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Eastern Water Diversion Permit Statutes: Precedents for Missouri

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EASTERN WATER DIVERSION PERMIT STATUTES: PRECEDENTS FOR MISSOURI?

PETER N. DAVIS* †

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I. INTRODUCTION

Water users in the eastern states, including Missouri, traditionally have thought of water as a free good, to be taken and used at will. The only constraints have been physical availability and the common law doctrines that limit each water user to his fair share. In practice, there usually has been enough water to satisfy the demands of all water users. The common law doctrines evolved in an environment of water surplus and were designed to deal with local water use conflicts between individual users. Because that water surplus environment has lasted almost to the present time, a majority of the thirty-one eastern states has retained the common law doctrines as the sole basis for allocating water between various users.

Concern over the continued availability of water has grown in recent years. The drought of the middle 1960s seriously depleted groundwater and reservoir supplies on the eastern seaboard,¹ causing serious disagreement between New York City and Philadelphia over water in the Delaware River.² Such regional water shortages have been threats ever since and have materialized from time to time.³

1. See, e.g., J. WRIGHT, *THE COMING WATER FAMINE* 21-28 (1966); Thomas, *Reality of Drought is Always with Us*, 74 NAT. HIST., Nov. 1965, at 50, 55-56; *Downhill Winds*, TIME, July 16, 1965, at 21; *Drought Spreads: East Drying Up, Midwest Threatened*, U.S. NEWS & WORLD REP., Aug. 8, 1966, at 66-67.

2. See, e.g., J. WRIGHT, *supra* note 1, at 27; Coleman, *Dry Comments on Water*, 23 N.Y. COUNTY B. BULL. 9, 11-12 (1965); *The People-Water Crisis*, NEWSWEEK, Aug. 23, 1965, at 48. Diversions to New York City again were reduced in early 1981 as a result of the persistence of the 1980 drought. See Adler & Agrest, *Drought in the Northeast*, NEWSWEEK, Jan. 5, 1981, at 20.

3. Severe drought conditions existed in the far west throughout the 1977 growing season because of insubstantial snowfalls during the previous winter and little rainfall during the summer. The winter wheat region of the midwest experienced drought conditions in the spring, but it dissipated during the summer. See generally NORTH AMERICAN DROUGHTS 1-2, 40, 143-44 (N. Rosenberg ed.

The drought of 1977 brought the water shortage problem to Missouri, when corn irrigators and cities dependent on groundwater feared a total loss of water supplies.⁴ Autumn rains broke that drought, but the heat wave and drought of 1980-1981 recreated the problem in Missouri.⁵ The 1977 drought caused the legislature to consider water diversion legislation,⁶ but it died in committee when the rains returned. While little political support may exist for a water diversion permit system in Missouri, recent increases in water use in Missouri, particularly by irrigators, make the static water supply continually more unreliable and require reconsideration of future reliance on the common law doctrines. This Article examines the need in Missouri for a water diversion permit statute and suggests the form such a statute should take.

II. COMPETITION FOR WATER IN MISSOURI

The major water users in Missouri fall into two categories: nonconsumptive and consumptive. Navigation flow and hydroelectric power are the two major nonconsumptive water uses.⁷ Public water supply and irrigation are the major consumptive water uses in Missouri, followed by industrial and mining uses.⁸ In addition, minimum flows must be maintained in streams for the maintenance of fish and wildlife habitat.

The Missouri River is a major source of water in Missouri. Upstream depletions are expected to increase thirty-seven percent by the year 2020,⁹ resulting from increased diversions for irrigation, particularly in the Garrison Project in North Dakota, mining in Montana, and coal slurry pipelines.

1978); *Spreading Impact of Worst Drought in Decades*, U.S. NEWS & WORLD REP., Mar. 7, 1977, at 55-56; *Swollen Silos, Edgy Farmers*, TIME, Sept. 12, 1977, at 18; *Just Trying to Survive*, TIME, July 11, 1977, at 30; *Is the U.S. Running Out of Water?*, U.S. NEWS & WORLD REP., July 18, 1977, at 35. The previous major droughts in the midwest were those of 1956 and 1934. NORTH AMERICAN DROUGHTS, *supra*, at 32, 34-36, 38-39.

4. The northwestern quadrant of Missouri was experiencing drought at the beginning of the growing season in 1977. While the drought dissipated during the summer, drought conditions developed in northeastern Missouri that summer. Mid-Missouri was subjected to drought throughout the growing season. NORTH AMERICAN DROUGHTS, *supra* note 3, at 40, 144. The previous major droughts in Missouri were those of 1956 and 1934. *Id.* at 32, 34-36, 38-39.

5. See generally *The Mississippi: A Nation's Blocked Artery*, U.S. NEWS & WORLD REP., Mar. 2, 1981, at 57; *If There's No Relief from Drought*, U.S. NEWS & WORLD REP., Feb. 9, 1981, at 49-50; *The Misery Spreads*, U.S. NEWS & WORLD REP., Aug. 4, 1980, at 14.

6. See note 203 and accompanying text *infra*.

7. P. DAVIS, J. SHARP, JR. & J. FALTEISEK, MISSOURI INSTREAM FLOW REQUIREMENTS: A PHYSICAL AND LEGAL ASSESSMENT 17-57 (Mo. Office of Admin. 1980) [hereinafter cited as MISSOURI INSTREAM FLOW REQUIREMENTS]. An extensive body of information on the sizes and locations of water resources, uses, and potential shortages is contained in this report.

8. *Id.* at 33.

9. *Id.* at 57.

In September 1981, South Dakota agreed to divert 50,000 acre-feet per year from the Oahe Reservoir for use in a coal slurry pipeline from Wyoming to Arkansas.

Missouri contains several areas with existing or potential water shortages. First, the Missouri River has a substantial allocation to navigation flows. Diversions for irrigation, mining, and coal slurry pipelines in upstream states will substantially reduce the flow presently available to Missouri. Second, the basin north of the Missouri River and the basin between Kansas City and Joplin within 100 miles of the Kansas border contain streams with very low base flows and have limited or saline groundwater supplies. Although there is little capacity for substantial diversions in those basins, supplemental irrigation is a rapidly growing water use there. Third, the basins surrounding St. Louis are rapidly becoming more urban, with increased diversions and competition between users. Fourth, a few basins in the Ozarks have rivers within the National Scenic Riverway System or National Wildlife Refuges, where river flows are fully dedicated to scenic or wildlife uses.¹⁰

The competition between water users that is critical or soon will become critical in Missouri is between diverters, instream users such as hydroelectric power, and minimum flow requirements for recreational use and fish and wildlife habitat. The common law allocation doctrines cannot deal effectively with this competition.

III. INADEQUACIES OF COMMON LAW ALLOCATION DOCTRINES

Missouri, like most eastern states, follows common law doctrines for allocating water in surface watercourses and groundwater. These doctrines presume a surplus of water and are designed to resolve the occasional disputes between individual water users. Because they do not establish comprehensive regulation, these doctrines are not suitable in periods of chronic water shortages. This section discusses the allocation doctrines for surface watercourses and groundwater followed in the eastern states and in Missouri.

A. *Surface Watercourses: Riparian Rights*

Water in surface watercourses is allocated between users by the common law doctrine of riparian rights. Formulated in its modern form in 1827 in *Tyler v. Wilkinson*,¹¹ the doctrine essentially grants each person whose land abuts on a watercourse a right to use a fair share of the water supply. Each riparian has two contradictory rights. First, he is entitled to natural flow, i.e., to have the water flow down to him in its natural quantity and quality. Second, he and all other riparians on the watercourse have equal rights to make reasonable uses of that water.¹² Reasonableness is determined by com-

10. MISSOURI INSTREAM FLOW REQUIREMENTS, *supra* note 7, at 10, 13-15, 17-22, 71-92.

11. 24 F. Cas. 472 (C.C.D.R.I. 1827) (No. 14,312).

12. *Tyler v. Wilkinson*, 24 F. Cas. 472 (C.C.D.R.I. 1827) (No. 14, 312); Har-

paring the claimant riparian's use with those uses of the other affected riparians.¹³ The reasonableness determination is affected by the character of the stream from which the water is diverted, the nature and location of the claimant's use, the degree to which downstream riparians' uses are interfered with by the claimant's use, the degree to which upstream riparians' uses are precluded in order to make water available to the claimant, and the nature and locations of the upstream and downstream riparians' uses.¹⁴

The riparian doctrine is internally inconsistent. It is frequently impossible both to maintain the natural flow and to allow riparians to make reasonable uses, because the latter either alters flow patterns or consumes water. Because of this inconsistency, courts have been forced to emphasize either the natural flow or the reasonable use theory of the riparian doctrine.¹⁵

The natural flow theory provides that every riparian is entitled to the natural flow of the watercourse in both quantity and quality, subject only to the domestic uses of upper riparians. His riparian right is violated by any use or diversion that diminishes this flow past his land; whether he actually is injured by the diminution is irrelevant.

The reasonable use theory allows each riparian to use and divert the water in reasonable quantities, taking into consideration the size and nature of the body of water and the needs of other riparians. It is a comparative reasonableness concept. The courts maintain that if the lower riparian does not suffer any actual damage, he cannot have the diversion enjoined.¹⁶ No riparian, however, is entitled to take all of the water in a stream to the injury of another riparian.¹⁷

Over the last 100 years, most American courts have emphasized the reasonable use theory of the riparian rights doctrine.¹⁸ Missouri, like the

ris v. Brooks, 225 Ark. 436, 283 S.W.2d 129 (1955); *Bollinger v. Henry*, 375 S.W.2d 161 (Mo. 1964); *Ripka v. Wansing*, 589 S.W.2d 333 (Mo. App., S.D. 1979).

13. *Harris v. Brooks*, 225 Ark. 436, 283 S.W.2d 129 (1955); *Ripka v. Wansing*, 589 S.W.2d 333 (Mo. App., S.D. 1979); *Townsend v. Bell*, 167 N.Y. 462, 60 N.E. 757 (1901); *Lauer, Reflections on Riparianism*, 35 MO. L. REV. 1, 9-10 (1970).

14. *See, e.g., Harris v. Brooks*, 225 Ark. 436, 283 S.W.2d 129 (1955); *Evans v. Merriweather*, 4 Ill. (3 Scam.) 492 (1842).

15. *See generally Harris v. Brooks*, 225 Ark. 436, 283 S.W.2d 129 (1955); RESTATEMENT (SECOND) OF TORTS §§ 210-213 (1979).

16. *See, e.g., Gehlen Bros. v. Knorr*, 101 Iowa 700, 70 N.W. 757 (1897); *Stratton v. Mount Hermon Boys' School*, 216 Mass. 83, 103 N.E. 87 (1913).

17. *See, e.g., Collens v. New Canaan Water Co.*, 155 Conn. 477, 234 A.2d 825 (1967).

18. *See, e.g., Parke v. American Woolen Co.*, 195 Mass. 591, 81 N.E. 468 (1907); *Merriwether v. City of Worcester*, 110 Mass. 216 (1872). *But see McCord v. Big Bros. Movement*, 120 N.J. Eq. 446, 185 A. 490 (1936). A count of riparian rights cases dealing with water pollution confirms the conclusion that the reasonable use theory predominates. *Davis, Theories of Water Pollution Litigation*, 1971 WIS. L. REV. 738, Appendix A. For a functional analysis of the reasonable use theory, see

majority of eastern states following the riparian doctrine, emphasizes the reasonable use theory.¹⁹

In practice as well as in theory, the riparian doctrine generally allows entry of new users and requires old users to accommodate them.²⁰ Also, the

C. Davis, *Introduction to Water Law of the Eastern States*, in 7 WATER AND WATER RIGHTS 1, 36-52 (R. Clark ed. 1976).

19. The Missouri Supreme Court appeared to take that position in *Bollinger v. Henry*, 375 S.W.2d 161, 166 (Mo. 1964), where the court stated:

The rights of a riparian owner in the water of a stream, in jurisdictions wherein the doctrine of riparian rights obtain, include "the right to the flow of the stream in its natural course and in its natural condition in respect of both volume and purity, except as affected by reasonable use by other proprietors"

That indication was reinforced by the Kansas City Court of Appeals in *Higday v. Nickolaus*, 469 S.W.2d 859 (Mo. App., K.C. 1971), when it held that henceforth the law of groundwater allocation will parallel the rule of comparative reasonableness already employed for allocation of water in surface watercourses. The Southern District Court of Appeals confirmed that Missouri had adopted the reasonable use emphasis of riparian rights in a 1979 decision. Acknowledging that the prior decisions appeared to have already adopted that interpretation, the court in *Ripka v. Wansing*, 589 S.W.2d 333, 335 (Mo. App., S.D. 1979), held:

The "reasonable use" theory allows each riparian proprietor to make a reasonable use of the water for any purpose, providing that the use does not cause harm or damage to the reasonable uses of others If Missouri has not adopted the reasonable use theory, we believe it should. It appears to be more flexible and promotes the most beneficial use of water resources.

The court then proceeded to adopt the guidelines set forth in the RESTATEMENT (SECOND) OF TORTS § 850A (1977), for analyzing the reasonableness of riparian uses:

- (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.

589 S.W.2d at 335.

For detailed discussions of the riparian doctrine in Missouri, see T. LAUER, P. DAVIS & J. CUNNINGHAM, *MISSOURI STATE LAWS PERTAINING TO WATER AND RELATED LAND RESOURCES* 11-30 (Mo. Clean Water Comm'n, 2d ed. 1977); *Reprise—The Rights of a Riparian Landowner in Missouri*, 49 UMKC L. REV. 115 (1980).

20. About one-half of 50 decisions in five midwestern states uphold the entry of new users. *See, e.g.*, *Gehlen Bros. v. Knorr*, 101 Iowa 700, 70 N.W. 757 (1897)

instream flow needs of recreational riparian users often are protected.²¹ The courts have yet to consider whether the riparian rights doctrine protects the water flow and level requirements of privately owned fish and wildlife habitat.

A riparian must use the diverted water on riparian land²² within the

(established mill not entitled to historic flow); *Bass v. City of Fort Wayne*, 121 Ind. 389, 23 N.E. 259 (1890) (established mill not entitled to enjoin new municipal diversion); *Hoover v. Crane*, 362 Mich. 36, 106 N.W.2d 563 (1960) (irrigation diversion from lake permitted although it lowered level of lake used by established resort); *Bollinger v. Henry*, 375 S.W.2d 161 (Mo. 1964) (irrigation use allowed to take some water claimed by established mill); *City of Canton v. Shock*, 66 Ohio St. 19, 63 N.E. 600 (1902) (new municipal diversion could reduce flow to established mill). *But see* C. DAVIS, *RIPARIAN WATER LAW: A FUNCTIONAL ANALYSIS* 48-49 (Nat'l Water Comm'n Legal Study No. 2, 1971) (suggests that prior users often are protected from encroachments by later users).

21. *See, e.g.*, *Harris v. Brooks*, 225 Ark. 436, 283 S.W.2d 129 (1955); *Colless v. New Canaan Water Co.*, 155 Conn. 477, 234 A.2d 825 (1967); *Taylor v. Tampa Coal Co.*, 46 So. 2d 392 (Fla. 1950); *Hoover v. Crane*, 362 Mich. 36, 106 N.W.2d 563 (1960); *Dardenne Realty Co. v. Abeken*, 232 Mo. App. 945, 106 S.W.2d 966 (St. L. 1937).

22. The two basic definitions of riparian land are the "source of title" test and the "unity of title" test. The source of title test, which has been expounded by western prior appropriation states to deal with residual riparian rights, provides that riparian land consists only of abutting lands that have always been held as a single tract throughout its chain of title. *See, e.g.*, *Boehmer v. Big Rock Creek Irrigation Dist.*, 117 Cal. 19, 48 P. 908 (1897); *Yearsley v. Cater*, 149 Wash. 285, 270 P. 804 (1928). The unity of title test, which has been followed by some western states during their period of adherence to the riparian doctrine, provides that all tracts contiguous to the abutting tract are riparian if held under common ownership, regardless of when they were acquired. *See, e.g.*, *Wasserburger v. Coffee*, 180 Neb. 149, 141 N.W.2d 738 (1966); *Jones v. Conn*, 39 Or. 30, 64 P. 855 (1901). The only eastern riparian state that has considered the question has opted for the unity of title test. *See Consolidated Water Supply Co. v. State Hospital for Criminal Insane*, 66 Pa. Super. 610 (1917), *aff'd*, 267 Pa. 29, 110 A. 281 (1920); *Slack v. Marsh*, 11 Phila. 543 (Pa. C.P. 1875). *See generally* Farnham, *The Permissible Extent of Riparian Land*, 7 LAND & WATER L. REV. 31 (1972); Davis, *Australian and American Water Allocation Systems Compared*, 9 B.C. INDUS. & COM. L. REV. 647, 680-81 (1968); C. Davis, *supra* note 18, at 71-77.

