}\) a classic well interference case, numerous local small-volume wells belonging to independent farmers were affected by defendant's use of high-volume irrigation wells. The farmers brought suit against the defendant corporation seeking both injunctive relief to stop the defendant from pumping the water for irrigation purposes as well as money damages.\(^\text{63}\) The common law reasonable use rule afforded no remedy to plaintiffs. The court relied, therefore, on a newly-enacted statute to resolve the conflict.

The decision in Prohosky was based on a non-comprehensive regulatory regime administered by the Indiana Department of Natural Resources (DNR). The statute was denominated an "Emergency Regulation" by the Indiana General Assembly. It governed high-capacity wells (over 100,000 gallons per day) only in the two counties that were the locus of the litigation. The law effectively granted to the DNR administrative authority to order cessation of high-volume pumping whenever the administrative agency found that those irrigation wells caused the failure of qualifying domestic and livestock wells.\(^\text{64}\) To qualify for well interference pro-

\(^{60}\) 584 F. Supp. 1337 (N.D. Ind. 1984).
\(^{63}\) Id. at 1338.
tection, domestic and livestock wells had to meet guidelines set by the administrative agency. The “guidelines were designed by reference to what the DNR considered to be generally accepted standards of well construction in the industry... in order to promote the shared use of the resource contemplated by the General Assembly.”

The Prohosky court found as a factual matter that the evidence introduced in the case indicated that there had been no user conflict between “qualifying” low-volume wells and the high-volume user. Those who had improved their wells in order to qualify for well interference protection were no longer failing to receive water through them; an adjustment in their method of diversion had eliminated the user conflict. In effect, as interpreted by the court, the Indiana statute reflects a legislative preference for low-volume users. However, that preference is subject to an administrative overlay that protects the public interest in full utilization of the resource by allowing the state agency to insist that low-volume users improve the efficiency of their wells before they can obtain the benefit of the legislative preference.

Would Indiana have been better off with either the common law or the Restatement (Second) of Torts reasonable use of groundwater rule? Would Indiana have been better off with a full-blown comprehensive permit system instead of its more focused one? Although the outcomes under each of these alternative regimes would have resembled the actual outcome, the focused regulatory intervention method is optimal.

Under Indiana’s common law reasonable use groundwater rule, the high-volume user is not subject to liability. Therefore, low-volume users who invest in improved wells obtain no post-investment protection against increased pumping by high-volume users. This lack of certainty deters low-volume users from investing in well improvements. Further, low-volume users are typically not in the position to bear the cost of gathering the type of aquifer data needed to make an informed decision about the wisdom of improv-

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88 584 F. Supp. at 1345. In a statutory epilogue to the case, the Indiana General Assembly reenacted the “Emergency Regulations” provision on a state-wide basis. Now, potential complainants are qualifying low-volume wells generally (“nonsignificant groundwater withdrawal facilities”) and those that may be curtailed are the high-volume wells (“significant groundwater withdrawal facilities”). Ind. Code Ann. § 13-2-2.5-2 (Burns Supp. 1989).
84 For a discussion of this point and others related to the case, see Tarlock, Supplemental Groundwater Irrigation Law: From Capture to Sharing, 73 Ky. L.J. 695 (1985).
ing and/or deepening their wells. Therefore, if Indiana’s common law rule had been decisive in Prohosky, the net result would have been non-optimal aquifer utilization.

Under the Restatement (Second) of Torts version of the reasonable use rule, the court would have embarked on a gestalt-seeking voyage to an uncertain destination that would have had little, if any, precedential value.\textsuperscript{67} The evidentiary burdens of determining whether an accommodation among competing users can be found are substantial. In the end, it seems likely that, in accord with the “justice” factor (coincidentally factor j in the list) and the protection of existing economies factor,\textsuperscript{68} the low-volume users would have prevailed and the cost of their well improvements would have been cast onto the high-volume, junior-in-time users. The costs of this loss-shifting would have been great; the parties would have been required to retain experts and engage in litigation to obtain a decision that, like decisions under the traditional common law, would have been subject to revision if circumstances regarding additional uses of the aquifer were to change. Here aquifer utilization will approximate that achieved by the regulatory approach, but the cost of obtaining that result will be far higher.

