Instream Flows and the Public Trust

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If a particular facility complies with the dissolved oxygen standard or a Fish and Game Code provision, we tend to conclude that is good enough. Well, no, it is not.[1]

I. INTRODUCTION

Empirical evidence suggests that diversion of instream flows for human use, coupled with the potential impacts of changing climatic conditions, is threatening the sustainability of aquatic life.[2] Global warming models suggest many areas will be subject to climatic extremes,

1. *The Public Trust Doctrine and Riparian and Appropriative Water Rights, State and Public Interest Perspectives—Panel Discussion*, *in* THE PUBLIC TRUST DOCTRINE AND ITS APPLICATION TO PROTECTING INSTREAM FLOWS: PROCEEDINGS OF A WORKSHOP 42 (Gary E. Smith & Alexander R. Hoar eds., 1999), http://www.sf.adfg.state.ak.us/nifpa/NIFPA_Report_08.pdf (statement of Richard Roos-Collins, National Heritage Institute) (discussing orientation of regulatory community as unacceptably rigid and code-based).

2. *See, e.g.*, Michael J. Furniss et al., U.S. Dep't of Agric., Forest Serv., Climate Change Res. Ctr., Water Resources and Climate Change (May 20, 2008), http://www.fs.fed.us/ccrc/topics/water.shtml.

including more frequent, intense floods and lengthier droughts.[3] Additionally, water usage has increased dramatically in recent decades in light of steady population growth and expanded commercial uses.[4]

These elevated demands are creating significant challenges for those natural resource managers charged with protecting fish and wildlife both within and surrounding instream corridors.[5] Failure to preserve sufficient instream flows can result in a variety of harmful effects, including reduced marine habitats, lower seafood production, higher concentrations of pollutants in waters utilized for human consumption, and diminished capacity of waterways to support recreational activities such as fishing, boating, and swimming.[6]

Several states merely prevent stream flows from being reduced below the "$7Q_{10}$ flow"—that is, the average flow during the driest consecutive seven-day period that has a likelihood of recurring only once every ten years.[7] These policies exist despite the fact that, for over twenty years, the $7Q_{10}$ formula has faced considerable criticism across a variety of disciplines.[8] There is overwhelming consensus among the scientific community that $7Q_{10}$ merely preserves water *quality* standards by calculating the concentration of pollutants in point source discharges without considering water *quantity* and numerous other core principles of instream management.[9]

Specifically, a variety of studies suggest that the $7Q_{10}$ formula, applied uniformly throughout the year, fails to reflect the seasonally variable natural flow of rivers that is vital to fish habitat, feeding, and

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3. *Id.*

4. *Id.*

5. DANA W. SEERLEY ET AL., CARL VINSON INST. OF GOV'T, UNIV. OF GA., BALANCING INSTREAM AND OFFSTREAM USES: INSTREAM FLOWS, SURFACE STORAGE AND AQUIFER MANAGEMENT 22-23 (2006), http://www.cviog.uga.edu/services/policy/environmental/policy reports/balanceinstream.pdf (citing NAT'L RESEARCH COUNCIL OF THE NAT'L ACADS., THE SCIENCE OF INSTREAM FLOWS: A REVIEW OF THE TEXAS INSTREAM FLOW PROGRAM (2005)).

6. *Id.*

7. *Id.* at 14.

8. *See, e.g.*, *id.* at 31; JAMES M. EVANS & RUSSELL H. ENGLAND, A RECOMMENDED METHOD TO PROTECT INSTREAM FLOWS IN GEORGIA 3 (1995) (citing Donald Leroy Tennant, *Instream Flow Regimens for Fish, Wildlife, Recreation and Related Environmental Resources*, *in* PROCEEDINGS OF THE SYMPOSIUM AND SPECIAL CONFERENCE ON INSTREAM FLOW NEEDS 359-73 (1976)); Clair B. Stalnaker, *The Use of Habitat Structure Preferenda for Establishing Regimes Necessary for Maintenance of Fish Habitat*, *in* THE ECOLOGY OF REGULATED STREAMS 321-37 (1979); Thomas A. Wesche & Paul A. Rechard, *A Summary of Instream Methods for Fisheries and Related Research Needs*, *in* 9 EISENHOWER CONSORTIUM BULL. 1-121 (1980); N.C. DIV. OF WATER RES., PROTECTING INSTREAM FLOWS IN NORTH CAROLINA 1-58 (1992)).

9. *See, e.g.*, Donald L. Tennant, *Instream Flow Regimes for Fish, Wildlife, Recreation and Related Environmental Resources*, 1 FISHERIES 6, 6-10 (1976).

reproduction.[10] High flows are necessary to flush sediments and waste, as well as recharge the system's fertility by infusing the waterway with nutrients; intermediate flows prevent the stranding of eggs and provide adequate oxygenation for life development; and low, but not stagnant, flows preserve adequate waste capacity and prevent overcrowding of fish populations.[11]

The protection of instream flows preserves water management options for future generations, and a varied size structure and level of species diversity is reflective of a healthy fish assemblage, which provides a measurable indication of watershed condition.[12] Do states have an affirmative common law, or judicially mandated, duty to these future generations beyond the strictures of their water codes to protect the sustainability of watercourses to support freshwater and marine life in the face of growing stresses on these resources?

The common law public trust doctrine recognizes that the public has particular inalienable rights to certain natural resources and provides that these resources are held in trust for the benefit and use of all people.[13] Hawai'i, in a landmark 2000 decision by the state's supreme court in *In re Water Use Permit Applications* (*Wai'ahole I*),[14] became the first regulated riparian state to recognize explicitly that the public trust

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10. *See* TOM ANNEAR ET AL., INSTREAM FLOWS FOR RESOURCE STEWARDSHIP 131 (Rev. ed. 2004); GA. DEP'T OF NATURAL RES., INTERIM INSTREAM FLOW PROTECTION STRATEGY 26 (2001) ("[A]lthough DNR's $7Q_{10}$ rule is designed to protect water quality, it is NOT based on the science of how much water should remain in a stream to maintain a healthy aquatic community."); Christopher C. Estes & John F. Orsborn, *Review and Analysis of Methods for Quantifying Instream Flow Requirements*, 22 WATER RES. BULL. 389-98 (1986); James S. Bulak & Gerrit J. Jobsis III, *South Carolina Instream Flow Studies: A Status Report* 1-51 (1989); Donald J. Orth & Paul M. Leonard, *Comparison of Discharge Methods and Habitat Optimization for Recommending Instream Flows To Protect Fish Habitat*, 5 REGULATED RIVERS: RES. & MGMT. 129-38 (1990); Bradford Bowman, *Instream Flow Regulation: Plugging the Holes in Maine's Water Law*, 54 ME. L. REV. 287, 307 (2002) (describing Maine's interim policy of relying on $7Q_{10}$ as showing "no consideration for either the natural hydrograph or the seasonal needs of the riverine ecosystem").

11. Donald J. Orth & Paul M. Leonard, *Comparison of Discharge Methods and Habitat Optimization for Recommending Instream Flows To Protect Fish Habitat*, 5 REGULATED RIVERS: RESOURCES & MGMT. 129-38 (1990).

12. *See* ANNEAR ET AL., *supra* note 10, at 84; The Nature Conservancy, Rivers & Lakes: Cover Story—The Threats to Freshwater Wildlife, http://www.nature.org/earth/rivers/coverstory.html (last visited Nov. 8, 2008) ("The world's great rivers and their interconnect[ed] habitats provide an array of ecological services that support us. They purify water, control floods and provide abundant food sources. But our changes to river systems are causing more people to experience poor water quality, scarcity of water, increased flooding and low levels of native fishes and birds for food.").

13. *See, e.g.*, Joseph L. Sax, *The Public Trust Doctrine in Natural Resources Law: Effective Judicial Intervention*, 68 MICH. L. REV. 471 (1970). Sax's article is the seminal work addressing the modern day public trust.

14. 9 P.3d 409 (Haw. 2000).

doctrine operates independently of the state's legislatively pronounced water code.[15] Since that time, several commentators have suggested that Hawai'i's approach could assist mainland states facing an urgent need to move proactively, rather than waiting to react to imminent water conflicts and crises.[16]

However, there is little evidence that the *Wai'ahole I* decision has played any appreciable role in addressing water quantity issues in the many regulated riparian jurisdictions in the eastern United States, where, as in Hawai'i, state governments administer comprehensive water withdrawal and water management programs that allow diversions for certain uses.[17] This Article suggests that the Hawai'i high court's decision can function as the foundation for a conceptual framework in which the

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15. *See id.* Various competing theories have emerged with respect to the wisdom and validity of utilizing the public trust doctrine to protect instream flows in states that follow an appropriative rights system of water allocation, where the first, or "senior," user of a water source is afforded priority over subsequent, or "junior," users. *See generally* Nat'l Audubon Soc'y v. Superior Court, 658 P.2d 709 (Cal. 1983) (extending public trust to California's nonnavigable waters above mean high water line because diversion of these waters would affect navigable waters downstream); United Plainsmen Ass'n v. N.D. State Water Conservation Comm'n, 247 N.W.2d. 457 (N.D. 1976) (declaring that the public trust doctrine includes water conservation); Ralph Johnson, *Public Trust Protection for Stream Flows and Lake Levels*, 14 U.C. DAVIS L. REV. 233 (1980) (asserting that public trust doctrine can place limits on water extraction in appropriative rights states); Jan S. Stevens, *Public Trust and Instream Uses*, 19 ENVTL. L. 605 (1989) (addressing California stream flows); Scott W. Reed, *Fish Gotta Swim: Establishing Legal Rights to Instream Flows Through the Endangered Species Act and the Public Trust Doctrine*, 28 IDAHO L. REV. 645 (1992) (addressing Idaho stream flows); Matt Clifford, Comment, *Preserving Stream Flows in Montana Through the Constitutional Public Trust Doctrine: An Underrated Solution*, 16 PUB. LAND L. REV. 117 (1995) (addressing Montana stream flows); Craig Anthony Arnold & Leigh A. Jewel, *Litigation's Bounded Effectiveness and the Real Public Trust Doctrine: The Aftermath of the* Mono Lake *Case*, 14 HASTINGS W.-N.W. J. ENVTL. L. & POL'Y 1177 (2008) (contending that judicial application of public trust doctrine is ineffective when compared to postlitigation conflict resolution between competing parties).

16. *See, e.g.*, Denise E. Antolini, *Water Rights and Responsibilities in the Twenty-First Century: A Foreword to the Proceedings of the 2001 Symposium on Managing Hawai'i's Public Trust Doctrine*, 24 U. HAW. L. REV. 1,3 (2001); Proceedings of the 2001 Symposium on Managing Hawai'i's Public Trust Doctrine 39 (2001), http://www.hawaii.edu/uhreview/publictrust.pdf (statement of Timothy Johns) (suggesting future applications of public trust doctrine will demonstrate that the Hawai'i Supreme Court's decision in *Wai'ahole I* was "cutting edge"); Keala C. Ede, *He Kānāwai Pono no ka Wai (A Just Law for Water): The Application and Implications of the Public Trust Doctrine, in In re* Water Use Permit Applications, 29 ECOLOGY L.Q. 283, 311-14 (2002) (suggesting that *Wai'ahole I* may have significant influence in expanding the public trust doctrine in other jurisdictions).

17. *See, e.g.*, Henry E. Smith, *Governing Water: The Semicommons of Fluid Property Rights*, 50 ARIZ. L. REV. 445, 454 (2008); Kirt Mayland, *Navigating the Murky Waters of Connecticut's Water Allocation Scheme*, 24 QUINNIPIAC L. REV. 685, 691-98 (2006); Joseph W. Dellapenna, *Special Challenges to Water Markets in Riparian States*, 21 GA. ST. U. L. REV. 305, 336-37 (2004); JOSEPH L. SAX ET AL., LEGAL CONTROL OF WATER RESOURCES 76-80 (3d ed. 2000).

public trust doctrine serves as an independent operative in instream flow protection in select regulated riparian states.

Eighteen states have adopted some form of regulated riparianism in place of customary water allocation systems of riparianism or appropriative rights.[18] To demonstrate the implementation of the proposed framework derived from *Wai'ahole I*, this Article applies the framework to the current approach to instream flow protection in Mississippi, which utilizes the $7Q_{10}$ standard. While Mississippi has not faced the statewide water shortages that many other states in the southeast region, including Georgia, Florida, and Alabama, have recently suffered,[19] the current state policy for preserving instream flows appears inadequate nonetheless and serves as a model test subject.

To set the stage for construction of the proposed framework and its potential application in Mississippi, Part II of this Article discusses Mississippi's conversion to a regulated riparian system in the mid-1980s. Part II also outlines Mississippi's current agency structure for managing instream flows in accordance with federal and state statutory and regulatory law. Part III reveals the need for immediate action in Mississippi by reviewing the fundamental aspects of instream flow management and documenting the failures of the state's $7Q_{10}$ methodology in light of the contemporary and projected stresses on the state's waterways.