The amount of riparian land under the unity of title test is about 40% greater than under the source of title test in typical rural circumstances. H. ELLIS, J. BEUSCHER, C. HOWARD & J. DEBRAAL, *WATER-USE LAW AND ADMINISTRATION IN WISCONSIN* 262 (1970) (discussing and reproducing maps from F. Osterhaut, *Economic Analysis of Wisconsin's Diversion Permit System for Agricultural Irrigation* (unpublished Ph.D. thesis, Univ. of Wis. 1968)); D. Levi, *An Evaluation of Legal Theories Currently Employed to Determine Which Lands are Riparian* 17 (Mo. Water Resources Center, Univ. of Mo.-Columbia, Proj. No. A-027-Mo., June 1, 1971).

The limits of riparian land under either test frequently bear little relation to the limits of economically irrigable land. Levi & Schneeberger, *The Chain and Unity of Title Theories for Delineating Riparian Land: Economic Analysis as an Alternative to Case* Published by University of Missouri School of Law Scholarship Repository, 1982

watershed.²³ Under the presumed majority rule, the riparian right to divert water is limited to riparians;²⁴ nonriparians have no right to divert.²⁵ A few cases, however, permit a riparian to grant a nonriparian the right to divert and to enforce that grant against affected nonconsenting riparians.²⁶ This is presumed to be the minority rule, although as many, if not more, eastern decisions adhere to this minority rule as follow the "majority" rule.²⁷

Two rules can alter the ordinary allocation under the comparative reasonableness theory of the riparian doctrine. First, natural uses—domestic, household, and livestock water used to sustain life—are absolutely preferred over artificial uses—irrigation, industrial, and power uses that merely make life more convenient. The water demands of natural uses are to be met fully before any diversions for artificial uses can be made.²⁸ Second, prescriptive rights to use water in violation of the riparian rights of others can be acquired by long, adverse use.²⁹

The riparian doctrine just described has several characteristics that make it unsuitable for private water users when a chronic water shortage or an absence of a sizeable surplus exists. First, the doctrine is not comprehen-

Precedent, 21 BUFFALO L. REV. 439, 443-47 (1972); D. Levi, *supra*; F. Osterhaut, *supra*, discussed in H. ELLIS, J. BEUSCHER, C. HOWARD & J. DEBRAAL, *supra*, at 262.

23. See *Harrell v. City of Conway*, 224 Ark. 100, 271 S.W.2d 924 (1954); *Anaheim Union Water Co. v. Fuller*, 150 Cal. 327, 88 P. 978 (1907); Davis, *supra* note 22, at 681; Farnham, *supra* note 22.

24. *Tyler v. Wilkinson*, 24 F. Cas. 472 (C.C.D.R.I. 1827) (No. 14,312); *Harris v. Brooks*, 225 Ark. 436, 283 S.W.2d 129 (1955); *Bollinger v. Henry*, 375 S.W.2d 161 (Mo. 1964).

25. *Heilbron v. Fowler Switch Canal Co.*, 75 Cal. 426, 17 P. 535 (1888). See also *Stockport Waterworks Co. v. Potter*, 159 Eng. Rep. 545 (Ex. 1864).

26. *Gillis v. Chase*, 67 N.H. 161, 31 A. 18 (1891); *Lawrie v. Silsby*, 82 Vt. 505, 74 A. 94 (1909). *Contra* *Stoner v. Patten*, 132 Ga. 178, 63 S.E. 897 (1909); *Roberts v. Martin*, 72 W. Va. 92, 77 S.E. 535 (1913).

27. See Davis, *supra* note 18, at 756 nn.77-81.

28. See, e.g., *Harris v. Brooks*, 225 Ark. 436, 283 S.W.2d 129 (1955) (dictum); *Prather v. Hoberg*, 24 Cal. 2d 549, 150 P.2d 405 (1944); *Evans v. Merriweather*, 4 Ill. (3 Scam.) 492 (1842) (dictum); *Spence v. McDonough*, 77 Iowa 460, 42 N.W. 371 (1889); *City of Canton v. Shock*, 66 Ohio St. 19, 63 N.E. 600 (1902); *Filbert v. Dechert*, 22 Pa. Super. 362 (1903); Ausness, *Water Use Permits in a Riparian State: Problems and Proposals*, 66 KY. L.J. 191, 198-99 (1977); Beuscher, *Appropriation Water Law Elements in Riparian Doctrine States*, 10 BUFFALO L. REV. 448, 452 (1961); C. Davis, *supra* note 18, at 77-82.

29. Some states require a bare invasion of legal right to constitute adversity. See, e.g., *Pabst v. Finmand*, 190 Cal. 124, 211 P. 11 (1922); *Harvey Realty Co. v. Borough of Wallingford*, 111 Conn. 352, 150 A. 60 (1930); *Exton v. Glen Gardner Water Supply Co.*, 3 N.J. Eq. 613, 129 A. 255 (1925). Other states require a material injury. See, e.g., *Stratton v. Mount Hermon Boys' School*, 216 Mass. 83, 103 N.E. 87 (1913); *Kennedy v. Niles Water Co.*, 173 Mich. 474, 139 N.W. 241 (1913); Ausness, *supra* note 28, at 205-07; Davis, *supra* note 22, at 683-84; Harnsberger, *Prescriptive Water Rights in Wisconsin*, 1961 WIS. L. REV. 47, 48-49.

sive; it is designed to deal with the occasional dispute, which is resolved by litigation. Thus, allocations are made on a case-by-case basis. Such a decisionmaking process tends to result in inconsistent decisions. The rights of individual water users are affected by the vagaries of venue, judicial personnel, and jury selection. The role of appellate courts in enforcing uniformity cannot offset those vagaries completely. Second, the rights of most water users are quantitatively undefined. The riparian doctrine in essence only sets forth guidelines for establishing allocations. The allocations can be established only by litigation. Since most water users are not parties to litigation, they have no defined allocations; the extent of their rights is uncertain and unpredictable. Third, no allocation under riparian rights law is permanent. Any allocation may be altered by the entry of new users, changes in use patterns by either the litigants or other riparians, or changes in the characteristics of the watercourse.³⁰ This is true, even of allocations established by litigation. Fourth, litigation typically does not involve all interrelated water users. Hence, a court decree cannot protect the litigants from uses by nonparties.³¹

To avoid those problems of uncertainty and obsolescence, large water users in the east sometimes resort to various legal strategies to make their rights more certain. They may purchase the rights of competing or potential new water users.³² Public water utilities and electric generating utilities may acquire water rights by condemning the rights of potential water use competitors.³³ Occasionally, water users can secure legislation that protects

30. See generally VIA AMERICAN LAW OF PROPERTY § 28.58, at 170 (A. Casner ed. 1954); Lauer, *supra* note 13, at 13-14; Ziegler, *Water Use under Common Law Doctrines*, in WATER RESOURCES AND THE LAW 51, 71 (Univ. of Mich. Law School 1958).

31. The court expressly recognized this problem in *Patten Paper Co. v. Kaukauna Water-Power Co.*, 70 Wis. 659, 35 N.W. 737 (1887).

32. See generally Davis, *supra* note 22, at 678-79.

33. The following entities have the power to condemn water rights in Missouri:

- a. water companies—MO. REV. STAT. § 393.030 (1978)
- b. joint municipal utility commissions—*Id.* § 393.715
- c. river conservancy districts—*Id.* §§ 257.220-.230
- d. rural electric cooperatives—*Id.* § 394.080
- e. soil and water conservation subdistricts—*Id.* § 278.245
- f. hydro-electric dams—*Id.* §§ 236.010, .180, .280
- g. water supply districts—*Id.* §§ 247.210, .440
- h. levee districts—*Id.* § 245.095
- i. drainage districts—*Id.* §§ 242.190; 243.120-.130
- j. cities—*Id.* §§ 79.380; 81.170; 82.240, .790, .800; 88.497, .667
- k. waterworks—*Id.* §§ 91.570-.573
- l. towns and villages—*Id.* § 80.090
- m. counties—*Id.* § 49.300

See generally Davis, *supra* note 22, at 678.

their rights.³⁴ They may contract with competing water users to allocate the water.³⁵ They may use water contrary to their riparian rights to acquire rights against all existing competitors by prescription.³⁶

The riparian doctrine also is unsuited to protect many public interests that exist in watercourses. The doctrine apparently has never been used by members of the public or by governmental entities to assert public rights in water.³⁷ Because the doctrine is not formulated to address public rights, the absence of cases is not surprising. But, if the government is a landowner, it can assert the same rights of flow maintenance as a private riparian. Hence, the lake level and stream flow maintenance cases related to private recreational use would protect flows past government-owned lands.³⁸ There are, however, no private riparian rights cases involving maintenance of flow for fish and wildlife habitat.³⁹

The state navigation servitude is available to enable the state to prevent encroachment on flows necessary to maintain the navigable capacity of navigable streams. Such flows are not subject to diversion under the riparian doctrine. Although this doctrine might be extended to encompass preservation of flows on floatable streams for recreational boating purposes, the servitude would not be applicable for maintaining flows to fish and wildlife habitat because they do not involve navigation or boating.

Some have argued that riparian rights include having the view of a watercourse or lake protected from degradation by diversion of flows.⁴⁰ Even if such a right exists, it would not extend to the state as a nonriparian protector of the public interest in those same views.

34. For example, in Wisconsin, existing water users may veto the granting of a diversion permit to a riparian for agricultural irrigation, even though at common law such a diversion could be made as of right (in the absence of substantial injury). WIS. STAT. ANN. § 30.18(5) (West 1973). The principal beneficiaries of that statute are hydro-electric dams. *See Nekoosa-Edwards Paper Co. v. Public Serv. Comm'n*, 8 Wis. 2d 582, 99 N.W.2d 821 (1959).

35. Examples were litigated in *Kimberly-Clark Co. v. Patten Paper Co.*, 153 Wis. 69, 140 N.W. 1066 (1913), and *Patten Paper Co. v. Kaukauna Water-Power Co.*, 70 Wis. 659, 35 N.W. 737 (1887). *See generally* Davis, *supra* note 22, at 678-79; Note, *Are Water Rights Marketable in Wisconsin?*, 1966 WIS. L. REV. 942.

36. *See* note 29 and accompanying text *supra*.

37. MISSOURI INSTREAM FLOW REQUIREMENTS, *supra* note 7, at 136.

38. *See* note 21 and accompanying text *supra*.

39. MISSOURI INSTREAM FLOW REQUIREMENTS, *supra* note 7, at 136.

40. A few cases granted damages for loss of view as part of a condemnation award. *See Los Angeles v. Aitken*, 10 Cal. App. 2d 460, 52 P.2d 585 (1935); *Thiesen v. Gulf, F. & A. Ry.*, 75 Fla. 28, 78 So. 491 (1918); *Keintz v. State*, 2 A.D.2d 415, 156 N.Y.S.2d 505 (1956). Other cases have rejected such elements of condemnation awards. *See Wilbour v. Gallagher*, 77 Wash. 306, 462 P.2d 232 (1969); *International Shoe Co. v. Heatwole*, 126 W. Va. 888, 30 S.E.2d 537 (1944); F. MALONEY, S. PLAGER & F. BALDWIN, *WATER LAW AND ADMINISTRATION: THE FLORIDA EXPERIENCE* 113-16 (1968).

The inability to use the riparian doctrine to protect public interests in recreational waters and fish and wildlife habitat, its locational restrictions, its inadequacies related to uncertainty, insecurity of right, and allocation obsolescence, and its absence of comprehensive allocation make the doctrine inappropriate for allocation of water supplies in a future of water shortages. Although groundwater is plentiful in many locations, the allocation doctrines applying to underground water are equally inappropriate.

B. *Underground Water*

Traditionally, groundwater has been divided into two classes, each with its own independent allocation rules. Underground streams⁴¹ are subject to the riparian doctrine and allocations are made on the basis of comparative reasonableness.⁴² Besides being subject to all of the inadequacies of the riparian doctrine as it applies to surface watercourses, the underground stream rules apply only to such streams if they were known to exist prior to the interference with their flow.⁴³

Percolating groundwater, underground water not in known underground streams,⁴⁴ is allocated under one of three rules. Some states

41. An underground stream is a body of underground water flowing in a fixed and defined channel whose existence and location is known or ascertainable from surface indications or other means not requiring excavation. *Killian v. Killian*, 175 Ala. 224, 57 So. 825 (1912); *Tampa Waterworks Co. v. Cline*, 37 Fla. 586, 20 So. 780 (1896); *Stoner v. Patten*, 132 Ga. 178, 63 S.E. 897 (1906); *Barclay v. Abraham*, 121 Iowa 619, 96 N.W. 1080 (1903); *Nourse v. Andrews*, 200 Ky. 467, 255 S.W. 84 (1923); *Western Md. R.R. v. Martin*, 110 Md. 554, 73 A. 267 (1909); *Clarke County v. Mississippi Lumber Co.*, 80 Miss. 535, 31 So. 905 (1902); *Springfield Waterworks Co. v. Jenkins*, 62 Mo. App. 74 (St. L. 1895); *Jones v. Home Bldg. & Loan Ass'n*, 252 N.C. 626, 114 S.E.2d 638 (1960); *Frazier v. Brown*, 12 Ohio St. 294 (1861); *Collins v. Chartiers Valley Gas Co.*, 131 Pa. 143, 18 A. 1012 (1890); *Clinchfield Coal Corp. v. Compton*, 148 Va. 437, 139 S.E. 308 (1927).

Hydrologists argue that there is no such thing as an underground stream with a defined channel and definite direction, except in rare instances, such as in Missouri's cavernous limestone region in the Ozarks. See C. CORKER, *GROUND WATER LAW, MANAGEMENT AND ADMINISTRATION* 147 (Nat'l Water Comm'n Legal Study No. 6, 1971); Piper & Thomas, *Hydrology and Water Law: What is Their Future Common Ground?*, in *WATER RESOURCES AND THE LAW* 7, 10-11 (Univ. of Mich. Law School 1958); Tolman & Stipp, *Analysis of Legal Concepts of Subflow and Percolating Waters*, 21 OR. L. REV. 113, 121-24, 130-32 (1942).

42. See cases cited note 41, ¶ 1, *supra*.

43. *Jones v. Home Bldg. & Loan Ass'n*, 252 N.C. 626, 114 S.E.2d 638 (1960); *Ewart v. Belfast Poor-Law Guardians*, 9 L.R. Ir. 172 (Ch. 1881); *Bleachers' Ass'n Ltd. v. Chapel-en-le-Frith Rural Dist. Council*, [1933] Ch. 356; cases cited note 41, ¶ 1, *supra*.