In 1982, a commissioned study offered a well-conceived proposal for a comprehensive permit scheme for Indiana.\textsuperscript{69} The proposal called for a universal permit requirement for all water uses in excess of 100,000 gallons per day.\textsuperscript{70} If Prohosky had been decided under this proposed comprehensive permit statute, the state permitting agency could have denied a permit to a high-volume irrigation pumper on the ground of “interference with any existing legal use.”\textsuperscript{71} Alternatively, the agency could have granted a permit for the high-volume use, requiring as a permit condition that the high-volume user provide replacement water in the short term and pay for necessary pump improvements of shallow wells affected by the high-volume pumping.\textsuperscript{72}

\textsuperscript{67} See supra note 6 and accompanying text.
\textsuperscript{68} The list of factors appears in the text at supra note 6.
\textsuperscript{69} See Indiana Draft Statute, supra note 56.
\textsuperscript{70} Id. § 4(p). The call for a universal permit system sparked a political donnybrook. As a result, the enacted version was stripped down and only provided authority for the state administrative agency to set minimum streamflows, minimum water table heights and to engage in data collection about the actual level of water use. The authority had not been exercised in a way that would affect the Prohosky case.
\textsuperscript{71} Id. § 18(a)(3).
\textsuperscript{72} Id. § 15(a). Section 15(b) limits the operation of subsection (a) by denying its benefits to non-regulated wells dug after the effective date of the statute unless those wells are con-
This result requires, in effect, that old shallow wells (like those of the plaintiffs in Prohosky) be improved at the expense of the high-volume pumper. As a matter of equity and efficiency, the result is good but the dragnet of a universal permit system imposes broad systemic costs for the regulation of users in regions where no user conflicts are present. By regulating non-problem areas, comprehensive permit systems impose far larger direct costs for both administrative and compliance efforts and thereby dilute available administrative resources.

In contrast with the aforementioned choices, consider how Indiana's narrower "Emergency Regulation" statute, designed as it was exclusively for well interference problems, provides certain results at a lower total cost. If not grandfathered by the legislation, low-volume pumpers have a choice to make: they can invest in legal protection by meeting the state's well qualification standards or they can take their chances that their water supply will not be impaired by the actions of significant withdrawal facilities. By requiring well contractors to provide their customers with an explanation of the regulatory protections for qualifying wells, the statute also ensures that low-volume pumpers make informed investment decisions.

The administrative cost is not excessive since well standards are set only once, via a typical administrative rulemaking, and regulatory intervention occurs only upon receipt of a complaint of well interference. Upon receipt of a complaint, the agency needs only to verify the interference and, thereafter, the outcomes are largely foreordained. Regulatory energy is not spent in regions having no live controversies and the regulatory responsibilities are not discretion-laden, resource-consuming adjudications. The scheme is a blend of proactive (well standards for non-significant wells) and targeted reactive (investigation of interference claims) regulatory

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75 See Tarlock, Supplemental Groundwater Irrigation Law, supra note 66, at 722:
A suit by a prior, small well owner against a subsequent large-scale pumper ought to be treated differently from suits among high capacity pumpers. In the first case compensation (and, in appropriate cases, injunctive relief) ought to be the presumptive rule where the plaintiff can prove physical interference among wells.

77 Id. § 13-2-2.5-12.
78 Id. § 13-2-2.5-3.
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intervention.

The well interference-specific administrative system just described corresponds to the needs of Indiana and other states in which well interference cases are not an exceedingly common phenomenon. Depending on local conditions, however, there are other non-comprehensive regulatory strategies that could operate with great efficacy. For example, Minnesota employs a permit system premised on a presumption that the high-volume user must make whole the small users. If well interference is probable, no permit can issue until the applicant reaches a negotiated agreement with the adversely affected parties concerning abatement and/or compensation.\textsuperscript{77}

Likewise, the state agency plays the same role if unanticipated well interference arises, restricting the operation of the high-volume user until a negotiated outcome is reached.\textsuperscript{78} Assuming the agency is willing to superintend the holdout problem (an adversely affected small user holding the high-volume use hostage by unreasonably refusing to agree) the system is one that appears to serve both efficiency and equity without being unduly burdensome administratively.