Parts IV and V develop the conceptual framework for independent operation of the public trust doctrine based upon the principles espoused in the Hawai'i decision and apply it to Mississippi's current water allocation system. The threshold question for whether this framework may be useful to a particular regulated riparian state is whether or not the state's judiciary recognizes both the history and evolving nature of a strong public trust beyond its traditional notions. Therefore, Part IV

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18. *See, e.g.*, Dale B. Thompson, *Of Rainbows and Rivers: Lessons for Telecommunications Spectrum Policy from Transitions in Property Rights and Commons in Water Law*, 54 BUFF. L. REV. 157, 191 (2006) (citing SAX ET AL., *supra* note 17, at 79) (listing regulated riparian states of Alabama, Arkansas, Connecticut, Delaware, Florida, Georgia, Hawai'i, Iowa, Kentucky, Maryland, Massachusetts, Minnesota, Mississippi, New Jersey, North Carolina, New York, Virginia, and Wisconsin); *see also* Joseph W. Dellapenna, *The Law of Water Allocation in the Southeastern States at the Opening of the Twenty-First Century*, 25 U. ARK. LITTLE ROCK L. REV. 9, 33 (2002); Debra L. Freeman, *Introduction*, *in* WATER RIGHTS OF THE EASTERN UNITED STATES 1, 3 (Kenneth W. Wright ed., 1998).

19. *See* U.S. GEOLOGIC SERV., WATER WATCH, http://water.usgs.gov/waterwatch/ (last visited Jan. 30, 2009) (documenting real-time streamflow rates across the United States compared to historical streamflow); *see also*, *e.g.*, Tammy L. Shaw, *Sharing Water in Alabama, Georgia and Florida: An Update on the Tri-State Water Wars*, 21 WATER LOG 10, 10-11 (2001); Dellapenna, *supra* note 18, at 86 n.596.

outlines Mississippi's common law obligations to her people as the trustee of particular natural resources under the state's broad and continually developing public trust doctrine.

Beyond this threshold question, this Article contends in Part V that for the public trust doctrine to play a significant role in a regulated riparian state, as *Wai'ahole I* indicates, the state's courts must: (1) show a willingness to adopt a higher level of scrutiny when public trust resources are at stake than the traditional deference afforded to agency decisions, (2) recognize that the state's codification of the trust by state statute or regulatory code does not eradicate or subsume any function for common law public trust principles, and (3) regard the doctrine as a mandatory obligation as opposed to a voluntary authority.

Part V then analyzes whether or not recent rulings by Mississippi's judiciary comport with this proposed framework derived from the Hawai'i decision. It concludes that the public trust doctrine may have untapped potential as an independent source for preserving instream flows in Mississippi and conceivably other regulated riparian states, to avoid ecological degradation in the face of anticipated water shortages.

Part V closes by explaining that those who choose to rely upon the trust as an independent source will face significant legal hurdles, as application of the trust is not just an environmental issue, but also a constitutional one. For this reason, state courts will need to grapple with constitutional issues, such as separation of powers, takings jurisprudence, and standing. Part VI concludes with a discussion of the remaining role for balancing tests in states that recognize the trust as an operative independent of codified water regimes.

II. A FRAMEWORK FOR INSTREAM FLOW MANAGEMENT

Traditionally, the eastern part of the United States governed water allocation through riparianism, while the west favored the prior appropriation doctrine.[20] Subpart A of this Part addresses these traditional water rights systems, while Subpart B analyzes the conversion undertaken by Mississippi and many other states to a modified system known as regulated riparianism.

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20. *See* Freeman, *supra* note 18.

A. Traditional Water Rights Systems

Subparts 1 and 2 summarize the traditional water rights allocation systems of riparianism and prior appropriation, respectively, and the inherent problems associated with each regime.

1. Riparian Rights

Since at least the dawn of the nineteenth century, eastern states generally adhered to a riparian rights structure, whereby the owner of land affronting a waterway had the right to a continued flow of that water and utilization of it.[21] In most jurisdictions, over time, a riparian owner's common law right to make use of the watercourse in its natural state (natural flow theory) transitioned to allow reasonable use of the watercourse (reasonable use theory) in light of legal, economic and weather-related developments.[22] Reasonable use protects not the

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21. *See* Tyler v. Wilkinson, 24 F. Cas. 472, 474 (D.R.I. 1827) (No. 14,312) ("Prima facie every proprietor upon each bank of a river is entitled to the land, covered with water, in front of his bank, to the middle thread of the stream, or, as it is commonly expressed, usque ad filum aquae. In virtue of this ownership he has a right to the use of the water. . . . But, strictly speaking, he has no property in the water itself; but a simple use of it, while it passes along."); James Christman, *Riparian Doctrine*, *in* WATER RIGHTS OF THE UNITED STATES 21 (Kenneth Wright ed., 1998); Eva Morreale Hanks, *The Law of Water in New Jersey*, 22 RUTGERS L. REV. 621, 628-29 (1968). For a detailed discussion of the origins of riparian rights prior to the colonization of America, see Joseph W. Dellapenna, *The Development and Persistence of Riparian Rights*, *in* 1 WATERS AND WATER RIGHTS § 7.01-.01(a) (Robert E. Beck ed., 2007 repl. vol.); Anthony Scott & Georgina Coustalin, *The Evolution of Water Rights*, 35 NAT. RESOURCES J. 821 (1995).

22. *See, e.g.*, Harris v. Brooks, 283 S.W.2d 129, 132-34 (Ark. 1955) (applying rationale for reasonable use approach); MORTON HORWITZ, THE TRANSFORMATION OF AMERICAN LAW, 1780-1860, at 33-53 (1977) (discussing changes that dams and mills had on nineteenth-century water law, including initiating shift to reasonable use); Richard Ausness, *Water Rights Legislation in the East: A Program for Reform*, 24 WM. & MARY L. REV. 547, 549 (1983) [hereinafter Ausness, *Water Rights Legislation in the East*] (noting that reasonable use rule is employed in majority of riparian states); E.P. Krauss, *The Legal Form of Liberalism: A Study of Riparian and Nuisance Law in Nineteenth Century Ohio*, 18 AKRON L. REV. 223, 229-30 (1984) (stating that Ohio courts abandoned natural flow and adopted reasonable use due to industrialization); Carol M. Rose, *Energy Efficiency in the Realignment of Common-Law Water Rights*, 19 J. LEGAL STUD. 261, 267-73 (1990) (describing the shift in England from "ancient uses" after introduction of mills). *But see* Theodore Lauer, *The Common Law Background of the Riparian Doctrine*, 28 MO. L. REV. 60, 60-61 (1963) (suggesting that the riparian rights system originated on theory of reasonable use). *See also* RESTATEMENT (SECOND) OF TORTS § 850A, introductory note (1979) (providing list of traditional factors utilized in determining whether a use is reasonable). The natural flow theory differentiates "consumptive uses," such as drinking and bathing, from "artificial uses," such as irrigation, mining and large-scale watering of livestock, allowing interference with the natural flow only for the former. *See* Richard Ausness, *Water Rights, the Public Trust Doctrine, and the Protection of Instream Uses*, 1986 U. ILL. L. REV. 407, 416 [hereinafter Ausness, *Protection of Instream Uses*].

customary historical flow of a watercourse, but rather the equal right of all contiguous riparian owners to use the water.[23]

In instances in which water is limited in a riparian system, the judiciary has fashioned, at times, pro rata shared solutions among legal users.[24] In balancing competing uses, courts generally are loathe to consider noneconomic uses, leading to the rather unpredictable and alarming possibility that a long-term established use could lose priority to a new, commercial venture.[25] Further, this balancing often protects only those recreational or environmental resources that correspond to one or both competitors' economic interests.[26]

When nonnative populations first inhabited those states west of the Mississippi River as territories, they commonly imported this traditional riparian rights doctrine.[27] However, the new western mining, timber, and farming economies had two primary concerns with the riparian system: (1) the exploitation of water resources under the riparian system produced uncertainty in capital investments, as subsequent users could preempt current users simply by proposing a new use that resulted in a greater net economic benefit;[28] and (2) the new industries became

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23. *See, e.g.*, Lukis v. Ray, 888 N.E.2d 325, 330-31 (Ind. App. 2008); Panetta v. Equity One, Inc., 920 A.2d 638, 644 (N.J. 2007); Joseph W. Dellapenna, *The Right To Consume Water Under "Pure" Riparian Rights*, *in* 1 WATERS AND WATER RIGHTS, *supra* note 21, § 7:41-52.

24. *See, e.g.*, Lastinger v. Toyah Valley Irrigation Co., 167 S.W. 788, 791 (Tex. App. 1914) ("[I]n case of shortage of water from drought, accident or other cause, the water to be distributed shall be divided among all consumers pro rata, according to the amount he or they may be entitled to, to the end that all shall suffer alike, and preference be given to none."); Cozy Lake, Inc. v. Nyoda Girls' Camp, 131 A. 892 (N.J. 1926) (suggesting proportional allotment during peak drought conditions); Jones v. Oz-Ark-Val Poultry Co., 306 S.W.2d 111, 115 (Ark. 1957) (holding that competing users have a "correlative right" to the use of water to the "extent of a reasonable share" during water shortage); *see also* Dellapenna, *supra* note 17, at 316 ("When *pro rata* sharing among competing users is possible, courts, under the reasonable use rule, have preferred it as the fairest resolution when there is a limited amount of water."); Steven T. Miano & Michael E. Crane, *Eastern Water Law: Historical Perspectives and Emerging Trends*, 18 NAT. RESOURCES & ENV'T 14, 16 (2003) (discussing uncertainties of pro rata sharing via litigation). *But see* Joseph W. Dellapenna, *Developing a Suitable Water Allocation Law for Pennsylvania*, 17 VILL. ENVTL. L.J. 1, 11 (2006) ("[Pro rata sharing] is not always possible. . . . In such cases, choices must be made to cut off one user altogether so that another riparian might continue to use the water.").

25. *See* Dellapenna, *supra* note 17, at 316-17. In addition to a lack of resources on the part of small water users to engage in litigation, the system necessarily favors larger water users because the resultant economic impact to the large user generally outweighs any converse loss on the part of the smaller user. *See id.* at 319; Ausness, *Water Rights Legislation in the East*, *supra* note 22, at 553.

26. *See* Ausness, *Protection of Instream Uses*, *supra* note 22, at 418.

27. Theodore E. Lauer, *Reflection on Riparianism*, 35 MO. L. REV. 1, 3 (1970).

28. *See In re* Waters of Long Valley Creek Stream Sys., 599 P.2d 656, 665-66 (Cal. 1979) (citing California legislature's efforts to inject surety in water use investment by eliminating riparianism, a "principal source of [the] uncertainty"); Pleasant Valley Canal Co. v. Borror, 72

dependent on the diversion of water to properties that did not abut waterways,[29] which the courts in riparian jurisdictions necessarily considered an unreasonable use in light of the fact that the right itself arose only through the riparian nature of the property.[30] From these burgeoning markets in the arid west arose the common law system of appropriative rights.

2. Appropriative Rights

The central component of this private property-based structure is its temporal nature. Regardless of the proximity of the ultimate water use to the relevant water source, the first user of water attains an appropriation right as the superior user, with all subsequent users assuming relative junior status.[31] Many attribute this course to a simple reality one scholar dubbed the "Great Thirst": miners of the mid-1800s trespassed on native western lands without an organized federal government in place and diverted the water they needed.[32] However, while the regime's common

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Cal. Rptr. 2d 1, 24 (Ct. App. 1998); Lauer, *supra* note 27, at 15; Richard S. Harnsberger, *Prescriptive Water Rights in Wisconsin*, 1961 WIS. L. REV. 47, 60 (1961). *But see* Proceedings of the 2001 Symposium on Managing Hawai'i's Public Trust Doctrine, *supra* note 16, at 61 (statement of Jan Stevens) (suggesting that water uses generate a false sense of certainty that users are not entitled to in light of today's water shortages).

29. Richard Roos-Collins, *Riparian and Appropriative Water Rights Systems—Hybrid States*, *in* PROCEEDINGS OF THE PUBLIC TRUST DOCTRINE AND ITS APPLICATION TO PROTECTING INSTREAM FLOWS, *supra* note 1, at 7 (stating that some canal systems in present-day California extended more than ten miles to facilitate the gold rush); *see also* Ausness, *Protection of Instream Uses*, *supra* note 22, at 419 (distinguishing appropriative rights in that they are not restricted to riparian owners).

30. *See, e.g.*, Anaheim Union Water Co. v. Fuller, 88 P. 978, 980 (Cal. Ct. App. 1907) ("Land which is not within the watershed of the river is not riparian thereto, and is not entitled, as riparian land, to the use or benefit of the water from the river. . . ."); Dellapenna, *supra* note 21, § 746.

31. *See, e.g.*, Orr v. Arapahoe Water & Sanitation Dist., 753 P.2d 1217 (Colo. 1988); State *ex rel.* Cary v. Cochran, 292 N.W. 239, 242-43 (Neb. 1940); Basin Elec. Power Coop. v. State Bd. of Control, 578 P.2d 557 (Wyo. 1978); Ralph Johnson, *Public Trust Protection for Stream Flows and Lake Levels*, 14 U.C. DAVIS L. REV. 233, 257-58 (1980); T. Scribner, Note, *Arizona Water Law: The Problem of Instream Appropriation for Environmental Use by Private Appropriators*, 21 ARIZ. L. REV. 1095, 1098 (1979); Timothy Conway, Note, National Audubon Society v. Superior Court*: The Expanding Public Trust Doctrine*, 14 ENVTL. L. 617, 627 (1984); Martha E. Mulvany, State *ex rel.* Martinez v. City of Las Vegas*: The Misuse of History and Precedent in the Abolition of the Pueblo Water Rights Doctrine in New Mexico*, 45 NAT. RESOURCES J. 1089, 1096-97 (2005); Julia S. Waters, Comment, *Safeguarding Colorado's Water Supply: The New Congruence of Title Insurance and Water Rights Conveyances*, 77 U. COLO. L. REV. 491, 493-94 (2006).