44. Percolating groundwater is all underground water that seeps, oozes, filters, and otherwise circulates through subsurface strata without a defined channel. *Killian v. Killian*, 175 Ala. 224, 57 So. 825 (1912); *Jones v. Oz-Ark-Val Poultry Co.*, 228 Ark. 76, 306 S.W.2d 111 (1957); *Tampa Waterworks Co. v. Cline*, 37 Fla. 586,

follow the "absolute ownership" rule, which gives each landowner an absolute right to withdraw percolating groundwater for use at any location or to affect it in the use of his land without liability to his neighbor for injurious consequences.⁴⁵ The only apparent limitation is that he must not engage in those activities in a wasteful manner or maliciously for the sole purpose of injuring his neighbor.⁴⁶

Many states follow the "reasonable use" rule, which does not provide what its name suggests. It does not employ a comparative reasonableness test, as do the rules with the same label for surface watercourses and for diffused surface water.⁴⁷ Instead, it provides that each landowner may use percolating groundwater as under the absolute ownership rule, but that the use of groundwater or the use of land affecting it must occur on his own overlying land.⁴⁸

20 So. 780 (1896); *Stoner v. Patten*, 132 Ga. 178, 63 S.E. 897 (1909); *Burroughs v. Saterlee*, 67 Iowa 396, 25 N.W. 808 (1885); *United Fuel Gas Co. v. Sawyers*, 259 S.W.2d 466 (Ky. 1953); *Western Md. R.R. v. Martin*, 110 Md. 554, 73 A. 267 (1909); *Upjohn v. Board of Health*, 46 Mich. 542, 9 N.W. 845 (1881); *Erickson v. Crookston Waterworks, Power & Light Co.*, 105 Minn. 182, 117 N.W. 435 (1908); *Clarke County v. Mississippi Lumber Co.*, 80 Miss. 535, 31 So. 905 (1902); *Springfield Waterworks Co. v. Jenkins*, 62 Mo. App. 74 (St. L. 1895); *Bloodgood v. Ayers*, 108 N.Y. 400, 15 N.E. 433 (1888); *Jones v. Home Bldg. & Loan Ass'n*, 252 N.C. 626, 114 S.E.2d 638 (1960); *Frazier v. Brown*, 12 Ohio St. 294 (1861); *Rothrauff v. Sinking Spring Water Co.*, 339 Pa. 129, 14 A.2d 87 (1940); *Clinchfield Coal Corp. v. Compton*, 148 Va. 437, 139 S.E. 308 (1927); *Pence v. Carney*, 58 W. Va. 296, 52 S.E. 702 (1905); *Huber v. Merkel*, 117 Wis. 355, 94 N.W. 354 (1903). Underground water is presumed to be percolating groundwater unless evidence establishes the existence of an underground stream. *See* cases cited *supra*.

45. *Swift & Co. v. Peoples Coal & Oil Co.*, 121 Conn. 579, 186 A. 629 (1936); *New York Continental Jewell Filtration Co. v. Jones*, 37 App. D.C. 511 (1911); *Stoner v. Patten*, 132 Ga. 178, 63 S.E. 897 (1909); *City of Greencastle v. Hazelett*, 23 Ind. 186 (1864); *Greenleaf v. Francis*, 35 Mass. (18 Pick.) 117 (1836); *Rose v. Socony-Vacuum Corp.*, 54 R.I. 411, 173 A. 627 (1934); *White River Chair Co. v. Connecticut River Power Co.*, 105 Vt. 24, 162 A. 859 (1932).

46. *Swift & Co. v. Peoples Coal & Oil Co.*, 121 Conn. 579, 186 A. 629 (1936); *Stoner v. Patten*, 132 Ga. 178, 63 S.E. 897 (1909); *Gagnon v. French Lick Springs Hotel Co.*, 163 Ind. 687, 72 N.E. 849 (1904); *Chesley v. King*, 74 Me. 164 (1882); *Greenleaf v. Francis*, 35 Mass. (18 Pick.) 117 (1836); *Rose v. Socony-Vacuum Corp.*, 54 R.I. 411, 173 A. 627 (1934). *Contra*, *Chatfield v. Wilson*, 18 Vt. 49 (1856).

47. *See* *State v. Michels Pipeline Constr., Inc.*, 63 Wis. 2d 278, 299-301, 217 N.W.2d 339, 349-50 (1974); *Davis, Mineral Rights: Conveyances and Leases in Missouri—Part II*, 33 J. MO. B. 248, 250 (1977); *Davis, Wells and Streams: Relationship at Law*, 37 MO. L. REV. 189, 202-03 (1972); *Water Law—Groundwater Rights in Missouri—A Need for Clarification*, 37 MO. L. REV. 357, 359 (1972).

48. *Sloss-Sheffield Steel & Iron Co. v. Wilkes*, 231 Ala. 511, 165 So. 764 (1936); *DeBok v. Doak*, 188 Iowa 597, 176 N.W. 631 (1920); *Associated Contractors Stone Co. v. Pewee Valley Sanitarium & Hosp.*, 376 S.W.2d 316 (Ky. 1963); *Chesley v. King*, 74 Me. 164 (1882); *Finley v. Teeter Stone, Inc.*, 251 Md. 428,

A few states, including Missouri, follow what might be called the "eastern correlative rights" rule.⁴⁹ It provides that each landowner may use percolating groundwater on his own land or on other nonoverlying land, or make any use of his own land that affects percolating groundwater, provided his neighbor is not unreasonably injured.⁵⁰ It is essentially the same allocation concept employed for surface watercourses under the reasonable use theory of the riparian doctrine, subject only to the greater physical difficulty of predicting the consequences of a diversion of underground water.⁵¹

None of the three rules relating to percolating groundwater are adequate. The absolute ownership and reasonable use rules allow a landowner to take whatever groundwater he needs without regard to the needs of or effects on his neighbors. At best, he may divert without bothering to determine whether his neighbor would be adversely affected. At worst, short of malice, he can with foreknowledge drain away his neighbor's underground water supply. The rules conclusively presume that the groundwater diverter does not and cannot know the injurious effect of his diversion even when, in fact, he does or could readily determine the effect.⁵² The eastern correlative rights rule

248 A.2d 106 (1968); *Davison v. City of Ann Arbor*, 237 Mich. 453, 212 N.W. 81 (1927); *Clarke County v. Mississippi Lumber Co.*, 80 Miss. 535, 31 So. 905 (1902); *Meeker v. City of East Orange*, 77 N.J.L. 623, 74 A. 379 (1909); *Dunbar v. Sweeney*, 230 N.Y. 609, 130 N.E. 913 (1921) (mem.); *Rouse v. City of Kinston*, 188 N.C. 1, 123 S.E. 482 (1924); *Logan Gas Co. v. Glasgo*, 122 Ohio St. 126, 170 N.E. 874 (1930); *Rothrauff v. Sinking Spring Water Co.*, 339 Pa. 129, 14 A.2d 87 (1940); *Drummond v. White Oak Fuel Co.*, 104 W. Va. 368, 140 S.E. 57 (1927).

49. The author has identified this rule as the "eastern correlative rights rule." See T. LAUER, P. DAVIS & J. CUNNINGHAM, *supra* note 19, at 33; Davis, *Mineral Rights: Conveyances and Leases in Missouri—Part II*, *supra* note 47, at 250; Davis, *Groundwater Pollution: Case Law Theories for Relief*, 39 MO. L. REV. 117, 123-24 (1974); Davis, *Wells and Streams: Relationship at Law*, *supra* note 47, at 203-04. Most courts refer to this rule as the "reasonable use" rule, even though it is dramatically different in concept from the second rule, also called the "reasonable use" rule. The author has suggested the new identification for the third rule to distinguish it from the second rule. The "eastern correlative rights" rule should not be confused with the "correlative rights" rule of some western states that requires prorationing of groundwater during shortages. See *Katz v. Walkinshaw*, 141 Cal. 116, 74 P. 766 (1903); Davis, *Wells and Streams: Relationship at Law*, *supra* note 47, at 203; 37 MO. L. REV., *supra* note 47, at 361.

50. *Jones v. Oz-Ark-Val Poultry Co.*, 228 Ark. 76, 306 S.W.2d 111 (1957); *MacArtor v. Graylyn Crest III Swim Club, Inc.*, 41 Del. Ch. 26, 187 A.2d 417 (1963); *Cason v. Florida Power Co.*, 74 Fla. 1, 76 So. 535 (1917); *Erickson v. Crookston Waterworks, Power & Light Co.*, 100 Minn. 481, 111 N.W. 391 (1907); *Higday v. Nickolaus*, 469 S.W.2d 859 (Mo. App., K.C. 1971); *Bassett v. Salisbury Mfg. Co.*, 43 N.H. 569 (1862); *Nashville, C. & St. L. Ry. v. Rickert*, 19 Tenn. App. 446, 89 S.W.2d 889 (1936); *State v. Michels Pipeline Constr., Inc.*, 63 Wis. 2d 278, 217 N.W.2d 339 (1974).

51. See Davis, *Wells and Streams: Relationship at Law*, *supra* note 47, at 234-38.

52. See *Forbelsky v. City of New York*, 164 N.Y. 522, 58 N.E. 644 (1900); Brazier

prohibits the knowing injurious diversion if it is unreasonable in amount under the circumstances, but it does not adequately protect the neighbor from an unknowing injurious diversion. Furthermore, the eastern correlative rights doctrine is subject to all of the inadequacies of the riparian doctrine stemming from its uncertainty, insecurity, and allocation obsolescence.

None of the common law groundwater allocation doctrines deals with the problem of groundwater mining, which occurs when withdrawals exceed the average annual recharge of the aquifer. The result is a gradual dropping of the water table and eventual extinction of the aquifer by salt water intrusion or exhaustion.⁵³ Nothing in the groundwater allocation rules prohibits groundwater mining; the rules only allocate the groundwater available at any given time.

C. *Interrelationship Between Surface Watercourses and Groundwater*

Surface watercourses and groundwater are intimately related in many areas of the country, including Missouri. The base flow in most watercourses is derived from groundwater. These are effluent streams because groundwater is discharged into them. Some streams act as a source for groundwater. In those streams, called influent streams, the water in the stream percolates into the groundwater supply.⁵⁴

Although this hydrologic relationship has been well understood for several decades,⁵⁵ the common law has taken little notice of it. Eastern cases involving interactions between surface watercourses and groundwater sometimes do recognize the hydrologic relationship, but the courts have not developed any doctrinal basis for dealing with interrelationship cases. Cases have been decided on the basis of surface watercourse allocation rules, both natural flow and reasonable use, and the various groundwater allocation

v. Brown, 12 Ohio St. 294 (1861); Huber v. Merkel, 117 Wis. 355, 94 N.W. 354 (1903); Chasemore v. Richards, 2 H. & N. 168, 157 Eng. Rep. 71 (Ex. 1857), *aff'd*, 7 H.L. Cas. 349, 11 Eng. Rep. 140 (1859). *Contra*, Dickinson v. Grand Junction Canal Co., 7 Ex. 282, 155 Eng. Rep. 953 (1852).

53. On the hydrology and law of groundwater over-development, or "mining," see C. MCGUINNESS, WATER LAW WITH SPECIAL REFERENCE TO GROUNDWATER 11 (U.S. Geological Survey Circ. No. 114, 1951); NATIONAL WATER COMMISSION, WATER POLICIES FOR THE FUTURE 238-39 (Final Report, June 1973); Bagley, *Water Rights Law and Public Policies Relating to Ground Water "Mining" in the Southwestern States*, 4 J.L. & ECON. 144, 166-67 (1961); Crosby, *A Layman's Guide to Groundwater Hydrology*, in C. CORKER, *supra* note 41, at 75-76. For western cases and statutes on groundwater mining, see, e.g., Mathers v. Texaco, Inc., 77 N.M. 239, 421 P.2d 771 (1966); Baker v. Ore-Ida Foods, Inc., 95 Idaho 575, 513 P.2d 627 (1973); IDAHO CODE § 42-237a(g) (1977); S.D. COMP. LAWS ANN. § 46-6-6.2 (1967).

54. See Davis, *Wells and Streams: Relationship at Law*, *supra* note 47, at 196-97 & nn.23-24.

55. *Id.* at 229 n.127.

rules, with no clear reasons given for the choice of rule.⁵⁶ Only when a state has adopted both the reasonable use theory of riparian rights for surface watercourses and for underground streams and the eastern correlative rights rule for percolating groundwater will it have a consistent set of rules. Comparative reasonableness will apply to all cases.

IV. EXISTING WATER USE REGULATION IN MISSOURI

Regulation of uses of and diversions from surface watercourses and groundwater by state agencies is nonexistent in Missouri. Diversions from surface watercourses and groundwater, if sufficiently large, must be reported, and certain dams can be built only under a court permit. This section will discuss briefly those statutory provisions.

A. *Reporting of Large Diversions*

To aid the Department of Natural Resources in collecting water resource data, the legislature enacted a large diversion reporting requirement in 1969. All persons, firms, corporations, and political subdivisions withdrawing an average of more than 25,000 gallons per day during any thirty-day period from groundwater or surface water sources must report those withdrawals annually by January 15 of the following year.⁵⁷ According to an official of the Missouri Geological Survey, a substantial number of diverters do not submit the required reports.⁵⁸ The reason for the noncompliance is presumed to be the absence of any enforcement or penalty provisions in the statute.⁵⁹

B. *Regulation of Certain Dams on Smaller Watercourses*

Chapter 236 of the Missouri Revised Statutes provides that milldams and hydroelectric dams on nonnavigable streams can be built only under a permit from the circuit court of the county in which the dam is to be located.⁶⁰ The original 1822 law required a permit for any type of dam across any watercourse.⁶¹ In 1835, the permit requirement was limited to any type of dam across a nonnavigable stream,⁶² probably because of the emergence of federal authority over inland navigable waters.⁶³ At this time, there was

56. *Id.* at 227-33.

57. MO. REV. STAT. § 256.370 (1978).

58. Comment of Larry Fellows, Missouri Geological Survey, to Author (Jan. 1978).

59. *Id.* See MO. REV. STAT. § 256.370 (1978).

60. MO. REV. STAT. §§ 236.010-.500 (1978 & Cum. Supp. 1981).

61. 1822 Mo. Laws 392.

62. MO. REV. STAT. § 1, at 406 (1835).

63. It was only in the 1820s that practical steamboats were developed which could navigate the Mississippi, Ohio, and Missouri Rivers and their major tributaries. In that period, similar language in the Northwest Ordinance, the Missouri Territory Act, the Missouri Statehood Act, and the Missouri Constitution suggested strongly that dams and other obstructions should not be placed across

no accepted legal definition of "navigable stream."⁶⁴ In later years, the Missouri courts made it clear that the federal commercial navigability definition applied to the dam permit statute.⁶⁵ In 1905, the permit requirement was further limited to milldams and hydroelectric dams.⁶⁶

navigable streams. The language is:

The Mississippi and Missouri rivers, and the navigable waters flowing into them, and the carrying places between the same, shall be common highways and forever free to the people of the said territory and to the citizens of the United States, without any tax, duty or impost therefor.

Northwest Ordinance of 1789, art. IV, 1 Stat. 52 (1789); Missouri Territory Act, § 15, 2 Stat. 747 (1812); Missouri Statehood Act, § 2, 3 Stat. 546 (1820); MO. CONST. art. X, ¶ 2 (1820).

The first federal activity on inland rivers was the removal of snags and trees from the Mississippi and Ohio Rivers by the Corps of Engineers under legislation in 1824. Act of May 24, 1824, ch. 139, 4 Stat. 32-33 (1824). A host of navigation improvement project legislation followed, but the federal government did not begin to regulate obstructions to navigation until specific bridge legislation in the 1850s. *See* Wheeling Bridge Act of 1852, ch. 111, § 6, 10 Stat. 112 (1852), upheld in *Pennsylvania v. Wheeling & Belmont Bridge Co.*, 59 U.S. (18 How.) 355 (1855). General legislation regulating obstructions came in the late 19th century. *See* Rivers & Harbors Act of 1890, §§ 6-12, 26 Stat. 453-55 (1890); Rivers & Harbors Act of 1899, 33 U.S.C. §§ 401-415 (1976). *See generally* F.W. LAURENT, *THE GROWTH OF WATER-RESOURCES LAW UNDER THE AMERICAN FEDERAL SYSTEM*, chapter 3 (Water Resources Ctr., Univ. of Wis.-Madison 1977).

64. Federal authority over navigable waters was not expressly extended to inland waters until 1851. *See* *The Propeller Genesee Chief v. Fitzhugh*, 53 U.S. (12 How.) 233 (1851) (overruling prior cases limiting such jurisdiction to the high seas and tidal waters).