Selecting yet another limited approach, South Dakota also uses permits in roughly the same way as Minnesota, but it also imposes a well spacing requirement\textsuperscript{79} that is roundly criticized by the economists as potentially inefficient.\textsuperscript{80} Without jumping too far into that debate, it seems plausible that in specific cases where an aquifer of relatively uniform porosity and transmissivity is involved, well spacing may be an elegant proactive avoidance of well interference problems.\textsuperscript{81}

The extended review of these different well interference approaches shows that there are a number of ingenious solutions to the particular water allocation problem of well interference. One or another of these problem-specific approaches might work better

\textsuperscript{77} Minn. R. 6115.0730 (1989).
\textsuperscript{78} Id.
\textsuperscript{81} Interestingly, Iowa, which at the time had the prototypical vanilla permit system, was criticized by those same economists as being inefficient. Economists argued that the lack of negotiation prior to permitting and the great uncertainty of outcome in the event that well interference occurs following issuance of a high-volume permit discourages efficient investment. Id. at 331-33.
than a full-blown, standard-issue, comprehensive water use allocation permit system by avoiding the burden of regulating non-problem users in order to head off local conflicts that can be remedied as they arise. That proposition is not a total condemnation of comprehensive systems, rather it is a caution that each state needs to consider carefully the range of its own water allocation disputes before deciding upon a regulatory regime.

2. Interbasin Diversion of Surface Water

In State of North Carolina v. Hudson,82 the City of Virginia Beach, Virginia, proposed a water supply pipeline to import as much as 60 million gallons per day (mgd) from Lake Gaston, North Carolina, a part of the Roanoke River system. In seeking to implement its plan to construct the withdrawal and pipeline facilities, Virginia Beach sought approvals from the United States Army Corps of Engineers (Corps) for permits under both the Rivers and Harbors Act83 and the Clean Water Act.84 Additionally, in regard to water in the Kerr Reservoir of the Roanoke River system, the city sought to enter into a water storage reallocation contract with the Corps under the Water Supply Act of 1958.85

Once the favorable position of the Corps was announced, lawsuits erupted, brought by the State of North Carolina, conservation groups and others. To date, the litigation has focused largely on the Corps’ performance of its obligations under the National Environmental Policy Act (NEPA)86 and only peripherally on any law regarding water allocation. Nowhere is plain, ordinary state water law in evidence; there are no state law riparian or state law permit system claims.

The reason for these absent claims is twofold. To begin with, although North Carolina has a permit system in place,87 that system applies only to areas designated by the state agency as “Capacity Use Areas,” and the Roanoke River system apparently has

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not been so-designated. Further, the permit system preserves the law of riparianism, and under common law riparianism, there is no valid basis for objection to an interbasin transfer of water if there are no co-riparians in the basin of origin that will suffer actual harm.

Analysis of the Hudson fact pattern under a typical comprehensive Eastern permit system begins by noting that the large withdrawal of water would have satisfied any jurisdictional requirement that might be set. The permitting agency would then apply a substantive standard along the "reasonable beneficial use" lines in determining whether to permit the activity. It is difficult to imagine that the purpose of the use, support of a growing city, would fail to qualify, leaving the agency with no basis for permit denial on that score.

Additionally, the permitting agency would consider the adverse impacts on existing or future competing uses of the water, thereby taking into account the "public interest" aspects of the transfer. These might include the impacts of reduced streamflow and foregone water use opportunities in the area of origin. And the outcome? Just as the position of the trial judge on remand in Pyle v. Gilbert is not enviable, neither is that of the administrative agency in this setting. There is too little guidance to provide direction in the exercise of managerial discretion and the political ramifications of a decision for or against transfer may be quite substantial.

Municipal use, supported by the project, is patently a high-value use. Still the agency might rightfully inquire about the accuracy of the projected increase in demand, or the ability of Virginia Beach and like communities to conserve existing supplies as an alternative to water importation. The agency must also weigh adverse impacts on the basin of origin. These will include harms to fishery and potential losses to downstream economic interests in the basin of origin. In this particular case, most of the benefits are to Virginia entities and most of the costs are borne by North Carolina

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89 Id. § 143-215.22.
90 See Abrams, Interbasin Transfer in a Riparian Jurisdiction, 24 Wm. & Mary L. Rev. 591, 601-02 (1983).
91 See supra notes 7-9 and accompanying text.
entities which surely colors the agency's view of political aspects of its decision. It seems probable that the agency could build a record that would justify reaching a decision either permitting or refusing the diversion application.

To critique the operation of the standard permit system without regard to its outcome, consider the workings of the process from the viewpoints of the affected entities. From the applicant's vantage, the possibility of permit denial as a result of a discretion-laden administrative decision to protect the public interest puts at risk the substantial investment that must precede a major interbasin transfer effort.9 Even if issued, the permit will be of short duration in water project amortization terms—ten or twenty years under most currently operating systems. Worse still, the possibility that a permit could expire and renewal might be denied leaves the importing region at risk of developing major installations in reliance on insecure water sources. In these ways, the typical permit does not meet the needs of this type of applicant.