32. *See* NORRIS HUNDLEY, THE GREAT THIRST: CALIFORNIANS AND WATER, 1770S—1990S, at 67-73 (1992); *see also, e.g.*, Jennison v. Kirk, 98 U.S. 453, 457 (1878) (stating that law "recognized discovery, followed by appropriation, as the foundation of the possessor's title" and that miners "were emphatically the law-makers, as respects mining, upon the public lands in the

moniker "first in time, first in right" sounds rather straightforward, modern accounting systems implemented to record user priority have faced significant difficulty in identifying these users and the associated appropriated quantities.[33]

In addition to these recordation difficulties, the appropriation system has faced considerable substantive criticism. As Professor Joseph Dellapenna has explained, the scheme rejects a basic premise of introductory economics.[34] During water shortages, the junior user loses *all* water rights before the senior user loses *any*.[35] Therefore, the junior user loses marginal units of high productivity while a senior user retains marginal units of low productivity.[36] In addition, appropriative rights encourage wasteful capital investment and development, as water users attempt to gain priority over unappropriated waters through excessive diversions before any need for the water is even established.[37]

Early in the twentieth century, many western states enacted statutory or administrative permitting codes in an effort to constrain appropriative diversion to "beneficial uses" and provide some protection for public interests in watercourses.[38] However, the principles of these provisions

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State"); Joseph W. Dellapenna, *Dual Systems*, *in* WATERS AND WATER RIGHTS, *supra* note 21, § 8:10-11; Dellapenna, *supra* note 18, at 20-21.

33. *See, e.g.*, A. DAN TARLOCK, WATER TRANSFERS IN THE WEST: EFFICIENCY, EQUITY, AND THE ENVIRONMENT 76 (1992); Corwin W. Johnson, *The Challenge of Prescriptive Water Rights*, 30 TEX. L. REV. 669, 673 (1952); C. Peter Goplerud III, *Adjudication of Water Rights*, *in* 2 WATERS AND WATER RIGHTS, *supra* note 21, § 16:1-7.

34. *See* Dellapenna, *supra* note 18, at 24.

35. *Id.* at 24-25.

36. *See* Dellapenna, *supra* note 17, at 323-24 (explaining that risk is not properly allocated because, during shortages, junior users lose all diversion rights before senior users lose any). Presumably, this phenomenon could lead to a pure market-based system of water allocation, where junior users compete to buy surplus water from the senior user. *See* Dellapenna, *supra* note 18, at 25-27. However, these markets have not taken shape for a variety of reasons. For example, junior users would assert that they are entitled to the water that senior users are storing and selling.

37. *See, e.g.*, Dellapenna, *supra* note 17, at 316-17; Amy Beatie & James Fosnaught, *The City of Golden's Application for Surface Water Rights: A Kayak Course, Instream Flow, Dilution, or What?*, 2 U. DENV. WATER L. REV. 273, 282 (1999); Janet C. Neuman, *Beneficial Use, Waste, and Forfeiture: The Inefficient Search for Efficiency in Western Water Use*, 28 ENVTL. L. 919, 922 (1998); Steve J. Shupe, *Waste in Western Water Law: A Blueprint for Change*, 61 OR. L. REV. 483, 486 (1982). The rapid evolution of more efficient technologies that increase productivity from smaller volumes of water further supports re-examining the historic justification for a pure prior appropriation system. *See, e.g.*, Robert Benjamin Naeser & Lynne Lewis Bennett, *The Cost of Noncompliance: The Economic Value of Water in the Middle Arkansas River Valley*, 38 NAT. RESOURCES J. 445 (1998); Sherry J. Tippett & Craig O'Hare, *Using Price To Limit Water Use: A Case Study of the City of Santa Fe*, 39 NAT. RESOURCES J. 169 (1999).

38. *See* WELLS A. HUTCHINS, WATER RIGHTS LAWS IN THE NINETEEN WESTERN STATES 491 (1971) (explaining Wyoming's adoption of a water code in 1890); Mark Squillace, *Wyoming*,

rarely apply to existing water rights.[39] Further, they often fall far short of serving environmental interests, including the protection of instream flows to preserve aquatic habitat.[40]

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in 6 WATERS AND WATER RIGHTS, *supra* note 21, at 1195-1218. Many other states followed Wyoming's lead, including Nebraska (1895); Idaho and Utah (1903); Nevada, New Mexico, Utah, North Dakota, South Dakota, and Oklahoma (1905); Oregon (1909); Texas (1913); California (1914); Kansas and Washington (1917); and Arizona (1919). *See* Robert E. Beck, *Introduction and Background*, *in* 2 WATERS AND WATER RIGHTS, *supra* note 21, § 11.04(a) n.74.

With respect to the public interest, the Idaho legislature, for example, vested in the director of the state's Department of Water Resources "considerable authority and discretion to determine and protect the 'local public interest' when issuing or rejecting water permits." *See In re* Application for Permit No. 47-7680, 759 P.2d 891, 897 (Idaho 1988) (interpreting IDAHO CODE ANN. § 42-203A(5)). In Idaho, a determination of what the "public interest" entails, and any impacts upon it, falls within the discretion of the Department. *See* Shokal v. Dunn, 707 P.2d 441, 450 (Idaho 1985). The varied applications of the phrase "public interest" are well beyond the scope of this article, though a pronouncement by the Wisconsin Supreme Court serves as an entrée into the field.

> This term, 'public interest,' is a very broad term, meaning different things in different connotations.
>
> As to the lakes and streams of this state, it clearly involves the use by the public ". . . for all the incidents of navigable waters . . . sailing, rowing, canoeing, bathing, fishing, hunting, skating, and other public purposes." Polluted waters do become less useful for most, if not all, of such public purposes.

Reuter v. Dep't of Natural Res., 168 N.W.2d 860, 861-62 (Wis. 1969) (citing Nekoosa-Edwards Paper Co. v. R.R. Comm'n, 228 N.W. 144 (Wis. 1930)).

39. *See generally* United Plainsmen Ass'n v. N.D. State Water Conservation Comm'n, 247 N.W.2d. 457 (N.D. 1976); Neuman, *supra* note 37. *But see* Nat'l Audubon Soc'y v. Superior Court, 658 P.2d 709 (Cal. 1983) (holding that public trust imposes on the state a duty of "continuing supervision" of trust resources in allocating consumptive water rights to individuals and municipalities, even where existing but antiquated government allocations to divert Mono Lake and its tributaries did not give the same credence to public trust rights); Jan S. Stevens, *Public Trust and Instream Uses*, 19 ENVTL. L. 605 (1989) (rejecting argument that lack of commercial navigability of river served to detach state trust obligations in water allocation); *see also* Ralph Johnson, *Public Trust Protection for Stream Flows and Lake Levels*, 14 U.C. DAVIS L. REV. 233, 257-58 (1980) ("If the public trust doctrine applies to constrain *fills* which destroy navigation and other public trust uses in navigable waters, it should equally apply to constrain the *extraction* of water that destroys navigation and other public interests. Both actions result in the same damage to the public interest.").

40. *See, e.g.*, Dan Tarlock, *Appropriation for Instream Flow Maintenance: A Progress Report on 'New' Public Western Waters Rights*, 1978 UTAH. L. REV. 211, 212 (1978) (stating that existing appropriative rights regimes focus on consumptive uses at expense of instream uses); Martha Guy, Note, *The Public Trust Doctrine and California Water Law:* National Audubon Society v. Department of Water and Power, 33 HASTINGS L.J. 653, 654 (1982) (same); Scribner, *supra* note 31, at 1100 (same). *But see* El Dorado Irrigation Dist. v. State Water Res. Control Bd., 142 Cal. App. 4th 937, 966 (Ct. App. 2006) ("[W]hen the rule of priority clashes with the rule against unreasonable use of water, the latter must prevail. Every effort, however, must be made to respect and enforce the rule of priority."). Traditionally, water users physically had to divert water to perfect an appropriation, effectively prohibiting a user from deciding to leave his appropriation in the stream to preserve flow. *See, e.g.*, Empire Water & Power Co. v. Cascade Town Co., 205 F. 123 (8th Cir. 1913); Colo. River Water Conservation Dist. v. Rocky Mountain Power Co., 406 P.2d 798 (Colo. 1965); Fullerton v. State Water Res. Control Bd., 153 Cal. Rptr. 518 (Ct. App. 1979). Indeed, early decisions regarded instream uses as improvident because less water would

B. Conversion to Regulated Riparianism

Traditionally, Mississippi was a purely riparian state, as were most eastern states.[41] However, as addressed in Subpart 1 below, in 1956, Mississippi became the only state east of the Mississippi River to adopt a dual system encompassing both appropriative and riparian water rights.[42] Subpart 2 explains that thirty years later, Mississippi repealed its appropriative rights laws and adopted a regulated riparian system.[43]

1. An Initial Foray into Appropriation

After localized droughts in the early 1950s, Mississippi adopted a surface water system of appropriative rights in 1956 that continued to recognize uses by riparian owners.[44] However, from 1956 to 1985, no court in the state relied on this appropriative water rights statute to address conflicting water rights claims.[45] Although it is conceivable that this simply "reflects a failure to educate the bar and the judiciary on its existence," the more likely explanation is that the appropriative rights statute simply did not help to resolve disputes.[46]

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be available for off-stream uses. *See, e.g.*, Lake Shore Duck Club v. Lake View Duck Club, 166 P.3d 309, 310-11 (Utah 1917) (finding attempted appropriation invalid when purpose of enjoining existing diversion was to feed wild water fowl and allow watercourse to remain in public domain). *But see* State *ex rel.* State Game Comm'n v. Red River Valley Co., 182 P.2d 421 (N.M. 1945) (finding recreation and fishing beneficial uses); Brasher v. Gibson, 406 P.2d 441 (Ariz. 1965) (same); Osnes Livestock Co. v. Warren, 62 P.2d 206 (Mont. 1936) (suggesting maintenance of swimming pool or fish pond is beneficial use). More recently, many western states have adopted statutes recognizing instream flows for fishing and recreation as "beneficial uses." *See, e.g.*, ARIZ. REV. STAT. ANN. § 45-151(A) (Supp. 1984-85); CAL. WATER CODE § 1243 (West Supp. 1985); COLO. REV. STAT. § 37-92-103(4) (1974); MONT. CODE ANN. § 85-2-102(4) (1983); OR. REV. STAT. § 537.170(5)(a) (1985); TEX. WATER CODE ANN. § 11.023(a) (Vernon 1972); WASH. REV. CODE § 90.54.020(1) (1986 Supp.); NEV. REV. STAT. § 533.030(2) (1985); N.D. CENT. CODE § 61-04-06.1 (Supp. 1983).

41. Dellapenna, *supra* note 18, at 30; *see, e.g.*, Masonite Corp. v. Windham, 48 So. 2d 622 (Miss. 1950).

42. 1956 MISS. LAWS 167; Dellapenna, *supra* note 17, at 336.

43. 1985 MISS. LAWS 459 (currently codified at MISS. CODE ANN. §§ 51-3-1 to -3-9 (West 2008)); Dellapenna, *supra* note 17, at 336. Professor Dellapenna coined the phrase "regulated riparianism" in 1985 to describe water allocation systems based on a public property approach. *See* Joseph W. Dellapenna, *Owning Water in the Eastern United States*, *in* PROCEEDINGS OF THE 6TH ANNUAL INSTITUTE OF EASTERN MINERAL LAW FOUNDATION 33-34 (1985). The phrase is generally accepted in the field. *See* Dellapenna, *supra* note 18, at 32 n.134. Many eastern states currently follow some form of a regulated riparian system. *See id.* at 32 n.137.

44. *See* Richard J. McLaughlin, *Mississippi*, *in* 6 WATERS AND WATER RIGHTS, *supra* note 21, at 707.

45. *See id.*; Dellapenna, *supra* note 18, at 30 n.102.

46. *See* Dellapenna, *supra* note 18, at 30.

By the time Mississippi adopted this appropriative rights regime, most consumptive uses of water had begun.[47] Thus, in a conflict between a riparian user and an appropriative user, the riparian user would always triumph. Courts most often found that either the riparian right would prevail as an earlier appropriation or the appropriative right would be a permitted nonriparian use that must fail in competition with a riparian use.[48] The best possible result for an appropriator was for the court to conduct a balancing test that was little more than the "reasonable use" test of riparianism.[49]

In light of groundwater shortages in certain parts of the state, Mississippi's then-Governor William Allain created the State Water Management Council in 1983.[50] In an effort to encourage conjunctive use of water, the Council determined that surface water and groundwater should be regulated under the same statutory system.[51] It recommended that the legislature repeal the appropriation laws and adopt a permit system for water diversions.[52] This recommendation led the state to adopt a regulated riparianism system through the 1985 Omnibus Water Resource Act.[53] The statute provided that vested rights acquired under the appropriation statute could be preserved by filing notice within three years, yet there is no available public record of any person filing such a notice.[54]

2. The Existing Regulated Riparian System

Regulated riparian regimes, bearing some relationship to a system of public property, ordinarily involve comprehensive statutory water withdrawal and water management permitting and planning programs. Under Mississippi's regulated riparian statute, the state has a duty to

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47. *See* McLaughlin, *supra* note 44, at 707.