65. *See, e.g.*, *Cambest v. McComas Hydro-Elec. Co.*, 212 Mo. App. 325, 245 S.W. 598 (K.C. 1922). Waters are navigable under federal law if they are presently being used for commercial navigation, have been so used in the past, or could be so used in the future if reasonable improvements were made. *See, e.g.*, *United States v. Appalachian Elec. Power Co.*, 311 U.S. 377 (1940); *Economy Light & Power Co. v. United States*, 256 U.S. 113 (1921); *The Daniel Ball*, 77 U.S. (10 Wall.) 557 (1870).

The Missouri courts have adopted the first proposition of the federal definition of navigability—present commercial navigability—for bed title purposes. The standard federal definitional language has been adopted by the Missouri courts: "Those rivers are navigable in law when they are used, or are susceptible of being used, in their ordinary condition, as highways for commerce, over which trade and travel are or may be conducted in the customary modes of trade and travel on water." *Slovensky v. O'Reilly*, 233 S.W. 478, 481-82 (Mo. 1921). Hence, rivers that floated saw logs in the past, or canoes and small boats presently, are not navigable. *Elder v. Delcour*, 364 Mo. 829, 269 S.W.2d 17 (En Banc 1954). Those rivers may be floatable and as such would be subject to the public easement of passage, however. *Id.* Under its definition of navigability, the Missouri courts have held the Meramec River in Crawford County to be nonnavigable for bed title purposes. *Slovensky v. O'Reilly*, 233 S.W. at 481-82.

66. 1905 Mo. Laws 232.

Today, a dam permit is obtained by petition to the circuit court of the county in which the dam is to be located.⁶⁷ All dams, whether or not subject to the permit requirement, must contain a fish chute.⁶⁸ Dams built in violation of the statute are enjoined as public nuisances⁶⁹ and are liable for double damages for injuries.⁷⁰ The permission for the dam ceases whenever the state, county, or political subdivision of the state makes a conflicting improvement.⁷¹

The statute also deals with abandoned dams. If a dam is at least 30 years old, landowners abutting the impoundment within one mile of the dam have the right to repair, maintain, and reconstruct the dam at their own expense for their own purposes which were developed to use the impounded waters.⁷² The right is in addition to the right recognized in equity that an impoundment, long in existence and on which the development of abutting lands occurred and depends, cannot be drained. The courts have held that reciprocal negative easements to have the impoundment and dam maintained arise out of reliance on the existence of the dam. This easement is enforceable and justifies enjoining the draining of the impoundment.⁷³

C. *Diversions Not Subject to Statutory Regulation*

Missouri does not have a comprehensive diversion regulatory statute or a comprehensive impoundment licensing statute. It is not empowered to protect the assimilative capacity of streams under the Clean Water Act, even though that act does require the Clean Water Commission to establish water quality standards for various reaches of streams,⁷⁴ which the Commission has done. Hence, the Commission cannot protect the assimilative capacities that underly its water quality standards by regulating conflicting diversions.

V. DIVERSION PERMIT STATUTES IN THE EASTERN STATES

Fourteen of the thirty-one eastern states have statutes that control diversions of water from either surface watercourses or groundwater or both. The principal purpose of those statutes is to allocate water between competing users, particularly during shortages. Most were enacted in the late 1950s or early 1960s, when temporary water shortages were experienced and

67. MO. REV. STAT. § 236.030 (1978).

68. *Id.* § 236.230.

69. *Id.* § 236.240.

70. *Id.* § 236.270.

71. *Id.* § 236.260.

72. *Id.* § 236.255.

73. *Greisinger v. Klinhardt*, 321 Mo. 186, 9 S.W.2d 978 (1928).

74. MO. REV. STAT. § 204.016(14) (1978) (definition), *id.* § 204.026(7) (establishment). The act merely prohibits waste discharges that would degrade water quality below the established water quality standards, unless acting under a valid permit. *Id.* § 204.051(2).

chronic shortages were expected.⁷⁵ The following sections examine the purposes and structures of the eastern state water diversion permit statutes,⁷⁶ two model acts, and the recommendation of the National Water Commission.⁷⁷

A. *Purposes of Eastern Permit Statutes*

The purposes set forth in the policy sections of the eastern water diversion permit statutes vary widely from state to state. Those purposes include allocating water among competing users,⁷⁸ promoting beneficial and efficient uses of water,⁷⁹ assuring the best use of water in the public interest,⁸⁰ dealing with water shortages,⁸¹ protecting public water supplies,⁸² protec-

75. See Champion, *Prior Appropriation in Mississippi—A Statutory Analysis*, 39 MISS. L.J. 1, 1 (1967); Hines, *A Decade of Experience under the Iowa Water Permit System—Part I*, 7 NAT. RESOURCES J. 499, 508-10 (1967).

76. ARK. STAT. ANN. §§ 21-1301 to -1332 (1968 & Cum. Supp. 1981); DEL. CODE ANN. tit. 7, §§ 6001-6060 (1974 & Cum. Supp. 1980); FLA. STAT. ANN. §§ 373.106-.191 (1974 & Cum. Supp. 1982); GA. CODE ANN. §§ 17-502, 17-510.1 (1971 & Cum. Supp. 1981); IND. CODE ANN. §§ 13-2-1-1 to -2-29-2 (Burns 1981); IOWA CODE §§ 455A.1-.40 (1979); KY. REV. STAT. §§ 151.100-.990 (1980); MD. NAT. RES. CODE ANN. §§ 8-101 to -407 (1974 & Cum. Supp. 1981); MINN. STAT. ANN. §§ 105.37-.81 (1977 & Cum. Supp. 1982); MISS. CODE ANN. §§ 51-3-1 to -3-55, -4-1 to -4-19 (1972 & Cum. Supp. 1981); N.J. STAT. ANN. §§ 58:1A-2 to -17 (1982); N.Y. ENVTL. CONSERV. LAW §§ 15-0503 to -2723 (McKinney 1973 & Cum. Supp. 1981-1982); N.C. GEN. STAT. §§ 143-215.11 to .61 (1978 & Supp. 1979); WIS. STAT. ANN. § 30.18 (West 1973 & Cum. Supp. 1981-1982). On eastern permit systems, see generally Heath, *Water Management Legislation in the Eastern States*, 2 LAND & WATER L. REV. 99 (1967); Plager & Maloney, *Emerging Patterns for Regulation of Consumptive Use of Water in Eastern United States*, 43 IND. L.J. 383 (1968).

77. MODEL WATER USE ACT (1958) (hereinafter MODEL WATER USE ACT), in WATER RESOURCES AND THE LAW 533 (Univ. of Mich. Law School 1958); F. MALONEY, R. AUSNESS & J. MORRIS, A MODEL WATER CODE (1972) (hereinafter MODEL WATER CODE); NATIONAL WATER COMMISSION, WATER POLICIES FOR THE FUTURE, chapter 7, § F, at 280 (June 1973) (hereinafter NWC REPORT).

78. ARK. STAT. ANN. § 21-1301 (1968); KY. REV. STAT. § 151.110 (1980); MINN. STAT. ANN. § 105.38(2) (Cum. Supp. 1982); N.C. GEN. STAT. § 143-215.13 (a) (1978). Cf. GA. CODE ANN. § 17-502 (Cum. Supp. 1981) (purpose to maximize benefits to users).

79. DEL. CODE ANN. tit. 7, § 6001(a) (2)-(3) (1974); IND. CODE ANN. § 13-2-1-1 (Burns 1981); IOWA CODE § 455A.2 (1979); KY. REV. STAT. § 151.110 (1980); MISS. CODE ANN. § 51-3-1 (1972); N.C. GEN. STAT. § 143-215.12 (1978).

80. DEL. CODE ANN. tit. 7, § 6001(a) (3), (a) (6), (b), (c) (1) (1974); FLA. STAT. ANN. § 373.016(2) (b) (1974); GA. CODE ANN. § 17-502 (Cum. Supp. 1981); IND. CODE ANN. § 13-2-1-1 (Burns 1981); IOWA CODE § 455A.2 (1979); KY. REV. STAT. § 151.110 (1980); MD. NAT. RES. CODE § 8-203 (1974 & Cum. Supp. 1981); N.J. STAT. ANN. § 58:1A-5 (1982).

81. ARK. STAT. ANN. § 21-1301 (1968); KY. REV. STAT. § 151.110 (1980); N.C. GEN. STAT. § 143-215.13(a) (1978).

82. MINN. STAT. ANN. § 105.38(1) (1977).

ting minimum streamflows,⁸³ promoting flood control,⁸⁴ promoting water conservation,⁸⁵ and establishing state comprehensive water planning.⁸⁶

B. Waters Subject to Permit Requirements

Most eastern permit statutes regulate diversions and in-place uses of both surface watercourses and groundwater.⁸⁷ A few are limited to surface watercourses only.⁸⁸ Two of the comprehensive permit statutes also apply to diffused surface water,⁸⁹ but most expressly exempt diffused surface water from regulation.⁹⁰ Other typical exemptions include farm ponds,⁹¹ surface watercourses located on single ownership tracts,⁹² and springs.⁹³ Because surface watercourses and groundwater are usually hydrologically connected, most commentators recommend that both be regulated as a single entity.⁹⁴

83. ARK. STAT. ANN. § 21-1301 (1968); DEL. CODE ANN. tit. 7, § 6001(a)(4), (c) (3) (1974); FLA. STAT. ANN. § 373.016(2) (e)-(f) (1974); KY. REV. STAT. § 151.110 (1980); MINN. STAT. ANN. § 105.38(1) (1977). One state is concerned with protecting the pollution assimilative capacity of watercourses. *See* GA. CODE ANN. § 17-502 (Cum. Supp. 1981).

84. ARK. STAT. ANN. § 21-1301 (1968); FLA. STAT. ANN. § 373.016(2) (d) (1974); IOWA CODE § 455A.2 (1979); KY. REV. STAT. § 151.110 (1980); MINN. STAT. ANN. § 105.38(1) (1977).

85. ARK. STAT. ANN. § 21-1301 (1968); FLA. STAT. ANN. § 373.016(2) (c) (1974); KY. REV. STAT. § 151.110 (1980).

86. DEL. CODE ANN. tit. 7, § 6001(a) (7) (1974); FLA. STAT. ANN. § 373.016(2) (a) (1974).

87. DEL. CODE ANN. tit. 7, §§ 6002(7), (22); 6003(a)(3), (b)(4) (1974); FLA. STAT. ANN. §§ 373.019(9)-(12); 373.023(1) (1974); IOWA CODE § 455A.18 (1979); KY. REV. STAT. §§ 151.120(1), .150 (1980); MD. NAT. RES. CODE §§ 8-101(k), -802(a) (1974 & Cum. Supp. 1981); MINN. STAT. ANN. §§ 105.37(7), .41(1), .416(1) (1977 & Cum. Supp. 1982); MISS. CODE ANN. §§ 51-3-7(1), -4-1(2), -4-5(1), -4-7(1), -4-9 (Cum. Supp. 1981); N.J. STAT. ANN. §§ 58:4A-2 (1982); N.C. GEN. STAT. §§ 143-215.13 to .15, .21(7) (1978).

88. ARK. STAT. ANN. § 21-1302 (1968); GA. CODE ANN. § 17-510.1(1) (d) (1971); WIS. STAT. ANN. § 30.18(1) (a), .18 (2) (1973).

89. DEL. CODE ANN. tit. 7, §§ 6002(7); 6003(a)(3), (b)(4) (1974); FLA. STAT. ANN. §§ 373.019(9), (11), .023(1) (1974).

90. ARK. STAT. ANN. §§ 21-1302(b), -1310(a) (1968); IOWA CODE § 455A.27 (1979); KY. REV. STAT. § 151.120(2) (1980); MINN. STAT. ANN. § 105.37(7) (1977); MISS. CODE ANN. § 51-3-40 (1972); N.J. STAT. ANN. § 58:1-35(F) (1982).

91. DEL. CODE ANN. tit. 7, § 6029(2)-(3) (1974); GA. CODE ANN. § 17-510.1(1) (Cum. Supp. 1981); MISS. CODE ANN. § 51-3-7(2) (Cum. Supp. 1981). One state expressly regulates farm ponds. *See* MD. NAT. RES. CODE §§ 8-101(k), -802(a) (1974 & Cum. Supp. 1981).

92. DEL. CODE ANN. tit. 7, § 6029(1) (1974); GA. CODE ANN. § 17-510.1(1) (d) (Cum. Supp. 1981); IOWA CODE ANN. § 455A.27 (1971).

93. ARK. STAT. ANN. § 21-1310(b) (Cum. Supp. 1981); MISS. CODE ANN. § 51-3-7(1) (Cum. Supp. 1981).

94. C. CORKER, *supra* note 41, at 147; A. PIPER, INTERPRETATION AND CURRENT STATUS OF GROUNDWATER RIGHTS (U.S. Geological Survey Circ. No. 432

C. *Activities Subject to Permit Requirements*

Eastern permit statutes generally regulate diversions from surface watercourses,⁹⁵ impoundments on surface watercourses,⁹⁶ and wells and diversions from groundwater.⁹⁷ A few states with many lakes also regulate lake levels.⁹⁸ A few regulate fills and encroachments into watercourses⁹⁹ and channel changes.¹⁰⁰ Most states exempt diversions for domestic purposes,¹⁰¹

1960); H. THOMAS, *THE CONSERVATION OF GROUND WATER* 243-47 (1951); H. THOMAS, *GROUND WATER AND THE LAW* (U.S. Geological Survey Circ. No. 446 1961); Ausness, *Water Use Permits in a Riparian State: Problems and Proposals*, 66 KY. L.J. 191, 220-21 (1978); Davis, *Wells and Streams: Relationship at Law*, *supra* note 47, at 193-97; Piper & Thomas, *supra* note 41, at 7. The model acts have followed that recommendation. MODEL WATER USE ACT, *supra* note 77, §§ 102(s), 103, 401(a); MODEL WATER CODE §§ 1.03(8)-(10), 1.04(1) (1972). The National Water Commission recommends regulation of both surface watercourses and ground water. NWC REPORT, *supra* note 77, Recommendation 7-47.

95. ARK. STAT. ANN. § 21-1308 (1968); DEL. CODE ANN. tit. 7, § 6003(a)(3), (b)(4) (1974); FLA. STAT. ANN. §§ 373.216, .219 (1974 & Cum. Supp. 1982); GA. CODE ANN. § 17-510.1(1) (Cum. Supp. 1981); IOWA CODE § 455A.1, .18, .19 (1979); KY. REV. STAT. § 151.140 (1980); MD. NAT. RES. CODE § 8-802(a) (1974); MINN. STAT. ANN. §§ 105.41(1), .416(1) (1977 & Cum. Supp. 1982); MISS. CODE ANN. § 51-3-7(1) (Cum. Supp. 1981); N.J. STAT. ANN. § 58:1-37 (1982); N.C. GEN. STAT. § 143-215.15(a) (1978); WIS. STAT. ANN. § 30.18(1) (b), (3)(a) (West 1973).

96. ARK. STAT. ANN. §§ 21-1304, -1306.A (Cum. Supp. 1981); DEL. CODE ANN. tit. 7, §§ 6003 (a)(6), (b)(4); 6010(f)(2) (1974); FLA. STAT. ANN. § 373.413(1) (Cum. Supp. 1982); GA. CODE ANN. § 17-510.1(1) (Cum. Supp. 1981); IOWA CODE § 455A.19 (1979); KY. REV. STAT. §§ 151.210(1), .250(1) (1981); MD. NAT. RES. CODE §§ 8-802(a), -803(a) (1974 & Cum. Supp. 1981); MINN. STAT. ANN. § 105.42(1) (Cum. Supp. 1982); MISS. CODE ANN. § 51-3-39(1) (Cum. Supp. 1981); N.J. STAT. ANN. § 58:16A-52, -55 (1982); N.Y. ENVTL. CONSERV. LAW § 15-0503(1) (McKinney Cum. Supp. 1981-1982); N.C. GEN. STAT. § 143-215.15(a) (1978); WIS. STAT. ANN. § 31.05 (West 1973).