From the agency perspective, the process is, as already mentioned, too open-ended and too little driven by a coherent set of policy guidelines. By considering each major permit in isolation, the system muddles through, but in the end, the interest of the public in foresighted, integrated water resource management is not served. The ad hoc decisions are not predicated on a coherent, ascertainable vision of the public interest.

B. Improving Regulatory Performance

To this point, this article has exposed some shortcomings of typical comprehensive permit systems in the well interference and interbasin transfer settings. That exercise identified, in the well interference context, alternatives to comprehensive permitting that Eastern states might embrace to secure better management of the scarce water resource. The remainder of this article will identify some of the many potential means, other than the improvement of the operation of those comprehensive permit systems themselves, that appear to have promise as replacements or accompaniments for riparianism in managing the waters of the East.

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9 Cf. Colorado v. New Mexico, 467 U.S. 310, 321 (1984) (noting understandable reluctance of water project proponents to invest large sums in project planning absent reasonable assurance that secure water rights can be obtained).
1. Better Data Collection

Two centuries of reliance on the common law of riparianism combined with the relative abundance of water in the Eastern United States led to a situation in which most water use was unregulated and not under scrutiny by any governmental agency. One direct consequence of that historic pattern is that, in many states, compilations of water use data are very uneven in their accuracy. There are some accurate existing sources of data. Data concerning the quantity of water being used by water suppliers (public and private) are generally good owing to the reporting requirements incident to being regulated utilities in most states.\(^4\) Likewise, with the advent of the Clean Water Act and its active regulation of many industrial water users, relatively accurate sets of data about industrial water withdrawals are now available. In contrast to data concerning water suppliers and manufacturers, however, the data concerning other uses such as irrigation and stock watering use are incomplete in most states.

Data about water use patterns, when lain alongside data about streamflows and aquifer storage and recharge, allow foreknowledge of what user conflicts are likely to become manifest. To act upon that knowledge and minimize the potential adverse impacts is the essence of water management.\(^5\) For that reason alone, data collection must be improved.

Frequently, the application and exemption process of comprehensive permit systems has been the vehicle for data gathering, but mere water use reporting laws collect the same data, arouse less political opposition and require less administrative effort. Moreover, the data gathering effort has an ancillary value beyond the planning context; by collecting an "official" water use data set, the transition from a common law system to a permit system, which almost always entails a grant of permits to all pre-existing water users, can be eased.

\(^4\) Also contributing to the accuracy of water supplier data is the American Water Works Association, a trade organization of water suppliers which compiles extensive and accurate reports of its members' activities.

\(^5\) In Indiana, the difficulty of obtaining reliable water use data initially hindered the state Department of Natural Resources in utilizing the regulatory authority that was given by the non-comprehensive 1983 Water Resource Management Act discussed above at supra note 56 and accompanying text. Telephone conversation with Jim Hebenstreit of the Water Division of the Indiana Department of Natural Resources (March 9, 1989).
2. Rules of Inclusion and Exclusion

Most comprehensive permit systems have a volumetric cut-off as their basic jurisdictional litmus, leaving small-volume users (usually intended to be domestic users) free of a permit requirement and subjecting all other users to an undifferentiated permit requirement. Rules of inclusion and exclusion, as well as rules that regulate waters differentially, can play a more vital role than merely being the trigger for administrative jurisdiction.

Waters can be managed differentially, some more intensively, others less so. This type of management already exists in some states, such as North Carolina, where water is regulated only in designated areas. Likewise, many states have created what amounts to differential management for subsets of the water supply by reserving minimum streamflows from competing use or limiting groundwater withdrawals to the safe annual yield.

Looking to the West for examples of still more varied rules of inclusion and exclusion, the law of prior appropriation maintains a dichotomy between natural waters and developed waters. Natural waters are regulated and governed by rules designed to protect multiple users of a single water source. In contrast, developed waters are, on a quasi labor-theory-of-property-basis, viewed as under the dominion of the person through whose efforts the water was developed. In the Eastern permit systems to date, the only hint of this sort of reward for entrepreneurialism appears to be the special solicitude in the Iowa statute as to permit duration for stored waters. Why not reward utile investment in water management facilities like the Western states reward water developers, or some Western states reward their water salvagers? Why not grant to water users who invest in increasing local water supply, water rights that are free of the call of co-riparians and the inherent defeasibility of a durationally limited permit system?