48. *See* Dellapenna, *supra* note 18, at 30 (citing Anderson-Tully Co. v. Franklin, 307 F. Supp. 539 (N.D. Miss. 1969); Haisch v. Southhaven Land Co., 274 F. Supp. 392 (N.D. Miss. 1967); Phillips v. Davis Timber Co., 468 So. 2d 72 (Miss. 1985); Black v. Williams, 417 So. 2d 911 (Miss. 1982); Hinds-Rankin Metro. Water Ass'n v. Reid, 256 So. 2d 373 (Miss. 1971); Downes v. Crosby Chem., Inc., 234 So. 2d 916 (Miss. 1970)).

49. *See id.*

50. *See* McLaughlin, *supra* note 45, at 707.

51. Before the mid 1980s, no legislative structure for groundwater management existed, but for those "capacity use areas," or areas experiencing water shortages, as designated by what is known today as the state's Department of Environmental Quality. *Id.* at 707-08.

52. *Id.* at 708.

53. 1985 MISS. LAWS 459 (currently codified at MISS. CODE ANN. §§ 51-3-1 to -9 (West 2008)) ("It is the policy of the Legislature that conjunctive use of groundwater and surface water shall be encouraged for the reasonable and beneficial use of all water resources of the state."); *see* McLaughlin, *supra* note 44, at 708.

54. MISS. CODE ANN. §§ 51-3-5, 51-3-29; Dellapenna, *supra* note 17, at 336-37.

promote the general welfare of her people, which requires that the state's water resources be put to "beneficial use to the fullest extent of which they are capable."[55] In order that "the best interests and welfare of the people are served," the state must "effectively and efficiently manage, protect and utilize the water resources of Mississippi."[56] Maintenance of instream flow within Mississippi rivers and streams to protect fisheries and related riverine resources is dependent on the interplay of state statutory, regulatory, and common law.[57]

Subpart a discusses the agency structure for managing instream flows in Mississippi. Subpart b summarizes the state's role in permitting water withdrawals and distributing water quality certifications, while Subpart c addresses the state's function in developing water management plans across local jurisdictions.

a. Agency Structure for Managing Instream Flows

The Mississippi Department of Environmental Quality (MDEQ) is responsible for protecting the state's air, land, and water through conservation and the promulgation of environmental regulations that foster prudent, sustainable economic growth, while improving and preserving the state's natural resources.[58] The Governor appoints an Executive Director of the MDEQ[59] and the seven members of the Commission on Environmental Quality (CEQ), which serves as an "overseeing authority" for the MDEQ.[60]

The CEQ is empowered to formulate Department policy, enforce rules and regulations, receive funding, conduct studies for using the state's resources, and discharge duties, responsibilities, and powers as necessary.[61] Specifically, the CEQ has the authority to issue water use warnings,[62] negotiate interstate water use compacts,[63] formulate the state's water management plan,[64] and address the timing of water withdrawals.[65]

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55. MISS. CODE ANN. § 51-3-1.

56. *Id.*

57. While a number of federal statutes, such as the Clean Water Act, Pub. L. No. 92-500, the National Environmental Policy Act, Pub. L. No. 91-190, and the Endangered Species Act, Pub. L. No. 93-205, play an important role in every state's water policy, the state of Mississippi derives her instream flow policies primarily from state statutes.

58. MISS. CODE ANN. § 49-2-7.

59. *Id.* § 49-2-4(2).

60. *Id.* § 49-2-5(1); McLaughlin, *supra* note 45, at 708.

61. *Id.* §§ 49-2-9, 51-3-55(1); *see also* Am. Sand & Gravel Co. v. Tatum, 620 So. 2d 557, 558 n.2 (Miss. 1993) (describing respective duties of MDEQ and CEQ).

62. MISS. CODE ANN. § 51-3-11.

63. *Id.* § 51-3-41.

64. *Id.* § 51-3-21(1).

Separate and apart from the CEQ, the Permit Board, as discussed in more detail in the next Subpart, takes action on permits administered through MDEQ under a variety of state and federal water resource, air, and mining laws.[66] By statute, seven members of the nine-member Permit Board serve by virtue of the state office they hold, while the Governor appoints the remaining two members.[67]

The Governor also appoints the executive director of the Mississippi Department of Wildlife, Fisheries and Parks (MDWFP),[68] as well as the five members to the Commission on Wildlife, Fisheries and Parks, for the purposes of conserving, managing and protecting Mississippi's outdoors, state parks, wildlife, and wildlife habitats.[69] The directors of several state agencies and commissions, including MDWFP and MDEQ, serve on the Mississippi Water Resources Advisory Council, which makes recommendations to the Governor and the state legislature on management of the state's water and water-related land resources.[70]

Both the CEQ and the MDWFP can conduct studies designed to determine alternative methods of managing the natural wildlife and fisheries resources of the state, in a manner to ensure efficiency and maximum productivity.[71] The Water Resources Advisory Council can also conduct "any studies, analyses or evaluations related to the state water management plan."[72]

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65. *Id.* § 51-3-25(b), (d).
66. *Id.* § 49-17-28.
67. *Id.*
68. *Id.* § 49-4-6(2).
69. *Id.* §§ 49-4-4, 49-8-9.
70. *Id.* § 51-3-101.
71. *Id.* §§ 49-2-9(d), 49-4-9(c).
72. *Id.* § 51-3-103(5)(a). Other agencies or departments that play smaller, yet significant roles, in the state's water policy include the Bureau of Land and Water Resources, the Mississippi Development Authority, the Department of Marine Resources, the Department of Agriculture and Commerce, the Soil and Water Conservation Commission, Tennessee-Tombigbee Waterway Development Authority, Soil and Water Conservation Districts, Watershed Districts, the State Department of Health, and the Forestry Commission. In addition, the voluntary cooperative programs under the Mississippi Scenic Streams Stewardship Program (*id.* § 51-4-1) and the Mississippi Natural Heritage Law of 1978 (*id.* § 49-5-141) could conceivably provide further avenues for protecting instream flows. Nonetheless, in spite of the apparent useful participation by multiple stakeholders as set forth in this Section, the responsibilities are divided amongst these numerous agencies with little formal coordination for dealing with what is a complex yet single hydrologic cycle. For example, the permitting agency is separate and distinct from the planning agency, impeding the effectiveness of any adopted plan. *See id.* § 51-3-3(k)-(l) (permitting addressed by Permit Board); *id.* § 51-3-21(1) (planning addressed by Bureau of Land and Water Resources). One scholar suggests that permitting agencies prefer not to manage water resources aggressively according to a prepared plan in light of litigation threats. *See* Dellapenna, *supra* note 24, at 56.

b. The Water Permit System

In Mississippi, every person seeking to withdraw surface water must first obtain a permit from the Permit Board,[73] unless specifically exempted.[74] The Board can issue permits for beneficial uses[75] of water "only in excess of the established minimum flow."[76] "Established minimum flow" is "the minimum flow for a given stream at a given point thereon as determined and established by the [CEQ] when reasonably required for the purposes of this chapter."[77]

"Minimum flow" is defined as "the average stream flow rate over seven (7) consecutive days that may be expected to be reached as an annual minimum no more frequently than one (1) year in ten (10) years ($7Q_{10}$), or any other stream flow rate that the commission *may* determine and establish using generally accepted scientific methodologies considering biological, hydrological and hydraulic factors."[78] If the CEQ chooses to exercise this authority, it "shall consult with and shall consider recommendations from the [MDFWP]" and "give consideration to consumptive and nonconsumptive water uses, including, but not limited to, agricultural, industrial, municipal and domestic uses, assimilative

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73. *See* MISS. CODE ANN. § 51-3-5(1). In accord with its authority under section 51-3-15, the Permit Board has delegated to the Executive Director of the MDEQ the power to issue, modify, and revoke permits where controversy has not been exhibited through the public comment process. In turn, the Executive Director delegated her authority to the Director of the Office of Land and Water of the MDEQ.

74. A permit is not required for the following exempted uses:

1. The continued use of surface water beginning prior to April 1, 1985 so long as the person filed a notice of claim with the Commission on Environmental Quality between 1985 and 1988. *Id.* § 51-3-5(2).
2. Domestic purposes, which are defined as "the use of water for ordinary household purposes, the watering of farm livestock, poultry and domestic animals and the irrigation of home gardens and lawns." *Id.* §§ 51-3-3(c), 51-3-7(1).
3. Impoundments that are "not located on continuous, free-flowing watercourses." *Id.* § 51-3-7(1).
4. Water drawn from a well with a surface casing diameter of less than six inches. *Id.*

However, a permit is always required for the following:

1. The resale of real property for persons who use water from a well of any size "for maintaining or enhancing an impoundment of surface water primarily for aesthetic purposes." *Id.*
2. Withdrawals of more than 20,000 gallons of water per day, regardless of the use, if a water caution use area has been established pursuant to Section 51-3-11 of the Mississippi Code. *Id.* A water use caution area gives the Permit Board even greater regulatory power over rivers and streams but can only be implemented in times of drought. *See id.* § 51-3-11.

75. Beneficial use is broadly defined as "a useful purpose as determined by the Commission, but excluding waste of water." *Id.* § 51-3-3(e).

76. *Id.* § 51-3-7(2).

77. *Id.* § 51-3-3(i).

78. *Id.* (emphasis added).

waste capacity, recreation, navigation, fish and wildlife resources and other ecologic values, estuarine resources, aquifer recharge and aesthetics."[79]

As the CEQ has not determined and established a minimum flow beyond that set by the legislature, current policy relies upon the $7Q_{10}$ minimum flow as the "established minimum flow."[80] Therefore, the Permit Board may grant permit applications for water withdrawals that would maintain flow above this low threshold.[81] In addition, the Permit Board can allow water withdrawals that deplete a river or stream *below* the established minimum flow in two cases.[82]

First, a municipal user can withdraw water that puts the river under the established minimum flow "upon written assurance, supported by any data and reporting requirements that the board deems appropriate that the water will be immediately returned to the stream in substantially the same amount to insure the maintenance at all times of the established minimum flow."[83] The Permit Board may deny such a request by a municipal user to withdraw below the established minimum flow if the withdrawal would "violate the state's water quality standards . . . or otherwise conflict with the public interest."[84]

Second, an industrial user may withdraw water that would put the river below the established minimum flow "when the water shall be returned to the stream at a point downstream from the place of withdrawal, where the board finds that the use will not result in any

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79. *Id.*

80. In 1994, the Mississippi legislature amended MISS. CODE. ANN. § 51-3-3 to allow the CEQ to determine and establish a minimum stream flow different from $7Q_{10}$. *See* 1994 Miss. ALS 653. The amendment stated that it would be repealed in five years. *Id.* In 1999, the legislature acted to delete the repealer date of the 1994 amendment. *See* 1999 Miss. ALS 386. Nonetheless, the CEQ has not exercised this authority to date. At least a few regulated riparian states besides Mississippi adhere to a similarly low historic flow without protection for ecological values. *See, e.g.*, DEL. CODE ANN. tit. 7, § 6029(1) (West 2008) ("The landowner's right [is contingent upon] establish[ing] an average minimum flow occurring for 7 consecutive days within the lowest flow year of record . . . ."); IOWA CODE § 455B.261(15)(a) (West 2008) (defining "established minimum flow" as minimum flow based upon review of selected historical data). Other states provide wide discretion to administrative agencies in setting a minimum flow aimed at protecting human health, welfare and the proverbial "public interest." *See, e.g.*, HAW. REV. STAT. § 174C-71(1) ("[T]he commission shall . . . [e]stablish instream flow standards on a stream-by-stream basis whenever necessary to protect the public interest . . . .").

81. A public hearing must be "accorded any person whose rights may be adversely affected by such approval." MISS. CODE ANN. § 51-3-35(1).

82. *Id.* § 51-3-7 (West 2008).

83. *Id.* § 51-3-7(2). "Municipal use" is defined as "the use of water by a municipal government and the inhabitants thereof, primarily to promote the life, safety, health, comfort and business pursuits of the inhabitants" and does not encompass the irrigation of crops within the corporate boundaries. *Id.* § 51-3-3(d).

84. 08-020-001 MISS. CODE R. § 3(B)(1)(a)(ii) (Weil 2008).

substantial detriment to property owners affected thereby or to the public interest."[85] Industrial users may be required to "conduct such studies or to provide such information as [the Permit Board] deems necessary to determine the potential effect of the proposed use on the affected ecosystem and on the public interest" before withdrawing water below the established minimum flow.[86]

The Permit Board does have the authority to approve an application for the withdrawal of a lesser amount than requested if "the full amount requested would interfere with a vested right or is against public interest."[87] It also may grant a permit subject to special conditions, such as the installation of a device to measure the flow of the river.[88] The Board must reject an application for withdrawal if "the proposed use of the water sought to be permitted is not for beneficial purposes, is not consistent with standards established by the commission, or is detrimental to the public interest."[89] Finally, it must reject any application for withdrawal that would violate pollution laws or impair navigability.[90]

The Board also issues, reissues, denies, revokes, and modifies water quality certification applications pursuant to section 401 of the federal Clean Water Act.[91] State certification is required for federal licenses and permits regarding activities that could result in discharge into the waters of the United States.[92]

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85. MISS. CODE ANN. § 51-3-7(2).