97. DEL. CODE ANN. tit. 7, §§ 6002(1); 6003(a)(3), (a)(6), (b)(4) (1974); FLA. STAT. ANN. §§ 373.306, .313, .326 (1974); IND. CODE ANN. § 13-2-2-5 (Burns 1981); KY. REV. STAT. § 151.140 (1981); MD. NAT. RES. CODE § 8-604 (Cum. Supp. 1981); MINN. STAT. ANN. §§ 105.37(7), .41(1), .416(1) (1977); MISS. CODE ANN. §§ 51-4-1(2), -5(1), -7(1), -9 (1972 & Cum. Supp. 1981); N.J. STAT. ANN. § 58:4A-14 (1982); N.C. GEN. STAT. §§ 143-215.13 to .15, .21(7) (1978 & Supp. 1979); WIS. STAT. ANN. § 144.025(2) (e) (West 1973).

98. IND. CODE ANN. §§ 13-2-11-2, -12-1, -14-3, -14-5, -18-1 (Burns 1981); MINN. STAT. ANN. § 105.42(1a) (1977); WIS. STAT. ANN. § 31.02(1) (West 1973).

99. KY. REV. STAT. § 151.250(3) (1981); N.J. STAT. ANN. § 58:16A-52, -55 (1982); N.Y. ENVTL. CONSERV. LAW § 15-0503(1) (McKinney Cum. Supp. 1981-1982); WIS. STAT. ANN. § 30.19(1) (West 1973).

100. MINN. STAT. ANN. § 105.42(1) (Cum. Supp. 1982); N.J. STAT. ANN. § 58:16A-52, -55 (1982); N.Y. ENVTL. CONSERV. LAW §§ 15-0501, -0505 (McKinney Cum. Supp. 1981-1982); WIS. STAT. ANN. § 30.19(1), .195(1) (West 1973).

101. FLA. STAT. ANN. § 373.219(1) (1974); IND. CODE ANN. § 13-2-1-3(j) (Burns 1981); IOWA CODE §§ 455A.1, .25 (1979); KY. REV. STAT. §§ 151.140,

which are drinking water, livestock water, and household water. One state exempts water for irrigating household gardens.¹⁰² Three states exempt all agricultural diversions, including for irrigation.¹⁰³ Two states exempt diversions for public water supplies.¹⁰⁴ Other exemptions include small impoundments,¹⁰⁵ small diversions,¹⁰⁶ water for oil and gas recovery operations,¹⁰⁷ and water for steam power plants.¹⁰⁸

All activities that have a significant effect on the volume, rate, or pattern of flow in surface watercourses and the availability and water table of groundwater should be regulated under a permit system. Those are the activities that will have the greatest impact on the availability of water for consumptive and nonconsumptive uses and on the maintenance of flow and water levels in surface watercourses for fish and wildlife habitat and recreational uses. Therefore, the obvious candidates for regulation are diversions, impoundments, and major wells.¹⁰⁹

Although most of the recognized exemptions involve small diversions that will have little or no effect on the overall availability of water,¹¹⁰ exemptions for agriculture and public water supplies should not be created. Both involve large diversions. Agricultural irrigation can be as much as eighty percent consumptive. Because most of the fears concerning availability of water and streamflow maintenance in Missouri are based on the massive unregulated growth of supplemental irrigation, exempting agricultural diversions would prevent diversion regulation from solving the very problem it is designed to avoid.

210(1) (1981); MD. NAT. RES. CODE § 8-802(b) (1974); MINN. STAT. ANN. § 105.41(1) (Cum. Supp. 1982); MISS. CODE ANN. §§ 51-3-3(c), -7(1) (1972 & Cum. Supp. 1981); N.J. STAT. ANN. § 58:1-37 (1982).

102. MISS. CODE ANN. §§ 51-3-3(c), -7(1) (1972 & Cum. Supp. 1981).

103. GA. CODE ANN. § 17-510.1(1) (Cum. Supp. 1981); KY. REV. STAT. § 151.140 (1981); MD. NAT. RES. CODE § 8-802(b) (1974).

104. MD. NAT. RES. CODE § 8-802(b) (1974); N.J. STAT. ANN. § 58:1A-7 (1982). *But cf. id.* § 58:1A-12 (regulates municipal condemnation of water rights).

105. ARK. STAT. ANN. § 21-1310(e) (Cum. Supp. 1981) (under 20 acres); MD. NAT. RES. CODE § 8-803(b) (1974) (ponds under 640 acres).

106. MISS. CODE ANN. § 51-4-9(1) (Cum. Supp. 1981) (groundwater under 50,000 gpd); N.J. STAT. ANN. § 58:4A-2 (1982) (groundwater under 100,000 gpd); N.C. GEN. STAT. § 143-215.13(d)(2) (1978) (under 10,000 gpd); *id.* § 143-215.15(a) (certain diversions under 100,000 gpd).

107. KY. REV. STAT. § 151.140 (1981); MISS. CODE ANN. § 51-4-1(2) (1972).

108. KY. REV. STAT. § 151.140 (1981).

109. The model acts provide for regulating all major diversions. MODEL WATER USE ACT, *supra* note 77, §§ 102(s), 103, 401(a); MODEL WATER CODE, *supra* note 77, §§ 2.01(1), 3.30(1), 3.10-.11. The National Water Commission recommends regulating all withdrawals. NWC REPORT, *supra* note 77, Recommendation 7-47.

110. MODEL WATER USE ACT, *supra* note 77, §§ 207 & 301(a) exempt domestic diversions, while the MODEL WATER CODE, *supra* note 77, makes no exemptions.

D. Allocation of Water

The way in which water is allocated by the various state agencies determines the degree to which the stated purposes of the eastern diversion permit statutes are accomplished. Among those purposes are the protection of streamflows and the equitable and beneficial allocation of water in the public interest. Some statutes specifically outline priorities in allocating water; most merely provide a policy orientation for allocation. Thus, most administering agencies determine allocation priorities without the benefit of specific statutory guidance.

1. Policy Orientation for Allocating Water

Almost all of the eastern diversion permit statutes provide policy guidance for allocating water among competing users. Those guidelines are broad benchmarks that are to be used either to establish more explicit priorities administratively or to make allocation decisions on a case-by-case basis. The statutory policy guidance is to be used to establish the balance between protected streamflows and waters available for allocation, to allocate water between competing users, and to determine the sizes of and conditions attached to permitted diversions.

The policy guidelines provided in the various statutes include allocation of water in the public interest,¹¹¹ allocation based on comparative public benefits,¹¹² allocation based on reasonable beneficial uses by users,¹¹³ fair share allocation among users,¹¹⁴ and allocation based on state comprehensive water planning.¹¹⁵

These policy guidelines serve two purposes. First, they provide a public policy framework to justify the regulation of diversions under the state's police power. As such, the policy guidelines help create a constitutional basis for the permit statutes. Second, the policy guidelines create a framework within which the administrative allocation decisions take place. They do not leave

111. FLA. STAT. ANN. §§ 373.223(1)(c), .233(1) (1974); IND. CODE ANN. § 13-2-2-5 (Burns 1981); KY. REV. STAT. § 151.170(2)(1981); MD. NAT. RES. CODE § 8-807(a) (1974); MINN. STAT. ANN. § 105.45 (Cum. Supp. 1982); MISS. CODE ANN. §§ 51-3-13, -35(1); -4-9(3) (1972 & Cum. Supp. 1981); N.Y. ENVTL. CONSERV. LAW § 15-0503(3)(a) (McKinney Cum. Supp. 1981-1982); N.C. GEN. STAT. §§ 143-215.14(a)(2), (c); .16(e)-(f) (1978); WIS. STAT. ANN. § 30.18(5) (West 1973) (by implication).

112. MD. NAT. RES. CODE § 8-807(a) (1974).

113. FLA. STAT. ANN. § 373.223(1)(a) (1974); IOWA CODE §§ 455A.1, .21-.22 (1979); KY. REV. STAT. § 151.170(2)(1981); MISS. CODE ANN. §§ 51-3-3(g), -7(1), -13 (1972 & Cum. Supp. 1981).

114. ARK. STAT. ANN. § 21-1308 (1968); DEL. CODE ANN. tit. 7, § 6010(f) (1) (1974); GA. CODE ANN. § 17-510.1(6) (Cum. Supp. 1981).

115. DEL. CODE ANN. tit. 7, § 6010(b) (1974); IOWA CODE § 455A.17 (1979); MINN. STAT. ANN. §§ 105.39(1), .41(a), .42(a), .44(8) (West 1977 & Cum. Supp. 1982).

the diversion regulatory process to the unfettered discretion of the administering agencies, but help increase the consistency and equity of the administrative decisions. The guidelines establish the proper balance between competing public and private interests in the allocation decisions and avoid the problem of excessive delegation of legislative authority. They help create a constitutional basis for the individual allocation decisions just as they do for the authority to regulate itself, both from the perspective of proper regulation under the police power and of equal protection.

Because of the desirability of including policy guidelines in diversion permit statutes, all the states except New Jersey expressly provide policy guidelines of some sort that are directly applicable to the allocation process.¹¹⁶ New Jersey, however, does provide policy guidance for its water legislation as a whole.¹¹⁷

2. Factors to be Considered in Allocating Water

A few state legislatures have gone a step beyond the general policy guidelines just discussed and have elaborated on the factors the administering agency should examine in making an allocation decision. These factors concern the factual questions the agency must address rather than the specification of allocation priorities.

Georgia and North Carolina have established the same list of factors, which are:

- (1) the number persons using the particular water source, and the object, extent and necessity of their respective withdrawals or uses;
- (2) the nature and size of the water source;
- (3) the physical and chemical nature of any impairment of the water source, adversely affecting its availability or fitness for other water uses;
- (4) the probable severity and duration of such impairment under foreseeable conditions;
- (5) the injury to public health, safety, or welfare that would result if such impairment were not prevented or abated;
- (6) the kinds of businesses or activities to which the various uses are related and the economic consequences;

116. The model acts provide that allocations should be made in the public interest and that reasonable beneficial use should be the allocative criterion. MODEL WATER USE ACT, *supra* note 77, §§ 207, 407(a)-(b), 407(d); MODEL WATER CODE, *supra* note 77, §§ 2.02(1)(a), 2.02(1)(c), 2.05(1). The latter act also requires allocations to be consistent with the state water plan. *Id.* §§ 1.07(10), 2.02(3). The National Water Commission rejects public interest and conformance with state water plans as factors for allocating water. It feels the former concept is too vague and the latter too subject to abuse to be suitable criteria. NWC REPORT, *supra* note 77, at 284.

117. N.J. STAT. ANN. § 58:1A-5 (1982).

- (7) the importance and necessity of the uses claimed by permit applicants and the extent of any injury or detriment caused or expected to be caused to other water uses;
- (8) diversion from or reduction of flows in other watercourses; and
- (9) other relevant factors.¹¹⁸

This list of factors is very similar to lists recited by courts in riparian rights cases.¹¹⁹ Any administering agency, of practical necessity, would consider these factors in making allocation decisions, whether or not so directed by statute.

3. Express Allocation Priorities

A few state legislatures apparently concluded that general policy guidelines of the type discussed above are too broad and ill-defined to give the administering agency adequate guidance. In two states, agency discretion is limited by allocation priority in the statutes.

Arkansas established a list of priorities for allocating water during shortages.¹²⁰ Where users of different types compete, some users are preferred over others based on the following priority list: (1) uses sustaining life, (2) uses maintaining health, and (3) uses increasing wealth.¹²¹

Minnesota's priority list is more explicit. It applies to all diversions, whether or not a shortage exists, and applies at the time competing applications are filed.¹²² Uses are preferred according to the following list: (1) domestic uses and large agricultural diversions (over 10,000 gallons per day (gpd)), (2) all small diversions (under 10,000 gpd), (3) large power production uses (over 10,000 gpd), (4) large industrial and commercial uses (over 10,000 gpd), and (5) other large uses (over 10,000 gpd).¹²³

It may be wise to include a list of allocative priorities in a diversion permit statute. This is especially true if existing uses are not necessarily to be preferred over new uses. The general policy guidelines discussed above do not suggest how to allocate water when difficult choices have to be made. Are industrial and commercial uses to be preferred over agricultural uses? Should a more efficient upstream use be preferred over a less efficient use of the same type downstream? Should nonconsumptive hydroelectric uses

118. GA. CODE ANN. § 17-510.1(5) (Cum. Supp. 1981); N.C. GEN. STAT. § 143-215.15(h) (1978).

119. *See, e.g.*, *Gehlen Bros. v. Knorr*, 101 Iowa 700, 70 N.W. 757 (1897); *Willis v. City of Perry*, 92 Iowa 297, 60 N.W. 727 (1894); *Red River Roller Mills v. Wright*, 30 Minn. 249, 15 N.W. 167 (1883); *Bollinger v. Henry*, 375 S.W.2d 161 (Mo. 1964); *Strobel v. Kerr Salt Co.*, 164 N.Y. 303, 58 N.E. 142 (1900); *Dunlap v. Carolina Power & Light Co.*, 212 N.C. 814, 195 S.E. 43 (1938); *Timm v. Bear*, 29 Wis. 254 (1871); RESTATEMENT (SECOND) OF TORTS § 850A (1979).

120. ARK. STAT. ANN. § 21-1308 (1968).

121. *Id.*

122. MINN. STAT. ANN. § 105.41(1) (Cum. Supp. 1982).

123. *Id.*

be preferred over consumptive irrigation uses? Should new uses have access to a fully allocated water resource? Should they be required to buy the rights of existing conflicting uses, or should the administering agency give them entry by refusing to renew the permits of the existing conflicting users? The guidelines do not answer these questions or the host of analogous questions that arise when a chronic water shortage develops. Use priorities will answer some allocation questions that otherwise are left to the unfettered determination of the administering agency. Because basic economic and social issues are involved in answering fundamental water allocation questions, the legislature should make these allocation policy decisions.

It is not surprising that few eastern diversion permit statutes contain allocation priorities. In times of water surplus, when only future shortages are feared, the legislature may not be able to come to a consensus about allocation priorities or even realize that they must be established. Hence, the legislature considers the entire allocation process, including making basic allocation policy decisions, as one involving administrative expertise. Although leaving these decisions to the agency eventually may prove to be an improper delegation of legislative authority, causing the diversion permit system to be held unconstitutional, no allocation problems have arisen in the eastern states yet because the feared shortages have not developed.¹²⁴ There has been no need to resolve the difficult allocation questions that could cause litigation over the constitutionality of the permit statutes.

4. Time Priorities: Prior Appropriation

A fundamental issue that must be decided in drafting a diversion permit statute is whether existing uses are to be preferred over new uses. This issue can arise in the context of competing new use applications and renewal applications, temporary water shortages, and modification of permits to allow entry of new uses.

Advocates of the prior appropriation system of the western states offer it as a solution for this problem.¹²⁵ The prior appropriation doctrine pro-

124. Only Iowa has been forced to limit new diversions and to restrict old ones, and then only during the drought of the mid-1970s. This took the form of diversion rate limitations. See IOWA ADMIN. CODE § 580-3.4 (1978).

125. See, e.g., NWC REPORT, *supra* note 77, Recommendation 7-53; Coates, *Present and Proposed Legal Control of Water Resources in Wisconsin*, 1953 WIS. L. REV. 256; Trelease, *The Model Water Code, the Wise Administrator and the Goddam Bureaucrat*, 14 NAT. RESOURCES J. 207 (1974); *Proposed Surface Water Law for Michigan*, in THE LAW OF WATER ALLOCATION IN THE EASTERN UNITED STATES 49 (D. Haber & S. Bergen ed. 1958); note 179 *infra*. See also Trelease, *Alternatives to Appropriation Law*, 6 DENVER J. INT'L L. & POLICY 283 (1977), reprinted in WATER NEEDS FOR THE FUTURE 59 (V. Nanda ed. 1977); Trelease, *A Model State Water Code for River Basin Development*, 22 LAW & CONTEMP. PROB. 301 (1957); Trelease, *New Water Laws for Old and New Countries*, in CONTEMPORARY DEVELOPMENTS IN WATER LAW 40 (C. Johnson & S. Lewis ed. 1970); Trelease, *New Water Legislation: Drafting for*

vides that a landowner's right to divert water is based on historic use. The oldest historic use has the strongest right and the newest use has the weakest right. When a water shortage exists, water is allocated to the diverters in the order of seniority of right, until the supply is consumed. "First in time, first in right" is the maxim of the prior appropriation doctrine. The prior appropriation right is limited to man-made diversions from streams or man-made obstructions for mills and hydroelectric dams, for application of the water to particular land for an economically beneficial purpose. Appropriations for public water supply purposes also are recognized.¹²⁶

The purpose of the western prior appropriation system is to create a security of water right not found in the riparian rights system of the eastern states. Riparianism presumes an abundance of water and permits the entry of new water users to the abundant water supply because each water user is entitled to his fair share. It is designed to resolve the occasional water rights disputes that arise in local situations of heavy demand on a finite water supply or during temporary water shortages. It cannot cope with the chronic water shortages, heavy demands for water by irrigators and miners, and scarce water supplies prevalent in the western states.