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**See supra** notes 87-88 and accompanying text.

**Developed water** is water that would not otherwise be present in the basin and available for use, but for the efforts of the developer. This includes, most obviously, imported water, although it may also include waters that would not otherwise reach a stream to be available for appropriation. Importers of both surface water and groundwater are treated as the owners of that water until it is abandoned. In this way, owners of developed water control its reuse as well as initial use. See, e.g., Stevens v. Oakdale Irr. Dist., 13 Cal. 2d 343, 90 P.2d 58 (1939)(surface water); Jensen v. Dep't of Ecology, 102 Wash. 2d 109, 685 P.2d 1068 (1984)(groundwater).

**See supra** note 40 and accompanying text.

3. Transferrable Rights In Permitted Water Use

Riparianism on the one shore, and the typical comprehensive permit system on the other, provide a Scylla of uncertainty and Charibdis of over-particularization of water rights. Riparians never know if their right is secure because its definition changes with the activities of each new entrant into the water use equation; permits are appurtenant, quantified, use-specific rights, not transferrable apart from the land and are often not transferrable even to a new use on the same land.

Transferrable permits offer one course through the shoals by providing the right blend of flexibility of water use with certainty of water right. Recalling the costs associated with managerial error, if water rights could be moved privately from one use to another, thereby adapting to changing conditions, the burden on the agency to predict accurately the future would be reduced. Instead of a permit system in which permits are wholly use-specific and appurtenant to the benefited land, truly transferrable permits would allow market mechanisms to play a significant role in insuring that water is put to its most important uses.

The transferability of permits must be tempered in recognition that the uses of a single water source are often interdependent. Therefore, not all permits, nor even the full extent of the water governed by any given permit, should be transferrable. For example, Arizona's Groundwater Management Act of 1980 allows the rights in irrigation water to be severed from the land, transferred, and moved up the economic ladder. At the same time, the statute also protects the interests of the other overlying owners in maintaining their relative security of right in the waters of the aquifer: when water rights are transferred from appurtenant irrigation uses to new, off-tract uses, the severed water rights undergo a standard downward modification as to quantity. By this device, Arizona achieves a desirable balance of security and flexibility by providing secure, transferrable water rights on which to predicate new investment without abandoning adequate protections for interdependent

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102 Id. § 45-463 (1987). The limit accounts for return flow, and is calculated with reference to irrigation utilizing reasonable conservation practices rather than to actual amounts withdrawn for irrigation in the past. This combines an elegance of regulation—not only does it protect other overlying owners, it simultaneously limits administrative oversight to a minimum by disregarding actual practice in favor of a fixed standard for quantification.
water users. The East should experiment with such devices.¹⁰³

4. Charging a Price for Water

Treating water as a free good before property rights in it are recognized is the norm in both East and West.¹⁰⁴ Water users, therefore, seldom view their water use as involving costs in excess of the cost of capture and delivery. Occasionally states will charge permit fees that attempt to defray the expense of operating their administrative permit systems, but the water itself remains free for the taking.

One exception to this pattern is Montana's relatively new groundwater leasing program under which all large volume groundwater withdrawals must be leased from the state.¹⁰⁵ That program has the potential to charge a price for the water above and beyond the price of its production. Charging a price for water use is an elegant (and potentially profitable for the state) regulatory methodology. If, for example, long-term water demand forecasts indicate that water demand will increase while supply will remain constant, overall water conservation is a plausible strategy that could be achieved by charging a per unit price for the water. Charging a price curtails demand and stimulates investment in water conservation. In contrast with the way a permit system would approach the problem, through case-by-case determinations to deny or condition permits on the adoption of conservation measures, price incentives produce a similar result while preserving user flexibility to decide on the appropriate level of conservation investment.

5. Better Policy Guidance

As the Virginia Beach interbasin transfer example makes clear, when the standard permit systems fail to give explicit policy guidance, the administrative agency is apt to founder. The legislature can cure this problem as is exemplified by the new Iowa allocation

¹⁰³ In Abrams, Replacing Riparianism in the Twenty-First Century, 36 Wayne L. Rev. 93 (1989), this author attempts a more detailed study of how permit-based water rights systems can achieve a degree of flexibility to permit transfers as a means of making those systems more efficient and more responsive to the needs of water users.