86. 08-020-001 MISS. CODE R. § 3(B)(1)(b)(ii).

87. MISS. CODE ANN. § 51-3-35(1).

88. 08-020-001 MISS. CODE R. § 3(J). The Permit Board also has the authority to revoke a permit if, among other reasons, "the permit holder is using the water resources of the state in a manner deemed to be contrary to the public interest." *Id.* § 2(H)(3). For general background on varied applications of the phrase "public interest," see discussion *supra* note 38.

89. MISS. CODE ANN. § 51-3-13.

90. *Id.* § 51-3-7.

91. *Id.* § 49-17-28.

92. In reviewing 401 certifications, the Permit Board considers, among other factors, the impact on other uses of the water; the degree of physical, chemical, and biological impact on the water; the effect on circulation patterns and water movement; and the degree of alteration to the aquatic ecosystem. *See* 08-030-007 MISS. CODE R. § 4(A). If one of the following conditions is present, the Permit Board will not issue a 401 certification, unless it is

> assured that appropriate measures will be taken to eliminate unreasonable degradation and irreparable harm to waters of the State.
>
> 1. The proposed activity permanently alters the aquatic ecosystem such that water quality criteria are violated and/or it no longer supports its existing or classified uses. An example is the channelization of streams.
>
> . . . .
>
> 3. The proposed activity adversely impacts waters containing State or federally recognized threatened or endangered species.

c. Water Management Planning

In accord with Mississippi Code Annotated § 51-3-21, the CEQ is charged with providing a comprehensive state water management plan that includes attaining the maximum beneficial use of water, maximizing economic development, fostering environmental protection, implementing flood control measures, preventing waste and unreasonable use, acknowledging existing water rights, preserving water quality and quantity, and preparing for emergency situations.[93] The CEQ must also "give careful consideration to the requirements of public recreation and to the protection and procreation of fish and wildlife."[94]

Although the legislature provided that the state water management plan was to be completed by 1997,[95] the CEQ has not adopted such a plan to date, due, in part, to a lack of staffing and funding resources.[96] As an

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4. The proposed activity adversely impacts a special or unique aquatic habitat, such as National or State Wild and Scenic Rivers and/or State Outstanding Resource Waters.

. . . .

8. The proposed activity results in significant environmental impacts which may adversely impact water quality.

Id. § 4(B).

In 1994, the United States Supreme Court recognized the broad power of states to consider "any other appropriate requirement of state law" by allowing the state of Washington to impose a minimum stream flow requirement upon a 401 certification issued to a municipality constructing a hydroelectric power plant. *See* PUD No. 1 of Jefferson County v. Wash. Dep't of Ecology, 511 U.S. 700, 708 (1994). 401 certification is not of broad usage in that it is rarely applicable beyond activities requiring federal National Pollutant Discharge Elimination System permits, wetlands dredge and fill permits, hydroelectric licenses, and licenses for nuclear power plants. MARC R. POIRIER, ENVIRONMENTAL LAW PRACTICE GUIDE § 18.12 (2008). Nevertheless, the state likely can condition these certifications with any limitations necessary to ensure compliance with the state's minimum flow requirements. The MDEQ, through the Permit Board and the Office of Land and Water Resources respectively, also may be able to offer limited instream flow protection through the regulation of underground injection controls and dams. *See* 08-030-007 MISS. CODE R. (concerning National Pollutant Discharge Elimination System permits and Underground Injection Control permits) and 08-020-003 MISS. CODE R. § 5 ("The Commission may prescribe minimum flow releases from any dam or reservoir, as necessary, to protect downstream uses or otherwise prudently manage available surface water . . . . Any dam that impounds a watercourse with a continuous flow shall be designed so that the established minimum flow for the stream (as established by the Commission) is maintained.").

93. MISS. CODE ANN. § 51-3-21(2).

94. *Id.* § 51-3-21(6).

95. *Id.* § 51-3-8(1). For a detailed discussion of the limited statewide water management planning in Mississippi, see McLaughlin, *supra* note 45, at 716-20.

96. Mississippi Commission on Environmental Quality, Official Minutes (May 25, 2006), http://www.deq.state.ms.us/MDEQ.nsf/pdf/About_MAY2006OFFICIALMINUTESMISSCOMMISSENVQUL/$File/May%202006%20minutes.pdf?OpenElement (commenting on funding and staff shortages). Recommendations by the Mississippi Water Resources Management Planning Council (entitled *A Water Management Plan for the State of Mississippi*) were presented to the legislature in 1995, yet have not been acted upon in formulating an official state

alternative, the state statute requires the CEQ to analyze piecemeal any proposed water management plans submitted by local joint management districts under existing state water policy, though most of these joint management districts are primarily engaged in flood and erosion control projects, as opposed to conservation measures.[97] One scholar posited, "[W]ithout real planning, one is hard put to justify any claim that regulated riparian statutes promise rational management in place of the haphazard controls that preceded the introduction of regulated riparianism."[98]

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water management plan. MISS. WATER RES. MGMT. PLANNING COUNCIL, A WATER MANAGEMENT PLAN FOR THE STATE OF MISSISSIPPI (June 20, 1995) (on file with author). Other states report difficulties with inadequate staff to monitor public trust resources. For example, in 2001, the Chairperson of the Hawai'i Board of Land and Natural Resources and Hawai'i Commission on Water Resource Management stressed the need for state agencies to have additional resources in order to fulfill their trust responsibilities. *See* Proceedings of the 2001 Symposium on Managing Hawai'i's Public Trust Doctrine, *supra* note 16, at 44-45 (statement of Gilbert Coloma-Agaran). *But see id.* at 54-55 (statement of Hawai'i State Senator Colleen Hanabusa) (suggesting it unlikely that legislature would appropriate additional funding for trust resource protection).

97. MISS. CODE ANN. § 51-8-31(o); McLaughlin, *supra* note 45, at 716-18. A local joint water management district is created by two or more counties or municipalities for the purpose of "establishing a water supply system, conserving water resources, developing additional water resources or any other water or wastewater management function not being performed by an existing water management district." MISS. CODE ANN. §§ 51-8-1, -3. The Yazoo Mississippi Delta Joint Water Management District is apparently the only district in the state promoting conservation practices. *See* Yazoo Mississippi Delta Joint Water Management District Water Management Plan (Jan. 18, 2006), http://www.ymd.org/about.htm. The state legislature has also provided for the creation of local drainage districts for the purpose of "reclaiming wet, swamp, or overflowed lands for agricultural and sanitary purposes conducive to public health." MISS. CODE ANN. § 51-31-5. The board of commissioners (either local or county) has the power to "take necessary measures for prevention of erosion, floodwater, and sediment damage; to further the conservation, development, utilization, and disposal of water." *Id.* § 51-33-3. Further, "master water management districts," consisting of two or more existing drainage or water management districts, may be created for the limited purposes of carrying out improvements with respect to "drainage, prevention of floodwater damage, or the conservation, development, utilization, and disposal of water, including the impoundment, diversion, flowage, and distribution of waters for recreation, beautification, welfare, and other beneficial use" in cooperation with the U.S. Secretary of Agriculture or another federal agency. *Id.* § 51-7-1.

98. Dellapenna, *supra* note 21, § 9.05(b); *see also*, *e.g.*, Udell v. Haas, 235 N.E.2d 897, 900-01 (N.Y. 1968) ("[T]he comprehensive plan is the essence of zoning."); Jeremy Nathan Jungreis, *"Permit" Me Another Drink: A Proposal for Safeguarding the Water Rights of Federal Lands in the Regulated Riparian East*, 29 HARV. ENVTL. L. REV. 369, 410 (2005) ("Before a state can effectively develop a long term plan for a water resource, it must first determine how much water is available, what percentage is being used, and the manner of use."); Olivia S. Choe, *Appurtenancy Reconceptualized: Managing Water in an Era of Scarcity*, 113 YALE L.J. 1909, 1939 (2004) (arguing that without proper long-term planning "regulated riparianism will fare no better at conserving water supply than its common law predecessor"); Charles M. Haar, *In Accordance with a Comprehensive Plan*, 68 HARV. L. REV. 1154, 1154-56 (1955).

III. CURRENT USE OF THE $7Q_{10}$ METHOD FOR PRESERVING INSTREAM FLOWS

Since the adoption of a regulated riparian system, the minimum flow required for Mississippi's rivers and streams has been calculated using the $7Q_{10}$ formula.[99] As described briefly above, $7Q_{10}$ only preserves the level of flow one could expect during the lowest-flowing seven consecutive days, conceivably akin to a week-long drought, that occurs on average once every ten years.[100] $7Q_{10}$ is recommended by the EPA for calculating water quality, and is currently used as the standard for National Pollutant Discharge Elimination System permits under the federal Clean Water Act.[101] In Mississippi, $7Q_{10}$ arose out of water quality planning and pollution abatement programs. It was established as the design criterion for pollution treatment plants to assure the effluent returning to the stream would be of acceptable quality.[102]

In this Part, Subpart A addresses the value of maintaining relatively natural flows, while Subpart B outlines the principles behind productive instream flow protections beyond those recommended solely for water quality purposes. Subpart C summarizes several of the myriads of scientific studies documenting the failures of $7Q_{10}$ in preserving aquatic habitat, and Subpart D surveys several alternative legislative and regulatory mandates in place in other states that offer greater fish and wildlife protections than Mississippi's current policy. Finally, Subpart E examines the current stresses on Mississippi's waterways.

Together, these Subparts lay the foundation for the major contention of this Article, as set forth in Parts IV through VI: the public trust doctrine, following a model derived from the Hawai'i Supreme Court's recent *Wai'ahole I* decision, may have untapped potential as an independent source for preserving instream flows in Mississippi—and conceivably other regulated riparian states—which could avoid ecological degradation in the face of anticipated water shortages, though not without considerable constitutional challenges.

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99. MISS. CODE ANN. § 51-3-3 (West 2007).

100. *Id.*

101. *See* Clean Water Act § 303(d), 33 U.S.C. § 1313(c) (2000); Protection of Environment, 40 C.F.R. § 130-31 (2003); WATER QUALITY STANDARDS HANDBOOK: SECOND EDITION, EPA-823B-94-005a (Aug. 1994). *See generally* Jeffrey M. Gaba, *New Sources, New Growth and the Clean Water Act*, 55 ALA. L. REV. 651 (2004).

102. *See* Ron Garavelli, Chief of Fisheries, Miss. Dep't of Wildlife, Fisheries and Parks, Presentation on Minimum Flows and Fishery Resources to the Environmental Protection Council Advisory Committee (Oct. 28, 1993) (on file with author).

A. Importance of Maintaining a Relatively Natural Flow

The importance of maintaining a natural flow regime has been confirmed by scientific research since at least the early 1990s.[103] A natural flow regime consists of periodic flooding and the regular occurrence of high and low flows, which trigger physiological and behavioral responses of aquatic and terrestrial species that are intimately linked to these physical changes in water level. Each type of flow provides different benefits to the river's overall health.[104]

Flooding sequences signal opportunities for fish to migrate upstream or laterally into floodplain habitat for reproductive purposes, flush deposition of fine sediment through larger-grained gravels and cobbles that provide critical substrate for fish spawning, oxygenate the habitat for egg development, and supply organic material to the watershed that forms important building blocks to aquatic and terrestrial food webs.[105] Regularly occurring high flows determine the physical shape of the river, as well as its pools and riffles, and ventilate fish eggs that have been deposited in spawning gravels.[106] Low, but not stagnant, flows shape the amount of available habitat, maintain water temperature and water quality, and allow fish to move to feeding and spawning areas.[107]

Environmental problems arise when the natural flow regime is not considered.[108] An absence of flooding or high water levels leads to conditions in which fish can no longer access upstream, side channel, or floodplain areas for particular life history requirements like reproduction, development of juvenile stages, or other migratory behavior patterns.[109] Further, as a result of the absence of high waters, riparian plants encroach into the river, interstitial riverbed habitats are covered with sedimentation, and a wide variety of bird species that capitalize on use of the diverse flora of riparian canopies are no longer able to flourish in the area once the diversity of plant species are simplified.[110]

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103. Carl Vinson Inst. of Gov't, *supra* note 6, at 30.

104. *See* SANDRA POSTEL & BRIAN RICHTER, RIVERS FOR LIFE: MANAGING WATER FOR PEOPLE AND NATURE 20 (2003).

105. *Id.*; E-mail from Thomas Kennedy, The Nature Conservancy, to author (Dec. 18, 2008) (on file with author).

106. *See* POSTEL & RICHTER, *supra* note 104, at 20.

107. *Id.*

108. Harold M. Tyus, *Effects of Altered Stream Flows on Fishery Resources*, 15 FISHERIES 18, 18-20 (1990).

109. *See id.*

110. *Id.*; *see also* E-mail from Thomas Kennedy, *supra* note 105; Tyus, *supra* note 108, at 18-20.