Prior appropriation evolved to create an absolutely secure water right under such western circumstances by giving the earlier diverters a priority of right over the later diverters if there is insufficient water for both for any reason. By contrast, the riparian doctrine gives all users an equal right of access to the water supply. It usually requires that they share water shortages as determined by court decision or by contract between the parties on a case-by-case basis. The riparian water right is much more adaptable to changing patterns in water demand, but at the expense of insecurity of water right.

The principal defect of prior appropriation is the result of its primary virtue. The absolute security of water right held by the senior appropriators makes it very difficult to establish new uses. Because most western streams are fully appropriated, the only way for a new user to gain access to the water supply is to buy the right of an existing appropriator. And he may not be willing to sell. There is no mechanism by which his water right can be shifted to a new use against his will. Many western states also require protection of other appropriators incidentally affected by the transfer, if the transfer involves a change of place of diversion, place of use, or type of use.¹²⁷ They can block a transfer.

Developments, Efficient Allocation and Environmental Protection, 12 LAND & WATER L. REV. 385 (1977); Trelease, *Policies for Water Law: Property Rights, Economic Forces, and Public Regulation*, 5 NAT. RESOURCES J. 1 (1965).

126. See generally Davis, *supra* note 22, at 688-89; Fisher, *Western Experience and Eastern Appropriation Proposals*, in THE LAW OF WATER ALLOCATION IN THE EASTERN UNITED STATES 75, 81-85 (D. Haber & S. Bergen ed. 1958).

127. This comparison of the riparian rights and prior appropriation systems is discussed more fully in MODEL WATER CODE, *supra* note 77, at 157-59; Davis,

Only one eastern state, Mississippi, has established a prior appropriation permit system.¹²⁸ The Mississippi statute is a true western-type prior appropriation system because it provides for appropriation for a beneficial use¹²⁹ and makes the appropriative right perpetual as long as the beneficial use is continued.¹³⁰ Although the statute does not expressly provide that only unappropriated water is subject to new appropriations, the very use of the word "appropriate" throughout the statute, which is not found in other eastern statutes, makes clear that Mississippi has adopted the western prior appropriation concept.

Two other eastern statutes prefer a renewal application over an application for a new use when they are otherwise equal,¹³¹ but both are coupled with a maximum time period of permit duration when renewal is discretionary.¹³² This combination of provisions permits the administering agency to prefer a new use over an existing one at the latter's time of renewal if that is in the public interest. Hence, the characteristic absolute time priority of prior appropriation is absent.

Substitution of new uses for old ones at the time of permit renewal is recommended by the commentators as more appropriate for the eastern states.¹³³ They expressly recommend against use of the prior appropriation concept.¹³⁴ Prior appropriation has not been responsive enough to the need for new water uses.¹³⁵ The need for a water right more secure than that pro-

supra note 22, at 675-97; Fisher, *supra* note 126, at 76-87. On the problem of security of right under the riparian doctrine, see also Plager, *Some Observations on the Law of Water Allocation as a Variable in Industrial Site Location*, 1968 WIS. L. REV. 673; Plager & Maloney, *Emerging Patterns for Regulation of Consumptive Use of Water in Eastern United States*, 43 IND. L.J. 383 (1968).

128. MISS. CODE ANN. §§ 51-3-1 to -53 (1972). At least eight eastern states have rejected prior appropriation bills: Arkansas, Georgia, Florida, Michigan, North Carolina, South Carolina, Wisconsin, and West Virginia. MODEL WATER CODE, *supra* note 77, at 76 nn.50-58.

129. MISS. CODE ANN. § 51-3-3(g) (1) (1972).

130. *Id.* §§ 51-3-11, -29.

131. FLA. STAT. ANN. § 373.233(2) (1974); IOWA CODE § 455A.21 (1979).

132. FLA. STAT. ANN. § 373.236 (1974) (20 years); IOWA CODE § 455A.20 (1979) (10 years; 1 year for irrigation permits). During the term of the permit, it is a protected use. FLA. STAT. ANN. § 373.133(1)(b) (1974); IOWA CODE §§ 455A.20, .28 (1979).

133. MODEL WATER CODE, *supra* note 77, at 173-75; Ausness, *supra* note 94, at 235; Davis, *supra* note 22, at 701. The model acts also combine a preference for renewals of equal benefit with permits of specific duration. MODEL WATER USE ACT, *supra* note 77, §§ 406 (50 years), 410 (compulsory termination to enable entry of a more beneficial use); MODEL WATER CODE, *supra* note 77, §§ 2.05(2), 2.06(1) (20 years).

134. MODEL WATER CODE, *supra* note 77, at 156-59; Davis, *supra* note 22, at 692-94.

135. MODEL WATER CODE, *supra* note 77, at 159; Davis, *supra* note 22, at 693-94; Lauer, *supra* note 13, at 17.

vided by common law riparian rights can be achieved by granting permits with a time duration sufficient to amortize investments, as is discussed in the next section. This method of providing security of water right allows for timely and gradual shifts in uses.

Another problem with prior appropriation is its ineffectiveness in areas where a substantial number of pre-enactment diversions and uses exist. All such pre-existing diversions and uses are vested rights and must be granted permits.¹³⁶ Those pre-existing uses acquire an equal priority; conflicts between them are resolved on riparian principles. If the prior appropriation doctrine exists at the beginning of a development, the vested rights doctrine does not create a problem. In a state that adopts prior appropriation late, however, experience has shown that the old system continues to control water allocation for most users. For example, in Mississippi, about ninety percent of the diversions under permit ten years after enactment consisted of vested rights with equal priority.¹³⁷ In areas with substantial pre-existing water diversion development, prior appropriation has proven ineffective.¹³⁸ Thus, even assuming that the prior appropriation doctrine has merit, it is too late to substitute it in the eastern states.¹³⁹

E. *Security of Water Right versus Accommodation of New Users*

The major defect of common law riparian rights and of the common law groundwater allocation rules is the insecurity of right. One of the primary purposes of the eastern diversion permit statutes is to provide security of right. Nonetheless, the legislatures wished to preserve the ability of the riparian system to accommodate new uses. Hence, they did not adopt prior appropriation, which creates a secure water right at the expense of establishment of new uses. Instead, they established permit systems with terms sufficient to allow amortization of investments in water use facilities. By allowing for permit renewal at the discretion of the administering agency, a mechanism was created for the entry of new uses and their substitution for old uses.¹⁴⁰

1. Permit Duration and Renewal

Seven of the fourteen eastern permit statutes provide for fixed term permits. Permit terms provided by the various statutes include maximums of ten years¹⁴¹ and twenty years.¹⁴² Three states established a fifty year term

136. See *Pennsylvania Coal Co. v. Mahon*, 260 U.S. 393, 413 (1922).

137. *Champion*, *supra* note 75, at 16-19.

138. *Davis*, *supra* note 22, at 661-62.

139. *Id.* at 690-91. The National Water Commission disagrees and recommends adoption of prior appropriation for allocating water among postenactment users. NWC REPORT, *supra* note 77, Recommendation 7-53(b).

140. MODEL WATER CODE, *supra* note 77, at 173-75.

141. IOWA CODE § 455A.20 (1979); MISS. CODE ANN. § 51-4-11(11) (Cum. Supp. 1981); N.C. GEN. STAT. § 143-215.16(a) (1978).

142. FLA. STAT. ANN. § 373.236 (1974); GA. CODE ANN. § 17-510.1(8) (Cum. Supp. 1981).

for the facilities of public water supplies and public utilities.¹⁴³ Seven states apparently grant permits in perpetuity,¹⁴⁴ but two of those states require a frequent review of diversions and make the permits subject to cancellation.¹⁴⁵ The commentators recommend the use of fixed term permits without an automatic renewal right, but disagree over the length of the term.¹⁴⁶

2. Efficiency, Diligence, and Nonuse

Two other methods to assist the entry of new uses have been borrowed from the western prior appropriation doctrine. One method is to require existing permittees to efficiently use the water allocated to them. The administering agency will not allocate more water to applicants than they need for their respective uses. If technological efficiencies improve, the size of those allocations can be reduced at renewal time. Some of the eastern permit statutes have efficient use provisions,¹⁴⁷ but only one indicates how that mandate is to be applied.¹⁴⁸

The second way to assist entry of new uses is to provide for forfeiture of unused water rights. Typically, the forfeiture concept involves two provisions. First, the permittee must initiate his diversion relatively quickly after the permit has been granted. If he fails to begin the use within that time, his permit is forfeited. Several eastern statutes have such diligence provisions.¹⁴⁹ Second, if the permittee ceases a use for a specified period of time, his permit is forfeited. While some western prior appropriation statutes

143. ARK. STAT. ANN. § 21-1306A(4) (Cum. Supp. 1981); FLA. STAT. ANN. § 373.236 (1974); GA. CODE ANN. § 17-510.1(8) (Cum. Supp. 1981).

144. Delaware, Indiana, Kentucky, Maryland, Minnesota, New York, and Wisconsin.

145. MD. NAT. RES. CODE § 8-811 (1974) (triennial review); WIS. STAT. ANN. § 30.18(5) (West 1973) (annual review).

146. MODEL WATER CODE, *supra* note 77, at 173-74, 175, 189 (20 years); Ausness, *supra* note 94, at 235, 256-62 (30 years). MODEL WATER USE ACT, *supra* note 77, § 406 provides for a 15-year permit term, while MODEL WATER CODE, *supra* note 77, § 2.06(1) provides for a 20-year term, with a 50-year term for public water supply and public utility facilities. The National Water Commission recommends use of fixed term permits. NWC REPORT, *supra* note 77, Recommendation 7-51. Renewal should be automatic unless the water is needed for a higher public purpose. *Id.* That is consistent with its recommendation that prior appropriation be employed for allocating water among postenactment users. *See id.*, Recommendation 7-53(b).

147. GA. CODE ANN. § 17-510.1(11) (f) (Cum. Supp. 1981); IOWA CODE §§ 455A.1, .22 (1979); MD. NAT. RES. CODE § 8-811 (1974); MISS. CODE ANN. § 51-3-3(e) (1972).

148. MD. NAT. RES. CODE § 8-811 (1974) (triennial review of permitted uses).

149. MD. NAT. RES. CODE § 8-810 (1974) (diversions-2 years; dams-5 years); MINN. STAT. ANN. § 105.46 (1977) (5 years); MISS. CODE ANN. §§ 51-3-29(b), -35(1) (1972) (reasonable period).

require a showing of an intent to give up the water right, the eastern statutes follow the lead of other prior appropriation statutes and do not require such a showing. Several eastern statutes have such forfeiture provisions. The time period is either two years¹⁵⁰ or three years.¹⁵¹ The commentators recommend forfeiture for nonuse,¹⁵² but do not mention diligence provisions even though diligence is implicit in the concept of beneficial use they recommend.¹⁵³

3. Transfer of Permits

Another way to build flexibility into a permit system is to allow transfer of permits to diverters in other locations, as is allowed in the western states. Permit transfer in the eastern states could serve two purposes. First, as in prior appropriation states, new users could buy out existing ones when the available water supplies are fully allocated. Second, new users could bypass the administering agency's permit substitution procedures and the risk that the substitute permit would be issued to another new user. Transferable permits give new users the option of purchasing already permitted use rights rather than seeking new or substitute use rights.

Few eastern diversion permit statutes allow transfer of permit use rights to new locations or uses.¹⁵⁴ Mississippi,¹⁵⁵ which adopted the prior appropriation concept, needed transfer provisions for the same reasons as the western states. Presumably, the legislatures in the states that do not provide for transfer rights decided that all new uses should be expressly allocated by the normal permit procedures and that bypassing the administering agency by purchasing existing use rights was undesirable. Only four statutes expressly authorize transfer of permit rights to new owners of land on which permitted uses occur, even though permit rights probably are appurtenant to the

150. FLA. STAT. ANN. § 373.243(4) (1974 & Cum. Supp. 1982); GA. CODE ANN. § 17-510.1(11) (d) (Cum. Supp. 1981).

151. IOWA CODE § 455A.29 (1979) (3-year extension may be applied for); MISS. CODE ANN. §§ 51-3-11, -29(c) (1972) (no extension provision).

152. MODEL WATER CODE, *supra* note 77, at 192; Davis, *supra* note 22, at 699. MODEL WATER USE ACT, *supra* note 77, § 306 provides for forfeiture after 4 to 7 years have elapsed, while MODEL WATER CODE, *supra* note 77, § 2.08(4) provides for forfeiture after 2 years. The National Water Commission recommends forfeiture for nonuse. NWC REPORT, *supra* note 77, Recommendation 7-50.

153. MODEL WATER CODE, *supra* note 77, at 170-73; Ausness, *supra* note 94, at 234-35; Davis, *supra* note 22, at 698-99. The National Water Commission recommends employment of the efficiency and diligence concepts. NWC REPORT, *supra* note 77, at 284.

For definitions of beneficial use that incorporate efficiency criteria, see MODEL WATER USE ACT, *supra* note 77, §§ 207, 407(a)-(b), 407(d); MODEL WATER CODE, *supra* note 77, § 2.02(1) (a).

154. MISS. CODE ANN. §§ 51-3-45(1), -4-11(2) (1972); N.J. STAT. ANN. § 58:1A-8 (1982); N.C. GEN. STAT. § 143-215.16(b) (1978).

155. MISS. CODE ANN. § 51-3-45(1) (1972) (watercourses).

land.¹⁵⁶ Although most legal commentators do not discuss transfer of permit rights,¹⁵⁷ it should be addressed in any new eastern diversion permit statutes.¹⁵⁸

F. *Minimum Streamflows*

One of the stated purposes of some of the eastern permit statutes is protecting minimum streamflows for fish and wildlife habitat and recreation purposes.¹⁵⁹ Those statutes and a few others expressly empower the administering agency to establish such minimum streamflows and prohibit the agency from allocating water for diversions from those protected flows.¹⁶⁰ Some statutes also prohibit all diversions from certain named streams or from administratively designated streams, such as trout streams.¹⁶¹

Some of the streamflow protection provisions provide a formula for ascertaining the amount of the protected flow. Such statutory formulae include flow sufficient to protect rights of lower riparians and to protect dependent fish and wildlife,¹⁶² average minimum flow for seven consecutive days within the lowest flow year of record,¹⁶³ average minimum daily flow during each of the five lowest years during the preceding twenty years,¹⁶⁴ twenty-five

156. ARK. STAT. ANN. § 21-1306A(5) (Cum. Supp. 1981); IOWA CODE § 455A.30 (1979); MINN. STAT. ANN. § 105.41(6) (Cum. Supp. 1981); N.J. STAT. ANN. § 58:1A-8(9) (1982).

157. *But see* Ausness, *supra* note 94, at 236.

158. The National Water Commission recommends that permits be freely transferable. NWC REPORT, *supra* note 77, Recommendation 7-54. Some economic and legal commentators recommend market place systems for the allocation and transfer of water rights. *See* J. HIRSHLEIFER, J. DEHAVEN & J. MILLIMAN, WATER SUPPLY: ECONOMICS, TECHNOLOGY, AND POLICY, chapters III, IV, IX, XII (1960); Ausness, *supra* note 94, at 262-64; Davis, *supra* note 22, at 705-09; Gaffney, *Comparison of Market Pricing and Other Means of Allocating Water Resources*, in WATER LAW AND POLICY IN THE SOUTHEAST 195, 200 (Inst. of Law & Gov't, Univ. of Ga., 1962); Johnson, *An Optimal State Water Law: Fixed Water Rights and Flexible Market Prices*, 57 VA. L. REV. 345 (1971); Lauer, *supra* note 13, at 20-21; Levi, *Highest and Best Use: An Economic Goal for Water Law*, 34 MO. L. REV. 165 (1969); Milliman, *Water Law and Private Decision Making: A Critique*, 2 J. L. & ECON. 41 (1959).