¹⁰⁴ Arguably the East does charge some price for water under riparianism because a part of the value of riparian tracts is attributable to the water rights enjoyed by riparian proprietors. In the West, where the states hold the waters open for appropriation, no price whatsoever is attached to the water before rights are confirmed in an appropriator.

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policy directive. The legislature gave more power to the management agency and set priorities to determine which types of uses would be curtailed in times of shortage.\textsuperscript{106} Although such guidance is salutary, political realities have limited its appearance. On the assumption that there will be no sudden surge in the level of political courage displayed in the water allocation policy arena, it is advantageous to seek less controversial regulatory thrusts to achieve policy objectives related to water use or water allocation.

Take as an example the generic problem of the \textit{Hudson} interbasin transfer case:\textsuperscript{107} the problem of predictable future water shortages engendered by population growth in an area with an already stressed water supply. One obvious, wise policy choice for a state is to encourage only that level of future water-dependent development that can be sustained by the region’s water resources. However, designing policy directives for the permitting agency that would accomplish that end through a mix of permit grants, denials and conditions seems a difficult thing to do directly.

Arizona has taken an indirect approach to limiting water-dependent development by a method only tangentially related to its groundwater management permit system. That state requires all land developers to demonstrate that they possess a 100-year assured supply of water sufficient to meet the needs of the proposed development before the development can obtain the needed land use permit. In the East, such a requirement would challenge the private sector to develop water rights institutions that could carry the burden of providing secure long-term water rights. Clearly, the task is not an easy one in a region where water rights are neither fully quantified nor transferable. Nevertheless, if some Eastern permit system water rights were made transferrable, indirect methods, like an assured supply requirement as part of the land use process, would spur the development of market institutions and remove the water agency from a part of the long-range planning process by substituting a private sector market mechanism.

\textbf{Conclusion}

This article began with the initial goal of describing the characteristics of comprehensive water allocation regimes that have been advanced to replace the common law in the humid East and to

\textsuperscript{106} See \textit{supra} notes 44-45 and accompanying text.

\textsuperscript{107} See \textit{supra} notes 82-90 and accompanying text.
survey the effectiveness of those systems in meeting Eastern water allocation challenges. In probing the performance of comprehensive permit systems, the criticisms that emerged in this article are not radically different from those proffered by earlier commentators. Where this article breaks with its orthodox forbearers is in raising the proposition that rather than adjusting and improving upon those comprehensive systems, the objects of water management in some Eastern states might be served better by the employment of a more varied system of regulatory initiatives.

In the last analysis, Eastern permit systems, whether comprehensive or not, must fulfill several conditions if they are to deliver the promised improvements over reliance on the common law as the means for making water allocation decisions. These conditions correspond to the diverse needs of the classes of people affected by the water allocation system:

(a) the system must add concreteness and predictability to the rights of permit-holding water users without being overly confining and unnecessarily burdensome;
(b) the system must lend guidance to the administrative bodies charged with permitting water uses and encourage them to go forward and, where possible, incorporate allocational strategies that reflect market values and thereby insure efficient resource utilization;
(c) the system must achieve an overall coherence that fulfills the public's expectations of rational, purposeful water allocation.

The standard comprehensive permit system fails these tests, although not always by a wide margin. Its dragnet often sweeps in and burdens many users who pose little or no part of the allocational problem. Once permits are issued, they too severely restrict the uses that may be made of the allotted water, restricting the flow of water to its highest and best use.\textsuperscript{108} The standard system, by relying on imported "reasonable use" concepts, offers little or no real guidance to administrative officials save the hortatory command to achieve fair and efficient results—a goal that would be their aim in any case. Lacking that guidance, the decisions of the agency, taken as a whole, will always appear to be that which they are, a series of loosely linked ad hoc decisions that bear no consistent relation to an articulated concept of the general welfare in re-

\textsuperscript{108} The West has forged ahead in this area. In a presentation to the Annapolis conference, Ken Burke quoted the Western water law proverb that applies, "[w]ater runs uphill to money."
gard to water management.

To combat these and other shortcomings of orthodox permit systems, this article offered initial tentative examples of how more effective particularized regulatory schemes could be devised. These suggestions included avenues for improving regulatory performance by resort to different and less cumbersome regulatory techniques, such as requiring reporting rather than permitting and richer rules of inclusion and exclusion. The suggestions also exemplified methods that give the water users and market forces a larger role in adjusting water allocation decisions. It is time to consider seriously these and other moves away from orthodoxy.