B. Principles of Instream Flow Protection

Researchers at the University of Georgia's Carl Vinson Institute of Government have identified seven principles of instream flow protection that go well beyond the basic water quality standard of mitigating the impact of pollution discharge into streams and rivers.[111] These principles are intended to:

1. Preserve whole functioning ecosystems rather than focus on single species.
2. Mimic, to the greatest extent possible, the natural flow regime, including seasonal and inter-annual variability.
3. Expand the spatial scope of instream flow studies beyond the river channel to include the riparian corridor and floodplain systems.
4. Conduct studies using an interdisciplinary approach.
5. Use reconnaissance information to guide choices from among a variety of tools and approaches for technical evaluations in particular river systems.
6. Practice adaptive management, an approach for recommending adjustments to operational plans in the event that objectives are not being achieved.
7. Involve stakeholders in the process.[112]

$7Q_{10}$ deviates markedly from these principles by considering one and only one factor—water quality. A river's *overall* health, however, depends on a wide variety of factors, of which water quality is but one. While $7Q_{10}$ preserves a flow only expected during, in effect, a week-long drought that occurs once in every ten-year period, it is applied year-round to valuable instream resources that serve as important fish and wildlife habitats, without consideration or adjustment for seasonal variations.[113]

In Mississippi, high flows occur regularly in February and March.[114] Flows begin decreasing in April and May, reaching a low-flow season

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111. Seerley, *supra* note 5, at 31.

112. *Id.* (citing NAT'L RESEARCH COUNCIL OF THE NAT'L ACADS., THE SCIENCE OF INSTREAM FLOWS: A REVIEW OF THE TEXAS INSTREAM FLOW PROGRAM (2005)).

113. For a graph depicting these varied flow periods, see POSTEL & RICHTER, *supra* note 104, at 105. *See also* Stephen E. Draper, *Sharing Water Through Interbasin Transfer and Basin of Origin Protection in Georgia: Issues for Evaluation in Comprehensive State Water Planning for Georgia's Surface Water Rivers and Groundwater Aquifers*, 21 GA. ST. U. L. REV. 339, 370 n.143 (2004); Joseph F. McLean, *Streamflow Policy in Vermont: Managing Conflicting Demands on the State's Waters*, 19 VT. L. REV. 191, 223 n.217 (1994). Minimum flows such as $7Q_{10}$ tend to become the objective (or target), flow, rather than a true limitation. Garavelli, *supra* note 102. When this occurs, "the fishery is eventually reduced to the worst case or drought condition in perpetuity." Clair B. Stalnaker, *Low Flow as a Limiting Factor in Warmwater Streams*, *in* WARMWATER STREAMS SYMPOSIUM 193 (L. Krumholz ed., 1981).

114. *See generally* United States Geological Survey, http://ms.water.usgs.gov (last visited Jan. 23, 2009).

from June through September.[115] Beginning in October, flows increase until the commencement of the high flow season in February.[116] Despite these fluctuations in natural flow, the required $7Q_{10}$ flow remains the same year-round.[117] One group of authors asserted, "The $7Q_{10}$ should never be used to make instream flow prescriptions for riverine stewardship. . . . Making such a low flow the norm [for water quantity purposes] is like recommending the sickest day of your life as a satisfactory level for future well-being."[118]

Further, the Instream Flow Council stated that as "a minimum flow standard to sustain aquatic life, $7Q_{10}$ lacks any scientific or common sense foundation and can be expected to result in severe degradation of riverine biota and processes."[119] Although the $7Q_{10}$ method may protect water quality in many instances, it fails to consider the natural flow of rivers necessary for the consistent survival-level protection of fish and wildlife.[120] One natural resource manager described the $7Q_{10}$ method as "statistically based with no consideration of chemical, biological or environmental-ecosystem considerations."[121]

C. Documented Failures of $7Q_{10}$ in Protecting Instream Flows

Aquatic biologists have come to a clear consensus that more water needs to be reserved for instream habitat than is provided under the $7Q_{10}$ method.[122] An extensive field study by prominent expert Donald Leroy Tennant found that 10% mean annual flow (MAF) was the minimum

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115. *Id.*
116. *Id.*
117. *Id.*
118. ANNEAR ET AL., *supra* note 10, at 179-79.
119. *Id.* at 131.
120. GA. DEP'T OF NATURAL RES., supra note 10 ("DNR's $7Q_{10}$ rule . . . is not based on the science of how much water should remain in a stream to maintain a healthy aquatic community."); *see also* Clair B. Stalnaker, *Low Flow as a Limiting Factor in Warmwater Streams*, WARMWATER STREAMS SYMPOSIUM, *supra* note 113, at 194 ("If we must think in terms of minimums, let it be minimum regimes and not single minimum discharges.").
121. MISS. WATER RES. PLANNING COUNCIL, Official Minutes (Sept. 21, 1993) (unpublished transcript on file with author); *see also, e.g.*, Bradford Bowman, *Instream Flow Regulation: Plugging the Holes in Maine's Water Law*, 54 ME. L. REV. 287, 307 (2002) (explaining that the then-informal policy allowing streams to subside to $7Q_{10}$ in Maine "show[ed] no consideration for either the natural hydrograph or the seasonal needs of the riverine ecosystem"); sources cited *infra* note 136.
122. EVANS & ENGLAND, *supra* note 8, at 3 (citing Tennant, *supra* note 8, at 359-73; Stalnaker, supra note 8, at 321-37; Wesche & Rechard, supra note 8, at 1-121; Estes & Orsborn, supra note 10, at 389-98; Bulak & Jobsis, supra note 10, at 1-51; Orth & Leonard, supra note 10, at 129-38.

flow required for "short-term survival habitat of most aquatic life."[123] Tennant described the conditions exhibited at 10% MAF:

1. Short-term survival of most aquatic life.
2. Fifty percent or more of the stream bottom is likely to be dewatered.
3. Side channels (important for early life stages of many fish species) are likely to be severely or totally dewatered.
4. Riparian vegetation may suffer.
5. Stream bank cover will be severely diminished.
6. Fish will have difficulty migrating upstream over and through riffle areas.
7. Fish are crowded into pools and vulnerable to over-harvest.
8. Water temperature may become too high for some fish species.[124]

A later study, considering river hydraulic geometry characteristics, concluded, "[R]iver width, depth, and velocity rapidly decrease toward zero at flows below 10% MAF, thus severely limiting or eliminating fish habitat."[125] These types of studies indicate that a river flowing under 10% MAF is unhealthy, offering insufficient living conditions to fish and wildlife. Tellingly, in Tennant's study, streams with only 10% MAF still exceeded the $7Q_{10}$ flow more than three-fourths of the time.[126]

D. State Departures from $7Q_{10}$

Calculating $7Q_{10}$ is a process that can be performed through data analysis in front of a computer screen, as opposed to requiring extensive fieldwork, making it inexpensive and easily applicable on a statewide basis.[127] However, the insufficiency of this minimum flow in protecting aquatic habitat, as documented above, necessitates a review of alternative methods for managing instream flows in Mississippi. Several alternative methods utilized in other states offer greater fish and wildlife protection

123. *See* Tennant, *supra* note 9, at 6, 9.

124. ANNEAR, ET AL., *supra* note 10, at 178 (citing Tennant, *supra* note 9, at 6-10; Tennant, *supra* note 8, at 359-73); EVANS & ENGLAND, *supra* note 8, at 359-73 (citing Tennant, *supra* note 8, at 359-73).

125. Daniel Caissie et al., *Comparison of Hydrologically Based Instream Flow Methods Using a Resampling Technique*, 34 CANADIAN J. OF CIV. ENG'G 66, 72-73 (2007) (citing Daniel Caissie & Nassir El-Jabi, *Instream Flow Assessment: From Holistic Approaches to Habitat Modeling*, 28 CANADIAN WATER RES. J. 173–83 (2003)); *see also* Daniel Caissie & Nassir El-Jabi, *Comparison and Regionalization of Hydrologically Based Instream Flow Techniques in Atlantic Canada*, 22 CANADIAN J. OF CIV. ENG'G 235, 235–46 (1995).

126. *See* Tennant, *supra* note 9, at 6-10; EVANS & ENGLAND, *supra* note 8, at 359-73.

127. *See, e.g.*, Tennant, *supra* note 9, at 7.

while retaining affordability, speed of computation, and wide applicability.[128]

Many of these other states rely upon the "Tennant Method," which protects a percentage of the river's MAF based on seasonal fluctuations and allows streams to remain connected with their floodplains.[129] As the MAF can be calculated easily with adequate records and accurately applied with limited field work, the Tennant Method is desirable for its efficiency and has been adopted in some form in several jurisdictions.[130]

For example, after recognizing the deficiencies associated with the $7Q_{10}$ method, which the state of Georgia originally adopted for calculating minimum flows in 1977, Georgia adopted an interim modified Tennant Method in 2001.[131] Similarly, Arkansas subscribes to a

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128. *See, e.g.*, *id.*

129. *See id.* The Tennant Method and its prodigy reflect the natural flow regime by making serial adjustments across seasons and protect aquatic habitat by keeping the flow above 10% MAF. *Id.* at 8. States can choose the level of protection they wish to pursue and draft a minimum flow percentage requirement based thereon. Specific rivers may garner greater protection due to special qualities such as endangered species, natural beauty, or need for restoration. For a further discussion of Tennant's description of the aquatic conditions at 10% MAF, *see supra* note 123 and accompanying text.

130. *See, e.g.*, EVANS & ENGLAND, *supra* note 8, at 21.

131. *Id.* A 1995 study performed by Georgia's Wildlife Resources Division, a division of the Department of Natural Resources (DNR) organized under the Environmental Protection Division (EPD), recommended several methods to protect instream flow that would supplant $7Q_{10}$, including a flow rate of 30% of the MAF for unregulated streams, a seasonal tiered approach calling for higher percentages for dammed streams, and special protections for trout streams. GA. DEP'T OF NATURAL RES., *supra* note 10, at 24-26. The recommendations were made as an interim measure before further testing could be performed, and the study noted that said recommendations would only provide some protection, not enhance, fish habitat. *Id.* at 27. Unfortunately, Georgia did not enact all of the recommendations from the 1995 Wildlife Resources Division report. *Id.* at 29-30. In fact, the report specifically did not recommend monthly $7Q_{10}$, which Georgia ultimately adopted as part of its new state policy. *Id.* at 28. Still, Georgia's current approach preserves flows by seasonal variation, unlike the $7Q_{10}$ method. *Id.* at 27. Applicants seeking water withdrawal permits in Georgia are allowed to choose from three options:

1. For water supply reservoirs, permittees are required to release from the reservoir the lesser of the monthly $7Q_{10}$ (thus more seasonally specific than $7Q_{10}$) or the inflow to the reservoir. For direct withdrawals from streams, permittees must allow the lesser of the monthly $7Q_{10}$ or the inflow to pass the withdrawal point.
2. Applicants can choose to perform a DNR-approved site-specific instream flow study to determine what minimum flows must be maintained to protect aquatic habitat of that specific locale. DNR then evaluates the study results and, with the EPD Director, either concurs or recommends an acceptable minimum flow.
3. Applicants can also choose MAF options:
    a. For direct withdrawals from an unregulated stream, the applicant must allow the lesser of 30% of the MAF or the inflow to pass the stream withdrawal point (thus, if the inflow is less than 30% of the MAF, the permittee cannot withdraw water).

stream flow protection plan that identifies seasonal percentages, though they are based on monthly mean flows, as opposed to annual mean flows.[132]

There also exist a wide variety of field methods requiring site-specific measurements that are predictably more accurate than the "office" methods most often utilized in Georgia and Arkansas.[133] Florida, for example, employs a progressive program in which five distinct regional water management districts establish their own minimum flow levels by site-specific study, taking into account not only water quality, but also nonconsumptive uses, including fish passage, recreational activities, and scenic attributes.[134] If a Floridian waterway falls below or is projected to fall below the minimum flow requirements, a recovery or prevention strategy must be implemented.[135] At least for certain waters that include exceptional resources, wild trout, or threatened or endangered species, North Carolina also requires on-site evaluation for determining minimum flows.[136]

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b. For regulated water supply reservoirs, the applicant is required to release from the reservoir the lesser of: 30% of the MAF or inflow from July to November (low flow season), 60% of the MAF or instream flow from January through April (high flow season), and 40% of the MAF or inflow from May-June and December (intermediate flow seasons).

Georgia's policy exempts a wide variety of water users, including agricultural users; those users already holding, or in the applications pipeline for, water use permits; users of highly "regulated" waters, such as the Savannah River; and federal dams. *See id.*

132. *See* 014-04-002 ARK. CODE R. §§ 2.404-.405 (Weil 2008). This Arkansas regulation divides the year into three distinct components, based upon the biological process. EVANS & ENGLAND, *supra* note 8, at 9-10. From November through March, the recommended minimum flow is 60% of the mean monthly flow to flush sediments and waste, as well as recharge the system's fertility through infusing the waterway with nutrients. *Id.* From April through June, the recommended minimum flow is 70% of the mean monthly flow to prevent the stranding of eggs and provide adequate oxygenation for life development. *Id.* From July through October, the recommended minimum flow is 50% of the mean monthly flow to reserve adequate waste capacity and prevent overcrowding of fish populations. *Id.*

133. *See, e.g.*, FLA. ADMIN. CODE ANN. r. 62-40.473(1) (2008).

134. *Id.*

135. *See* FLA. STAT. § 373.0421(2) (2008).