159. *See* note 83 *supra*.

160. ARK. STAT. ANN. § 21-1306A(1) (Cum. Supp. 1981); DEL. CODE ANN. tit. 7, §§ 6029(1)-(2), 6031 (Cum. Supp. 1980) (by implication); FLA. STAT. ANN. §§ 373.042, .223 (3) (1974); IOWA CODE §§ 455A.1, .18, .22, .24 (1979); MINN. STAT. ANN. § 105.417(2)-(3) (Cum. Supp. 1982); MISS. CODE ANN. §§ 51-3-3(i) to (j), -7(3) to (4) (1972 & Cum. Supp. 1981); N.J. STAT. ANN. § 58:1A-3 (1982); WIS. STAT. ANN. § 31.34 (West 1973).

161. MINN. STAT. ANN. § 105.417(4) (Cum. Supp. 1982); WIS. STAT. ANN. § 30.18(5) (West 1973).

162. ARK. STAT. ANN. § 21-1306A(1) (Cum. Supp. 1981).

163. DEL. CODE ANN. tit. 7, § 6029(1)-(2) (1974).

164. MISS. CODE ANN. § 51-3-3(i) (1972). Minimum water levels are calculated

percent of natural low streamflow.¹⁶⁵ In the remainder of the states protecting streamflows, the administering agency must determine the amount of protected flow without statutory guidance.¹⁶⁶ In states without statutory provisions concerning protection of minimum streamflows, the administering agencies can protect such flows by refusing to grant diversion permits that would encroach on them.

Maintenance of minimum streamflows is vital to the continued existence of fish and other aquatic fauna and flora and to enable use of navigable and floatable streams for various recreational purposes, such as boating, fishing, swimming, and hunting. Even at common law, no abutting landowner had the right to take all of the water in a stream. Although a right to unaltered flow is not recognized by the courts today and although there may be no downstream riparian to enforce the prohibition against total diversion of flows, the common law still bans total diversions.¹⁶⁷

The streamflow protection provisions in the eastern permit statutes enable the administering agencies to protect public rights and to enforce and quantify the common law prohibition. Most commentators recommend that minimum streamflow provisions be incorporated into diversion permit legislation for these reasons.¹⁶⁸ No diversion permit statute should be enacted without a streamflow protection provision.

G. Other Permit Provisions

Permits generally specify the diversion location,¹⁶⁹ the vol-

165. WIS. STAT. ANN. § 31.34 (West 1973).

166. In Iowa, the administering agency has established the minimum flow level as that elevation which is equal to or exceeded by the stream in question at least 84% of the time between April and September in years representative of normal conditions. Hines, *supra* note 75, at 541-42.

167. See, e.g., *Collens v. New Canaan Water Co.*, 155 Conn. 477, 486-87, 234 A.2d 825, 831 (1967).

168. Ausness, *supra* note 94, at 240; Davis, *supra* note 22, at 701-02; Hines, *supra* note 75, at 536-46. MODEL WATER CODE, *supra* note 77, §§ 1.07(4)-(7), 2.09(7) contain a streamflow protection provision for the administering agency to establish the amount of protected flow. The National Water Commission recommends that minimum streamflows and lake levels be established according to standards which incorporate considerations of public health, ecological values, recreational use, aesthetics, including private investment in scenic values, and alternate values of the water for municipal, industrial and agricultural uses. NWC REPORT, *supra* note 77, Recommendation 7-52. Two levels of minimum flows are recommended: (1) "desirable minimum flows" to be preserved under average conditions of supply and to be protected from postenactment permitted diversions, and (2) "essential minimum flows" to be preserved under all conditions and to be protected even from pre-enactment diversions. NWC REPORT, *supra* note 77, at 287, 289.

169. ARK. STAT. ANN. § 21-1306A(3) (Cum. Supp. 1981); FLA. STAT. ANN. § 373.229(h) (1974); GA. CODE ANN. § 17-510.1(4) (Cum. Supp. 1981); IOWA CODE § 455A.19(1) (1979); KY. REV. STAT. § 151.170(1) (1980); MD. NAT. RES.

ume¹⁷⁰ and flow rate¹⁷¹ of the diversion, and the location¹⁷² and nature of the water use.¹⁷³ All of those provisions help quantify the diversion right and prevent overdrafts of available supplies, enable the administering agencies to ascertain potential sources of use conflicts, and assure that the minimum streamflow is protected.

The ability of the administering agency to prevent water use conflicts and to protect minimum streamflows is only as good as its data base on the sizes and locations of diversions and instream uses. To enable the agencies to obtain such information, the eastern permit statutes require diverters and users to monitor their diversions and uses¹⁷⁴ and to maintain records and make periodic reports.¹⁷⁵

The riparian doctrine prohibits diverting water to nonriparian land or to land outside the watershed of the stream from which the water is taken.¹⁷⁶ These limitations frequently bear little relationship to existing land boundaries or the location of arable land.¹⁷⁷ Some eastern permit statutes remove

CODE § 8-805 (Cum. Supp. 1981); MINN. STAT. ANN. §§ 105.41(2), 416(2) (Cum. Supp. 1982); MISS. CODE ANN. §§ 51-3-3(g), -31(b), (g) (1972); WIS. STAT. ANN. § 30.18(3) (a) (West 1973). See MODEL WATER CODE, *supra* note 77, § 2.04(1); NWC REPORT, *supra* note 77, Recommendation 7-49(a).

170. DEL. CODE ANN. tit. 7, § 6030 (1974) (by implication); FLA. STAT. ANN. § 373.229(e) (1974); GA. CODE ANN. § 17-510.1(4) (Cum. Supp. 1981); IOWA CODE § 455A.19(1) (1979); KY. REV. STAT. § 151.170(1) (1980); MINN. STAT. ANN. § 105.416(2) (1982); MISS. CODE ANN. §§ 51-3-3(g), -7(1), -31(c) (1972); WIS. STAT. ANN. §§ 30.18(3) (a), .18(5) (West 1973). See MODEL WATER CODE, *supra* note 77, § 2.04(1); NWC REPORT, *supra* note 77, Recommendation 7-49(d).

171. IOWA CODE § 455A.19(1) (1979); KY. REV. STAT. § 151.170(1) (1981); MINN. STAT. ANN. §§ 105.41(2), 416(2) (1982); MISS. CODE ANN. §§ 51-3-3(g), -7(1) (1972). See NWC REPORT, *supra* note 77, Recommendation 7-49(d).

172. FLA. STAT. ANN. § 373.229(g) (1974); GA. CODE ANN. § 17-510.1(4) (Cum. Supp. 1981); MISS. CODE ANN. §§ 51-3-3(g), -31(b), (g) (1972). See MODEL WATER CODE, *supra* note 77, § 2.04(1); NWC REPORT, *supra* note 77, Recommendation 7-49(c).

173. FLA. STAT. ANN. § 373.229(f) (1974); GA. CODE ANN. § 17-510.1(4) (Cum. Supp. 1981); IOWA CODE § 455A.19(1) (1979); MD. NAT. RES. CODE § 8-805 (Cum. Supp. 1981); MINN. STAT. ANN. § 105.41(2) (1982); MISS. CODE ANN. §§ 51-3-3(g), -8(1), -31(d), -4-9(2) (1972); WIS. STAT. ANN. § 30.18(3) (a) (West 1973). See MODEL WATER CODE, *supra* note 77, § 2.04(1); NWC REPORT, *supra* note 77, Recommendation 7-49(c).

174. GA. CODE ANN. § 17-510.1(13) (Cum. Supp. 1981); MINN. STAT. ANN. § 105.41(4) (1982).

175. DEL. CODE ANN. tit. 7, § 6010(f) (3) (Cum. Supp. 1980); GA. CODE ANN. § 17-510.1(13) (Cum. Supp. 1981); IND. CODE ANN. §§ 13-2-1-6(3), -2-2-6 (Burns 1981); KY. REV. STAT. § 151.160 (1980); MINN. STAT. ANN. § 105.41(5) (1982); MISS. CODE ANN. §§ 51-4-7(1) (1), -11(8) (1972); N.J. STAT. ANN. §§ 58:1A-6, :4A-2 (1982); N.C. GEN. STAT. §§ 143-215.14(a) (1), .16(c) (1978).

176. See notes 22-27 and accompanying text *supra*.

177. See note 22 *supra*.

those prohibitions and authorize both nonriparian¹⁷⁸ and extra-watershed¹⁷⁹ diversions and uses.

Administration of permit systems is expensive. Therefore, some eastern permit statutes provide for an application fee.¹⁸⁰ Two permit statutes provide for a use royalty.¹⁸¹ Presumably, a royalty would encourage efficient use of water.¹⁸²

H. Enforcement

A diversion and use regulatory system cannot work effectively without adequate enforcement provisions. They are used in the infrequent situation where a diverter or user refuses to obtain a permit¹⁸³ or fails to comply with the conditions in his permit. The enforcement measures provided in the eastern diversion permit statutes include civil fines,¹⁸⁴ civil injunctions,¹⁸⁵ permit suspension or forfeiture,¹⁸⁶ criminal liability,¹⁸⁷ and administrative

178. FLA. STAT. ANN. § 373.223(2) (1974); IND. CODE ANN. § 13-2-1-6(1) (Burns 1981); WIS. STAT. ANN. § 30.18(5) (West 1973). See MODEL WATER USE ACT, *supra* note 77, § 407(c); MODEL WATER CODE, *supra* note 77, § 2.02(2); NWC REPORT, *supra* note 77, Recommendation 7-48.

179. FLA. STAT. ANN. § 373.223(2) (1974); GA. CODE ANN. § 17-510.1(14) (Cum. Supp. 1981); KY. REV. STAT. § 151.200(2) (1980). See MODEL WATER USE ACT, *supra* note 77, § 407(c); MODEL WATER CODE, *supra* note 77, § 2.02(2); NWC REPORT, *supra* note 77, Recommendation 7-48.

180. FLA. STAT. ANN. § 373.109(1) (1974); IOWA CODE § 455A.19(5) (1979); MINN. STAT. ANN. §§ 105.41(5), .44(10) (1982); MISS. CODE ANN. § 51-3-31 (1978); N.J. STAT. ANN. § 58:2-1, :2-4 (1982). See MODEL WATER USE ACT, *supra* note 77, § 415; MODEL WATER CODE, *supra* note 77, § 1.13.

181. ARK. STAT. ANN. § 21-1314 (1968).

182. Davis, *supra* note 22, at 699. See MODEL WATER CODE, *supra* note 77, at 120-21.

183. See *Omernik v. State*, 64 Wis. 2d 6, 218 N.W.2d 734 (1974) (state obtained criminal conviction of diverter who refused for years to obtain diversion permit).

184. ARK. STAT. ANN. § 21-1313 (Cum. Supp. 1981); DEL. CODE ANN. tit. 7, § 6005(b) (1) (Cum. Supp. 1980); GA. CODE ANN. § 17-521.1(1) (1971); IND. CODE ANN. § 13-2-2-13 (Burns 1981); N.J. STAT. ANN. §§ 58:1A-16, :16A-52, -55 (1982); N.C. GEN. STAT. § 143-215.17(b) (1978); WIS. STAT. ANN. § 30.19(6) (West 1973). See MODEL WATER CODE, *supra* note 77, § 1.25(1)-(2).

185. DEL. CODE ANN. tit. 7, § 6005(b) (Cum. Supp. 1980); FLA. STAT. ANN. §§ 373.129, .136 (1974); IND. CODE ANN. §§ 13-2-11-5, -2-12-1 (Burns 1981); IOWA CODE § 455A.33 (1979); MD. NAT. RES. CODE § 8-813 (1974); MINN. STAT. ANN. § 105.55 (1977); MISS. CODE ANN. § 51-3-35 (2) (1972); N.J. STAT. ANN. § 58:4A-4.3 (1982); N.C. GEN. STAT. § 143-215.17(c) (1978). See MODEL WATER USE ACT, *supra* note 77, §§ 210, 413; MODEL WATER CODE, *supra* note 77, § 1.25(1)-(2).

186. ARK. STAT. ANN. § 21-1306.D (Cum. Supp. 1981); FLA. STAT. ANN. § 373.243(2)-(3) (Cum. Supp. 1982); GA. CODE ANN. § 17-510.1(11)(b) to (c) (Cum. Supp. 1981). See MODEL WATER USE ACT, *supra* note 77, § 412; MODEL WATER CODE, *supra* note 77, § 2.08(2)-(3).

187. DEL. CODE ANN. tit. 7, § 6013(a) (Cum. Supp. 1980); IOWA CODE § 455A.35 (1979); MD. NAT. RES. CODE § 8-814 (1974); MINN. STAT. ANN. §

cease and desist orders.¹⁸⁸

I. *Adjudication*

One of the principal purposes of the eastern diversion permit statutes is to prevent conflicts over water supplies. This is done by limiting demands for water through regulating diversions and instream uses. Nonetheless, not all conflicts can be prevented. Also, from time to time it will be necessary to determine whether all permitted uses are being made efficiently for beneficial uses. Furthermore, from time to time it will be necessary to update the minimum protected streamflow because fish and wildlife habitat and recreational needs do not remain static.

The western prior appropriation states have developed the adjudication mechanism to make these periodic adjustments. Adjudication is a judicial or administrative process in which each water user proves his right to divert or use water. Unused water rights are cancelled and exercised rights are updated to current standards of efficiency. Disputes between users are settled.¹⁸⁹ Although adjudication is conducted in the western states to establish time priorities under the prior appropriation concept, adjudication also could be used to update the record of water rights and to resolve disputes in other contexts. Only one eastern state, Mississippi, has provided for an adjudication procedure in its diversion permit statute.¹⁹⁰

J. *Allocation During Water Shortages*

The eastern diversion permit statutes have insufficient provisions concerning allocation during water shortages. Many allow the administering agency to declare the existence of a water shortage,¹⁹¹ but none take the next step of establishing allocation priorities during shortages. Three eastern diversion permit statutes, however, allow permit modifications when shortages occur¹⁹² or when the public interest or conflicts with other property interests

105.541 (1977); MISS. CODE ANN. §§ 51-3-7(1), -3-55, -4-13 (Cum. Supp. 1981); N.C. GEN. STAT. § 143-215.17 (1978); WIS. STAT. ANN. § 30.18(10) (West 1973). See MODEL WATER USE ACT, *supra* note 77, § 701; MODEL WATER CODE, *supra* note 77, § 1.25(3).

188. DEL. CODE ANN. tit. 7, § 6018 (1974); FLA. STAT. ANN. § 373.119 (Cum. Supp. 1982); MINN. STAT. ANN. § 105.462 (Cum. Supp. 1982); WIS. STAT. ANN. § 30.195(6) (West 1973).

189. On adjudication procedures, see generally 2 W. HUTCHINS, WATER RIGHTS LAWS IN THE NINETEEN WESTERN STATES 444-518 (U.S. Dep't. Agric. Misc. Pub. No. 1206, 1971).

190. MISS. CODE ANN. § 51-3-47 (1972).

191. FLA. STAT. ANN. §§ 373.175, .246 (1974 & Cum. Supp. 1982); GA. CODE ANN. § 17-510.1(12) (Cum. Supp. 1981); IND. CODE ANN. § 13-2-2-3 (Burns 1981); MISS. CODE ANN. § 51-4-5(1) (Cum. Supp. 1981); N.C. GEN. STAT. § 143-215.13 (Supp. 1979).