136. See 15A N.C. ADMIN. CODE 02K.0501 (2008). Unfortunately, the implementation of field methods is often limited in many states by available personnel hours and the expensive nature of such testing. Mandating circumstances that initiate the requirement of implementing on-site testing provides more accurate instream protections than the "office" methods described *supra* text accompanying note 133, albeit at a significant cost. If Mississippi chooses, or is forced, to act to provide greater protections to instream flows, the particular method she selects certainly will raise a host of additional practical and legal ramifications for natural resource managers. These could include, for example, amending regulations, formulating or reformulating statewide and regional water plans, and balancing ecological trust uses with other trust and economic uses. In 2007, in an attempt to address some of these challenges, the Texas legislature adopted a comprehensive innovative system in which basin-wide citizen councils advised by a

E. Contemporary Stresses on Surface Waters

Approximately 20% of the world's 10,000 known freshwater fish species are now endangered, threatened, or already extinct.[137] The Nature Conservancy estimates that 12% of all animals known to science live in freshwater habitats, and many more depend on such habitats in some way for survival.[138]

Reduced instream flows have had a devastating effect on fish across North America.[139] At least forty freshwater fish species in North America have recently become extinct due to man-induced alterations of physical habitat.[140] A 1990 study classified 28% of North America's native fish species as rare or extinct.[141] The American Fisheries Society reported an increase of 45% in the number of North American freshwater fish species considered endangered, threatened, or of special concern.[142] The primary cause of this increase was alteration of natural stream flows.[143]

Historically, Mississippi has relied more on groundwater resources than on surface water.[144] Due to a relatively sizeable supply of groundwater and rainfall, Mississippi has not experienced the severe statewide droughts and ensuing water shortages that many of the other southern states, including Georgia, Florida, and Alabama, have endured in the past decade.[145] Still, for example, 90% of the water needs of the state capital of Jackson, Mississippi's most populated metropolitan area, are met by diverted surface flows from the Pearl River and the Ross Barnett Reservoir,[146] and surrounding areas are interested in developing a surface-water supply from these same sources.[147] Mississippi must move

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scientific committee determine use priorities on rivers. *See* 2007 Tex. Sess. Law Serv. 4596 (West); 2007 Tex. Sess. Law Serv. 5832 (West).

137. *See* The Nature Conservancy, *supra* note 12; POSTEL & RICHTER, *supra* note 104, at 27.

138. POSTEL & RICHTER, *supra* note 104, at 27.

139. EVANS & ENGLAND, *supra* note 8, at 2.

140. *Id.*

141. *Id.*

142. *Id.*

143. *Id.*

144. As of 1995, groundwater accounted for 73% of the total freshwater withdrawals and supplied the needs of 90% of the state's population. *See* MISS. WATER RES. MGMT. PLANNING COUNCIL, A WATER MANAGEMENT PLAN FOR THE STATE OF MISSISSIPPI 10, 12 (June 30, 1995) (on file with author). Mississippi's surface water resources include 84,000 miles of streams and rivers, including six major rivers: Tombigbee, Pascagoula, Pearl, Big Black, Yazoo, and Mississippi. *Id.*

145. *Id.*

146. MISS. WATER RES. MGMT. PLANNING COUNCIL, *supra* note 144, at 10, 12.

147. *See* PEARL RIVER BASIN TEAM, MDEQ, PEARL RIVER BASIN STATUS REPORT 2000, at 6, 24 (2000) (on file with author).

proactively to conserve and protect her healthy yet depletable natural surface water resources.

Water usage in Mississippi has increased in recent decades and exceeded the national average for growth from 1950-1980 and 1985-1990.[148] This is due in large part to increased rice farming, catfish production, and thermoelectric power plants, along with steady population growth.[149] In fact, localized drought conditions in the western portion of the state between the Yazoo and Mississippi Rivers (known as the Mississippi Delta), coupled with increased water withdrawals, have caused the base flows of most streams in the area to decrease.[150]

Since groundwater no longer recharges streams in the Delta, the MDEQ has been unable even to calculate $7Q_{10}$ beyond zero for a Delta stream since 1975.[151] These extremely low flows directly impact fish and wildlife habitat, while also threatening the use of the streams as a reliable source for agricultural irrigation.[152]

As these stresses increase statewide, it is only a matter of time before Mississippi's opportunity to adopt a proactive instream protection approach turns into a reactive necessity. The remainder of this Article suggests that Mississippi's broad public trust doctrine, albeit in the face of considerable constitutional challenges, may operate as a source independent of the state's water code for demanding state action to protect instream flows under a framework derived from Hawai'i's *Wai'ahole I* decision.

IV. THE PUBLIC TRUST DOCTRINE

The public trust doctrine is an ancient legal principle that protects certain natural resources for the general public.[153] The law in most nations recognizes some form of the public trust doctrine:

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148. *See* MISS. WATER RES. MGMT. PLANNING COUNCIL, *supra* note 144, at 10-11.

149. *Id.* at 11. Mississippi's population increased by 706,517 from 1960 to 2000, representing a 32.44% increase. If Mississippi's population increases at the same rate as it did from 1990 to 2000, the 2010 population will be 3,144,769. For census data, see CensusScope, http://www.censusscope.org (last visited Jan. 23, 2009).

150. MISS. WATER RES. MGMT. PLANNING COUNCIL, *supra* note 144, at 67.

151. Letter from Dennis Riecke, Dep't of Wildlife, Fisheries & Parks, to Lloyd Long, Miss. Dep't of Envtl. Quality (Aug. 14, 2003) (on file with author).

152. MISS. WATER RES. MGMT. PLANNING COUNCIL, *supra* note 144, at 20.

153. *See* Shively v. Bowlby, 152 U.S. 1, 11-18 (1894) (recounting Roman and English origins of public trust); Sax, *supra* note 13, at 475; Carol M. Rose, *The Comedy of the Commons: Custom, Commerce, and Inherently Public Property*, 53 U. CHI. L. REV. 711, 727-30 (1986); Carol M. Rose, *Joseph Sax and the Idea of the Public Trust*, 25 ECOL. L.Q. 351, 351-52 (1998); Timothy M. Mulvaney & Brian Weeks, *"Waterlocked": Public Access to New Jersey's Coastline*, 34 ECOL. L.Q. 579, 582 (2007); COASTAL STATES ORG., INC., PUTTING THE PUBLIC TRUST DOCTRINE TO WORK 1 (David Slade ed., 2d ed. 1997).

> Historically, no developed western civilization has recognized absolute rights of private ownership . . . [of land between high and low water marks] as a means of allocating this scarce and precious resource among the competing public demands. Though private ownership was permitted in the Dark Ages, neither Roman law nor the English common law as it developed after the signing of the Magna Charta would permit it.[154]

Among the rights of the people recognized by Roman and English law were the rights of commercial navigation and fisheries.[155] Today, the public trust doctrine has evolved to protect a greater variety of resources and uses thereof.[156]

In this Part, Subpart A first summarizes the genesis of the public trust doctrine in America and then addresses the evolution of the doctrine in Mississippi. Subpart B surveys the current protected trust resources in Mississippi and envisions an extension of the doctrine to additional natural resources in the future.

A. Origins of the Public Trust

The modern concept that certain lands and waters should be held in trust for the public to access for fishing, navigational, and commercial purposes has its roots in the Roman Empire.[157] The Institutes of Justinian, codified in 535 C.E., states:

> By the law of nature these things are common to mankind—the air, running water, the sea, and consequently the shores of the sea. No one, therefore, is forbidden to approach the seashore, provided that he respects habitations, monuments, and buildings, which are not, like the sea, subject only to the law of nations.[158]

After the fall of Rome, feudal law reigned throughout Europe.[159] In England, the Crown claimed ownership of the rivers and their shores, along with the authority to transfer such lands into the hands of private individuals for their exclusive possession and use.[160] English kings commonly issued writs barring fishing and fowling on rivers.[161] River

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154. United States v. 1.58 Acres of Land Situated in Boston, 523 F. Supp. 120, 123 (D. Mass. 1981).

155. COASTAL STATES ORG., INC., *supra* note 153, at 170.

156. *Id.* at 173.

157. *See* Tennant, *supra* note 9, at 6.

158. THE INSTITUTES OF JUSTINIAN 90 n.1 (Thomas Collett Sandars trans., 7th ed. 1905).

159. *See generally* Patrick Deveney, *Title, Jus Publicum, and the Public Trust: An Historical Analysis*, 1 SEA GRANT L.J. 13 (1976).

160. *Id.*

161. M. HALE, DE JURE MARIS ET BRACHIORUM EJUSDEM, *reprinted in* S. MOORE, A HISTORY OF THE FORESHORE AND THE LAW RELATING THERETO 373 (1888).

navigation, however, was essential to the continued success of the growing merchant class, and private ownership of rivers interfered with the transport of goods and services.[162]

In 1215, King John of England signed the Magna Carta.[163] One of the Magna Carta's provisions required the removal of "all fish-weirs" from rivers throughout England, except those along the North Sea coast, thereby limiting the King's ability to convey property rights to waterways subject to the public trust.[164] Certain rights remained the permanent property of the realm and were held by the Crown in its regal capacity in trust for all subjects.[165]

The rights retained by the Crown included those of navigation and fishery in the sea and other tidal waterways, construed by English courts to include the rights to beach vessels and unload cargo on the water's banks, dry and haul fishing nets on the upland areas, and deliver fish to the nearest market.[166] Although the banks of rivers were considered the private property of the riparian owners, they were impressed with certain public trust rights, as the sea's shore was "the property of no man."[167]

The King had no power to convey those rights and any attempt to do so would have been an invalid usurpation of the rights of a free people and their Parliament.[168] Accordingly, when the King conveyed private ownership of the land encompassing the thirteen original colonies, he did

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162. *Id.*

163. MAGNA CARTA § 23 (1215).

164. *Id.*

165. *See, e.g.*, Mulvaney & Weeks, *supra* note 153, at 582-84.

166. *See* Stevens v. Paterson & Newark R.R. Co., 34 N.J.L. 532, 539 (N.J. 1870) (explaining traditional understanding of public use of shoreline). An 1830 treatise states:

> So the shore lies between the fishery or navigation and the public, but the public have a right to the fishery and navigation, and a convenient way is presumed over the shore for carrying them on; such as for launching boats, carriage and footway for the conveyance of the fish, goods, to and from the boats, and for exercising whatever other conveniences common sense and usage point out as essential to these rights; in short, whatever obstruction would render the fishery or navigation nugatory, must be deemed unlawful and incompatible with those rights.

R. HALL, THE RIGHTS OF THE CROWN AND THE PRIVILEGES OF THE SUBJECT IN THE SEA-SHORES OF THE REALM (R.L. Loveland ed., 3d ed. 1875), *reprinted in* STUART ARCHIBALD MOORE, HISTORY OF THE FORESHORE AND THE LAW RELATING THERETO 665, 847–48 (London, Stevens & Haynes, 3d ed. 1888).

167. ARTHUR JOSEPH HUNT, THE LAW OF BOUNDARIES AND FENCES 8 (Henry Stephen ed., Butterworth & Co. 1904) (1896). Today, there are considerable differences amongst jurisdictions as to the public rights and uses that remain after a legislatively approved conveyance of trust lands to private ownership. *See generally* PUTTING THE PUBLIC TRUST DOCTRINE TO WORK, *supra* note 153, at 237-38.

168. *See* Martin v. Waddell's Lessee, 41 U.S. 367, 411 (1842).

not convey those inalienable rights.[169] The American Revolution resulted in the conveyance of these royal rights to the legislatures of each of the colonies, to be held in trust for their people.[170]

In accordance with the Northwest Ordinance of 1787, all new states were subsequently admitted on equal footing with the original states, with the same rights in the tidewaters and the lands under them.[171] In 1817, the United States Congress admitted Mississippi into the Union,[172] and, at least since 1821, the United States' judiciary has recognized these public rights in tidewaters and the lands under them under the public trust doctrine.[173] Today, the nature of the protected resources and the scope of the associated public rights are defined by, and subject to, the property laws of each state.[174]

B. Protected Trust Resources

Mississippi's Supreme Court first acknowledged the state's public trust doctrine in 1933, holding that the title of the state is held for the chief purposes of commerce and navigation.[175] Since that time, Mississippi courts have addressed tidal and navigable waters well beyond the confines of the original 1800's interpretations of the trust in America, as set forth in Subpart 1 below. Subpart 2 explains how Mississippi has expanded public trust protections to a variety of natural resources beyond these traditionally protected waterways.[176]

1. Tidal and Navigable Waterways

In broad terms, the state owns the tidelands, which are impressed with a public trust for the benefit of all.[177] Public ownership in tidal waterways and the lands beneath the water generally extends up to the

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169. *Id.* at 412; Bell v. Gough, 23 N.J.L. 624, 684 (1852); Arnold v. Mundy, 6 N.J.L. 1, 11–13 (N.J. Sup. Ct. 1821) (summarizing original conveyance of East and West Jersey, later to become known as "New Jersey").

170. *Martin*, 41 U.S. at 410; *see also* Shively v. Bowlby, 152 U.S. 1, 36 (1894).

171. Ordinance of 1787: The Northwest Territorial Government, § 14, art. V, 1 Stat. 50; *see also* Pollard's Lessee v. Hagan, 44 U.S. (3 How.) 212, 222 (1845); *Shively*, 152 U.S. at 57.

172. 3 Stat. 472, 473 (1817).

173. *See Arnold*, 6 N.J.L. at 3; *Martin*, 41 U.S. at 411–12; Ill. Cent. R.R. Co. v. Illinois, 146 U.S. 387, 435 (1892).

174. *E.g.*, Sands v. Mahistee River Imp. Co., 123 U.S. 288, 295 (1887).