192. IOWA CODE § 455A.28 (1979); MISS. CODE ANN. § 51-4-9(3) (Cum. Supp. 1981). Kentucky authorizes reallocation during shortages. KY. REV. STAT. § 15.1-200(1) (1980).

make it appropriate.¹⁹³

Because one of the purported virtues of the prior appropriation system is that allocation during shortages is automatic and predictable, eastern diversion permit statutes should also deal with this issue. Because time priority is being rejected as the allocation criterion both for normal times and during shortages, a different set of allocation criteria for shortages, as well as for normal times, is imperative.¹⁹⁴

K. *Administrative Arrangements*

Most eastern diversion permit statutes establish a statewide regulatory system with centralized administration.¹⁹⁵ This arrangement has the advantages of ease in establishing uniform policies, efficient use of staff, and centralized data collection. In a few states, however, water supplies vary so much that permits are required only in areas of potential water shortage. In these states, the central administering agencies operate permit systems in "critical use areas."¹⁹⁶ One state also decentralized administration of the regional permit system to regional agencies.¹⁹⁷ In designing any new eastern diversion permit system, conditions in the state should determine whether permits should be required statewide or only in critical use areas, and whether permit administration should be centralized or regional.¹⁹⁸

L. *Characteristics of a Preferred Eastern Diversion Permit Statute*

A diversion permit statute should give the state the authority to license diversions and to place conditions on them, to establish minimum

193. N.J. STAT. ANN. § 58:1A-7 (1982).

194. The National Water Commission recommends employment of prior appropriation for postenactment uses during shortages, all of which would be inferior in priority to pre-enactment uses which would share shortages by pro rata reductions. NWC REPORT, *supra* note 77, Recommendation 7-53.

195. ARK. STAT. ANN. § 21-1302(d) (1968); DEL. CODE ANN. tit. 7, §§ 6002(5), (19); 6003(a)-(b) (1974); GA. CODE ANN. § 17-510.1(1) (Cum. Supp. 1981); IND. CODE ANN. §§ 13-2-11-2, -2-14-5, -2-15-1 (Burns 1981); IOWA CODE § 455A.18 (1979); KY. REV. STAT. § 151.140 (1980); MD. NAT. RES. CODE § 8-802(a) (1974); MINN. STAT. ANN. §§ 105.39(3), .41(1) (Cum. Supp. 1982); MISS. CODE ANN. § 51-3-7 (Cum. Supp. 1981); N.J. STAT. ANN. § 58:16A-52, -55 (1982); N.Y. ENVTL. CONSERV. LAW § 15-0503 (McKinney Cum. Supp. 1981-1982); WIS. STAT. ANN. § 30.18(1), (3) (West 1973).

196. IND. CODE ANN. § 13-2-2-3, -2-2-5 (Burns 1981); MISS. CODE ANN. §§ 51-4-5, -4-9 (Cum. Supp. 1981); N.J. STAT. ANN. §§ 58:1A-7, -15, :4A-1 to -2 (1982); N.C. GEN. STAT. § 143-215.13 (Supp. 1979).

197. FLA. STAT. ANN. §§ 373.025(3), .042, .216 (1974 & Cum. Supp. 1982).

198. The National Water Commission did not make a recommendation about administration of the permit system. It did, however, suggest that permit systems should be established before shortages occur. NWC REPORT, *supra* note 77, at 280-81. That implies a rejection of the "critical use area" concept adopted in some eastern permit statutes.

streamflows and water levels, to obtain diversion data from diverters, and to enforce permit conditions and minimum streamflows and levels by administrative orders and injunctive relief. It should be comprehensive in the areas where it is applied, whether in the entire state or only in regions with potential water shortage problems. It should apply to groundwater diversions as well as to surface watercourse diversions, to protect the base flows of effluent streams.

The basic characteristics of a desirable diversion permit statute are as follows:

- (1) It applies to diversions from and uses of watercourses and groundwater, and to artificial impoundments;
- (2) Allocations of water are made on the basis of use priorities, not time priorities; the priorities selected should reflect public interest, economic, and social values;
- (3) Diversions and instream uses are permitted only from water surpluses over streamflows and water levels needed for fish and wildlife habitat, recreational uses, and maintenance of assimilative capacities;
- (4) Efficient use of water is required;
- (5) Reporting of diversions is required;
- (6) Permits have a fixed term long enough to amortize capital investments in water use facilities, but short enough to allow the development of new uses; an appropriate term might be twenty years, with a fifty year term for very large facilities, such as dams; to assist the entry of new uses, the permit is not automatically renewable;
- (7) Common law riparian and prescriptive rights are abolished, but permits would be issued for uses exercised when or shortly after the statute goes into effect;
- (8) Permits are not transferable to other locations;
- (9) Nonriparian and extra-watershed uses are allowed;
- (10) Allocation of water during shortages is provided for, with defined priorities;
- (11) A method for administratively adjudicating water use conflicts is provided; and
- (12) Adequate enforcement powers are provided.

The permit system could be applied by either a regional or a state agency. The system could be limited to critical use areas. Specified small diversions, such as single-family domestic uses, could be exempted from the permit requirement.

VI. POSSIBLE FORMATS FOR REGULATING WATER RESOURCES

There are four possible formats for statutes regulating water resources. The first two are designed only to protect minimum streamflows for various

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public purposes and do not allocate water between users. The third is designed for data collection only. The fourth is the diversion permit system. This section will outline the various forms and discuss the advantages and disadvantages of each.

The four statutory formats are:

- (1) Authority to seek injunctions against diversions threatening fish and wildlife habitats or public recreational rights;
- (2) State authority to establish minimum streamflows and water levels for fish and wildlife habitat and recreational purposes, coupled with authority to seek injunctions against diversions encroaching on those minimum streamflows and levels;
- (3) Mandatory diversion reporting; and
- (4) Diversion permit system.

A. *Injunction Statute*

Many states have enacted statutes defining certain activities as public nuisances enjoined by the state attorney general, the local prosecuting attorney, or other public officials.¹⁹⁹ Minimum streamflows and water levels could be protected by such a statute declaring that diversions which substantially threaten fish and wildlife habitats, substantially interfere with the exercise of public recreational rights, or substantially impair the waste assimilative capacity of a watercourse are public nuisances. Fines could be added to the injunction remedy. No public nuisance injunction statutes today cover streamflows or water levels.

The advantages of a public nuisance injunction statute include its simple language. It probably would not engender substantial political opposition among diverters. It could be effective with adequate monitoring of river flows and diversion points. It would not involve any paperwork for diverters.

The disadvantages are many and great. Because such a statute would not provide for monitoring of water levels and flows and for reporting of diversions, many unlawful diversions would go undetected. The statute would not allocate water users, but would require a lawsuit to stop a diversion; this might take so long that the remedy could be enforced only after the damage had become irreparable. The state would have to prove each time that the particular diversion was excessive. Litigation is a cumbersome means of enforcement when the unlawful depletion results from multiple diversions. Diverters could not know in advance how much they could divert without violating the statute. The lawfulness of a diversion would depend in part on the weather, the activities of neighboring diverters, and the loca-

199. In Missouri, *see, e.g.*, MO. REV. STAT. §§ 71.285 (weeds), 71.760 (smoke), 236.240 (unsafe dams), 263.262 (Johnson grass) (1978). On the statutory declaration of public nuisances as a valid exercise of the police power, *see generally* W. PROSSER, THE LAW OF TORTS § 88 (4th ed. 1971); W. RODGERS, JR., ENVIRONMENTAL LAW 136-42 (1977).

tions of fish and wildlife habitats, public recreational access points, and waste discharge outfalls, not all of which would be known to the diverter.

B. *Streamflow and Water Level Statute*

A few states have statutes that authorize a state agency to establish minimum water levels and minimum streamflows. Most of them involve lakes or reservoirs.²⁰⁰ The principal purpose of those statutes is to protect fish and wildlife habitats in and recreational uses of the regulated waters. Enforcement of streamflows and water levels typically is by administrative order, followed by an injunction if necessary.

The advantages of such a statute include the ability of the state to determine in advance the minimum streamflows and water levels needed to protect fish and wildlife habitats, public recreational uses, and waste assimilation needs. Standards would be established for each river, lake, and stream. The standards would provide a guide to diverters that would enable them to ascertain the lawfulness of their diversions at all times. The standards would ensure that diverters would not exhaust water supplies and enable them to plan their annual diversion activities with considerable assurance that the state agency would not interfere. They would provide a guide for diversion lawfulness if an injunction lawsuit becomes necessary. The standards would be presumed valid; the state would not have to prove their validity to establish a *prima facie* case for injunctive relief. The statute would not create any paperwork for diverters. In short, this type of statute would create greater predictability for diverters and easier enforcement for the state agency than would the injunction statute.

The disadvantages of a streamflow and water level statute include the absence of monitoring of water levels and flows and reporting of diversions. Many unlawful diversions would go undetected. Enforcement would be easier in the individual case under this type of statute, but not necessarily more comprehensive in application, than under the injunction statute. The streamflow and water level statute would not allocate water between users, but merely would define the portion of the water resource available to them as a group.

C. *Mandatory Diversion Reporting*

By itself, mandatory diversion reporting merely requires the submission of information. In order to achieve regulation of minimum streamflows and water levels, it must be coupled with a streamflow and water level statute. Missouri has a voluntary large diversion reporting statute,²⁰¹ which probably is widely ignored.²⁰² A bill to make such reporting mandatory died in com-

200. See IND. CODE ANN. §§ 13-2-11-2, -2-12-1, -2-14-3, -2-14-5, -2-18-1 (Burns 1981); MINN. STAT. ANN. § 105.42 (1a) (1977); WIS. STAT. ANN. § 31.02(1) (West 1973).

201. MO. REV. STAT. § 256.370 (1978).

202. Comment of Larry Fellows, Missouri Geological Survey, to Author (Jan. 1978).

mittee in the 1978 session of the Missouri legislature.²⁰³ Another was considered in the 1980 session, but did not even reach committee deliberations.²⁰⁴ Other states also have diversion reporting statutes.²⁰⁵ None of these statutes are coupled with any state injunctive powers.

Reporting of diversions is necessary to comprehensive monitoring of streamflows and water levels. Without such information, diversions threatening fish and wildlife habitats, the exercise of public recreational rights, and waste assimilative capacities may go undetected. Data on diversions not only indicates their locations and sizes, but also aids in the prediction of locations of encroachments on minimum streamflows. For prediction purposes, streamflow and water level data of the type now obtained by the United States Geological Survey and diversion data from the users must be obtained frequently.

The advantages of mandatory diversion reporting include the creation of a data base to predict future streamflow and water level problems. It can also pinpoint the sources of those problems, so that remedies would be more timely. It makes comprehensive enforcement of minimum streamflows and water levels possible in practice because few unlawful diversions would go undetected.

The disadvantages of mandatory diversion reporting include the inability of the state to control the sizes of diversions. When diversion sizes and locations can be controlled, the state can prevent encroachment on fish and wildlife habitats and interferences with public recreational rights and waste assimilative capacities. Under a mere reporting statute, even coupled with injunctive powers, the state only can stop encroachments after they occur.

The mandatory nature of the statute may create a difficult legal problem. The very reporting of diversions that prove to be unlawful may make enforcement against them unconstitutional. It could be argued that the reporting of unlawful diversions would be prohibited as self-incrimination under the fifth amendment of the United States Constitution²⁰⁶ and under the Bill of Rights of the Missouri Constitution.²⁰⁷ This argument was rejected in connection with reporting of unlawful waste discharges under the federal Clean Water Act.²⁰⁸ Because that federal case dealt only with civil penalties and the decision was grounded on a somewhat arbitrary acceptance of Congressional intent, the disposition of a similar argument under a mandatory diversion reporting statute by the Missouri Supreme Court cannot be predicted.

203. H.R. 1787, 79th Gen. Assem., Reg. Sess. (1978).

204. H.R. 1061, 80th Gen. Assem., Reg. Sess. (1980).

205. *See* ARK. STAT. ANN. § 21-1316 (Cum. Supp. 1981).

206. U.S. CONST. amend. V.

207. MO. CONST. art. I, § 10.

208. *United States v. Ward*, 448 U.S. 242 (1980). *See* Clean Water Act, §§ 308, 311(b) (5), 33 U.S.C. §§ 1318, 1321(b) (5) (1976).

D. *Diversion Permit Statute*

A diversion permit statute would give the state the authority to license diversions and to place conditions on them, to establish minimum streamflows and water levels, to obtain diversion data from diverters, and to enforce permit conditions and minimum streamflows and levels by administrative orders and injunctive relief. A diversion permit statute would give the state the ability to prevent encroachments on minimum streamflows and water levels needed to protect fish and wildlife habitat, public recreational rights, and waste assimilative capacities, not merely the right to restore them after encroachment has occurred. It would be comprehensive in the areas where it is applied, whether in the entire state or only in regions with potential water shortage problems. It should apply to groundwater diversions as well as to surface watercourse diversions, so that the base flows of effluent streams can be protected.

The advantages of a diversion permit statute include the ability of the state to prevent encroachment on minimum streamflows and water levels. It would give the state the ability to prevent or mitigate conflicts between water users and the ability to influence the direction and pattern of water use development. Monitoring of diversions and elimination of unlawful diversions is maximized.

The principal disadvantage may make it politically impossible to enact a diversion permit statute. It impinges directly on private decisionmaking about land uses and land development whenever and wherever a water shortage occurs. Private water use proposals are subject to state agency approval and, therefore, to possible state veto. This disadvantage is no greater for a diversion permit statute than for general land use zoning, but the latter also is a contentious policy in this state. In addition, the diversion permit statute reporting requirement is subject to the self-incrimination problem discussed above with regard to mandatory diversion reporting.

In 1969, a bill was introduced in the Missouri Senate to establish a diversion permit system.²⁰⁹ It would have required permits for all diversions and impoundments of surface watercourses, withdrawals of groundwater, and levees and drainage projects,²¹⁰ except domestic and livestock watering uses, diversions less than 25,000 gallons per day, most public water supplies, and uses on the Mississippi, Missouri, and Des Moines Rivers and on the lower portion of the St. Francis River.²¹¹ The bill provided for the establishment of minimum protected streamflows²¹² to provide a reasonable supply of water for public uses, including public water supply, exempted uses, fish and wildlife habitat, and water quality maintenance.²¹³ The permit terms were

209. S. 245, 75th Gen. Assem., Reg. Sess. (1969).

210. *Id.* §§ 4(1), 7.

211. *Id.* §§ 1(8), 4(1).

212. *Id.* § 11(2).

213. *Id.* § 1(5).

to be determined administratively,²¹⁴ and permits would have been forfeited for three years of nonuse.²¹⁵ The bill was not enacted.

VII. RECOMMENDATION

Missouri should enact a diversion permit statute in the form described above in Part V.L.²¹⁶ The benefits and advantages of such a statute outweigh the detriments and disadvantages. Ad hoc private decisionmaking about water diversions and uses inevitably leads to conflicts between diverters and users and to substantial threats to fish and wildlife habitats and substantial interferences with public recreational rights and waste assimilative capacities. This occurs under riparian law during water shortages because the private diverters and users cannot predict the adverse effects of their uses on public interests and because no substantial means of public recourse exists when encroachments occur.

Missouri can expect to develop areas of water shortage within the foreseeable future. Failure to regulate water diversions and uses by that time will make destruction of habitat and recreational opportunities inevitable and will generate conflicts between water users. The state should be ready to deal with these problems before they become serious. To do this, the state needs a data base of diversions and the power to prevent shortages before they occur by limiting demand.

214. *Id.* § 4(4).

215. *Id.* § 8(4).

216. A diversion permit statute in this form is constitutional. *See, e.g.,* Ausness, *supra* note 28, at 252-55; Hines, *A Decade of Experience under the Iowa Permit System (Part II)*, 8 NAT. RESOURCES J. 23, 43-52 (1968); King, *Regulation of Water Rights under the Police Power*, in WATER RESOURCES AND THE LAW 271, 292-304, 350-51 (Univ. of Mich. Law School 1958); Lauer, *The Riparian Right as Property*, in *id.* 133, 208-11; O'Connell, *Iowa's New Water Statute—The Constitutionality of Regulating Existing Uses of Water*, 47 IOWA L. REV. 549, 581-609, 634-36 (1962); Comment, *Modification of the Riparian Theory and Due Process in Missouri*, 34 MO. L. REV. 562, 571-74 (1969). *See also* MISSOURI INSTREAM FLOW REQUIREMENTS, *supra* note 7, at 233-81.