175. *See* Rouse v. Saucier's Heirs, 146 So. 291, 291-92 (Miss. 1933).

176. *Cf.* Robin Kundis Craig, *A Comparative Guide to the Eastern Public Trust Doctrines: Classifications of States, Property Rights, and State Summaries*, 16 PENN ST. ENVTL. L. REV. 1, 24 (2007) ("Alabama has a poorly developed public trust doctrine that has never been expanded beyond the basic federal doctrine.").

177. *Shively*, 152 U.S. at 9.

mean high or low water lines.[178] Mississippi is a high-water state.[179] In *Phillips Petroleum Co. v. Mississippi*,[180] the United States Supreme Court clarified that the state maintains trust ownership over all lands beneath waters subject to the tide's influence.[181]

In addition to those waters subject to the ebb and flow of the tide, what other lands and waters are subject to the public trust? Under the English common law, "navigable waters" were subject to the trust, and "navigable waters" and "tidal waters" were synonymous because no rivers in England were significant enough to be navigable if not flowed by the tide.[182] After some initial dispute in light of the numerous navigable, nontidal waters in the Americas, the public trust doctrine in the United States generally has protected, at a minimum, the public's

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178. Several states, including Delaware, Maine, Pennsylvania, and Virginia, are "low water" states, with public ownership of the submerged lands lying seaward of the mean low water line. *See* State *ex rel.* Buckson v. Pa. R.R. Co., 228 A.2d 587, 597 (Del. 1967) (stating that the riparian proprietor owns to low water mark); Bell v. Town of Wells, 557 A.2d 168, 176 (Me. 1989); Tinicum Fishing Co. v. Carter, 61 Pa. 21, 30 (1869) (holding that riparian title extends to low-water mark, though allowing for public passage during high tides); VA. CODE ANN. § 62.1-81 (2008); *see also* Jose L. Fernandez, *Untwisting the Common Law: Public Trust and the Massachusetts Colonial Ordinance*, 62 ALB. L. REV. 623, 628, 630 (1998) (addressing Massachusetts colonial ordinance apparently extending private property seaward to mean low water line). Most states are "high water" states that recognize state ownership in tidal waterways, the underlying submerged lands, and the shore waterward of the mean high water line. *See, e.g.*, Fogerty v. State, 231 Cal. Rptr. 810 (Ct. App. 1986); Wicks v. Howard, 388 A.2d 1250, 1251 (Md. 1978); Cinque Bambini P'ship v. State, 491 So. 2d 508 (Miss. 1986); O'Neill v. State Highway Dep't, 5235 A.2d 1 (N.J. 1967). In some states, notably New Jersey and Oregon, the public also has rights to some areas above the high water line. *See* Mulvaney & Weeks, *supra* note 153, at 585 (citing Matthews v. Bay Head Improvement Ass'n, 471 A.2d 355, 365 (N.J. 1984) (relying upon public trust doctrine to protect rights to dry sand areas)); State *ex rel.* Thornton v. Hay, 462 P.2d 671 (Or. 1969) (relying upon customary use to protect rights to dry sand areas). However, twenty years after *Thornton*, the Oregon Supreme Court limited the circumstances to which the doctrine of custom applies to dry sand areas. *See* McDonald v. Halvorson, 780 P.2d 714, 724 (Or. 1989) (finding that doctrine of custom, as it had been applied to beaches along the Oregon coast, did not apply to a cove that did not abut the ocean where there was no testimony that showed customary use by ancient inhabitants of the narrow beach on the bank of the cove).

179. *See Cinque Bambini P'ship*, 491 So. 2d at 516 ("[T]he United States granted to the State of Mississippi in trust all lands . . . including their mineral and other subsurface resources, subject to the ebb and flow of the tide below the then mean high water level.").

180. 484 U.S. 469 (1988).

181. *Id.* (declaring all tidelands of public trust interest regardless of navigability). The *Phillips* decision marked a departure from the high court's recent disapproval of a public trust claim by the State of California. *See* Summa Corp. v. California, 466 U.S. 198 (1984) (holding that even if property was part of tidelands to which California would have acquired a public trust easement, the State's failure to assert its claim to such servitude during the original treaty and patent proceedings that ended the war between Mexico and America in 1851 barred California's claim forever).

182. *See* Barney v. Keokuk, 94 U.S. 324, 336 (1876) ("In England, no waters are deemed navigable except those in which the tide ebbs and flows."); The Genessee Chief v. Fitzhugh, 53 U.S. 443, 455 (1851) ("In England . . . tide water and navigable water are synonymous terms.").

interest in the beds of not only tidal waters, but also any navigable waters since the mid-nineteenth century.[183]

The classification of certain waters as "navigable" remains under the prerogative of the states and varies widely by context and jurisdiction.[184] The United States Supreme Court has cautioned, "[A]ny reliance upon judicial precedent must be predicated upon careful appraisal of the purpose for which the concept of 'navigability' was invoked in a particular case."[185] While Mississippi statutes define both "navigable waters"[186] and "public waterways,"[187] the determinative factor for defining "navigable" in Mississippi has been and remains "navigability in fact."[188]

Mississippi waters are "navigable-in-fact" when they "are used, or are susceptible of being used, in their ordinary condition, as highways for commerce, over which trade and/or travel are or may be conducted in the customary modes of trade and travel on water."[189] Further, the Mississippi Supreme Court has determined that waters are "navigable-in-

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183. *See Barney*, 94 U.S. at 338 (explaining that "all waters are deemed navigable which are really so," at least for purposes of admiralty jurisdiction); Ill. Cent. R.R. v. Illinois, 146 U.S. 387, 437 (1892) (holding that bottomlands of the Great Lakes are subject to same public trust protections as bottomlands of tidal waters); *see also*, *e.g.*, Bell v. Gough, 23 N.J.L. 624 (1852); *The Genessee Chief*, 53 U.S. at 455; Utah v. United States, 403 U.S. 9 (1971).

184. *E.g.*, Day v. Armstrong, 362 P.2d 137, 143 (Wyo. 1961) (citing Connelly v. United States, 228 U.S. 243 (1913)).

185. Kaiser Aetna v. United States, 444 U.S. 164, 171 (1979) (emphasis removed); *see also*, *e.g.*, Archer v. Greenville Sand & Gravel Co., 233 U.S. 60 (1914); John A. Humbach, Comment, *Public Rights in the Navigable Streams of New York*, 6 PACE ENVTL. L. REV. 461 (1989). Factors that can influence the meaning of the term "navigable" include the scope of federal admiralty jurisdiction, the scope of Federal Commerce Clause authority, the application of the navigational servitude exception to unconstitutional takings or public right of passage claims under state law, and colonial, state, or federal riparian grants. Although the Army Corps of Engineers publishes a list of water bodies that are "navigable" or "nonnavigable" for federal purposes, these declarations "serve only to exempt these bodies of water from the duties and responsibilities of the U.S. Army Corps of Engineers" and are not controlling. *See* Dycus v. Sillers, 557 So. 2d 486, 501 n.68 (Miss. 1990).

186. MISS. CODE ANN. § 51-1-1 (West 2008) (defining "navigable waters" as "all rivers, creeks and bayous in this state, twenty-five (25) miles in length, that have sufficient depth and width of water for thirty (30) consecutive days in the year for floating a steamboat with carrying capacity of two hundred (200) bales of cotton").

187. *Id.* § 51-1-4 (defining "public waterways" as "[t]hose portions of all natural flowing streams in this state having a mean annual flow of not less than one hundred (100) cubic feet per second").

188. *See Dycus*, 557 So. 2d at 498-99; Culley v. Pearl River Ind. Comm'n, 108 So. 2d 390, 398 (Miss. 1959).

189. Ryals v. Pigott, 580 So. 2d 1140, 1152 (Miss. 1990) (suggesting essential question is navigability-in-fact of watercourses as of the dawn of Mississippi statehood in 1817); *see also* Packer v. Bird, 137 U.S. 661, 667 (1981) ("It is, indeed, the susceptibility to use as highways of commerce which gives sanction to the public right of control over navigation upon [navigable waterways]."); PUTTING THE PUBLIC TRUST DOCTRINE TO WORK, *supra* note 153, at 5.

fact" when they are navigable by loggers, fishermen, pleasure boaters, canoers, tubers,[190] and even by a toothpick with a sail.[191] The court has held that it is enough that some portion of the water body is "navigable-in-fact" or is influenced by tides for the entire water body to be subject to the public trust.[192]

2. Other Protected Resources

Some jurisdictions have expanded the trust to cover not only tidally flowed lands and navigable waters, but also additional waterbodies and expanded uses therein.[193] In certain states, the public trust doctrine

190. *Ryals*, 580 So. 2d at 1152 ("[T]he customary mode of travel on the Bogue Chitto River in southeastern Pike County is through small outboard motor boats, fishing boats, canoes, tubes and other pleasure craft. The customary mode of commerce and trade is providing facilities for hire where persons can rent such vessels. Moreover, the Bogue Chitto is surely capable in its ordinary condition today of supporting commercial fishing. Taking the navigable-in-fact definition at face value . . . the Bogue Chitto River passes the test."); *see also* Guilliams v. Beaver Lake Club, 175 P. 437, 441 (Or. 1918) (declaring that a "vessel carrying a load of passengers to a picnic is in law just as much engaged in commerce as the one carrying grain or other merchandise"); Veazie v. Dwinel, 50 Me. 479, 484 (1862) ("All streams in this State of sufficient capacity, in their natural condition, to float boats, rafts or logs, are deemed public highways, and as such, subject to the use of the public."). *But see*, *e.g.*, 19 ILL. COMP. STAT. ANN. § 65 (1972) (limiting public navigability to "commercial uses and purposes").

191. *See* Cinque Bambini P'ship v. State, 491 So. 2d 508, 515 (Miss. 1986) ("[S]o long as by unbroken water course—when the level of the waters is at mean high water mark—one may hoist a sail upon a toothpick and without interruption navigate from the navigable channel/area to land, always afloat, the waters traversed and the lands beneath them are within the inland boundaries we consider the United States set for the properties granted the State in trust.").

192. *See Dycus*, 557 So. 2d 486. A Maryland court set forth an analogous rule, stating, "Where a stretch of river is navigable lengthwise, . . . all of the waters between the opposite shores or banks are comprehended within the term 'navigable waters.'" Wagner v. City of Baltimore, 124 A.2d 815, 821 (Md. 1956). If this were not the case, the area immediately adjacent to the bank (usually only a few feet deep and thus nonnavigable) would not be subject to the Public Trust Doctrine when it clearly should be. *Id.* Nonetheless, in analyzing the definition of "navigability" as it pertains to the federal Clean Water Act, a fractured Supreme Court left no majority opinion, leaving Justice Kennedy's concurring opinion controlling. Rapanos v. United States, 547 U.S. 715 (2006). Kennedy suggests that, for wetlands to be "navigable," they must play an important role in, or have a "significant nexus to," the integrity of an aquatic system comprising navigable waters, as opposed to a simple finding of geographic proximity to the system. *See id.* (Kennedy, J., concurring) (citing Solid Waste Agency of N. Cook County v. U.S. Army Corps of Eng'rs, 531 U.S. 159 (2001)). Lower courts continue to struggle in the case-by-case application of this "significant nexus" test. *See, e.g.*, United States v. Chevron Pipe Line Co., 437 F. Supp. 2d 605, 613 (N.D. Tex. 2006) (suggesting *Rapanos* provided little guidance to implement the "vague, subjective centerpiece" significant nexus test).

193. *See, e.g.*, Phillips Petroleum Co. v. Mississippi, 484 U.S. 469, 476-83 (1989) (recognizing state interest in protecting rights of "bathing, swimming, recreation, fishing and mineral development"); City of Berkeley v. Superior Court, 606 P.2d 362, 365 (Cal. 1980) (holding the "permissible range of public uses" far broader than navigation, commerce, and fishing, including the preservation of the tidelands "in their natural state as ecological units for scientific study"); Town of Orange v. Resnick, 109 A. 864, 865 (Conn. 1920) (declaring that public trust rights include "fishing, boating, hunting, bathing, taking shellfish, gathering seaweed,

extends to periodically and recreationally navigable waters and their tributaries,[194] adjacent wetlands,[195] artificial reservoirs and lands covered by water caused by dams,[196] flooded lands,[197] and groundwater.[198]

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cutting sedge and of passing and repassing"); Inhabitants of West Roxbury v. Stoddard, 89 Mass. (7 Allen) 158, 167 (Mass. 1863) ("It would scarcely be necessary to mention bathing, or the use of the water for washing, or watering cattle, preparation of flax, or other agricultural uses, to all which uses a large body of water, devoted to the public enjoyment, would usually be applied."); Marks v. Whitney, 491 P.2d 374, 388 (Cal. 1971) ("There is a growing public recognition that one of the most important public uses . . . is the preservation of those lands in their natural state, so that they may serve as ecological units for scientific study, as open space, and as environments which provide food and habitat for birds and marine life, and which favorably affect the scenery and climate of the area."). *But see* Bell v. Town of Wells, 557 A.2d 168, 173 (Me. 1989) (limiting trust rights to fishing, fowling, and navigation); Opinion of the Justices, 313 N.E.2d 561 (Mass. 1974) (limiting trust rights to fishing and navigation).

194. *See, e.g.*, Wilbour v. Gallagher, 462 P.2d 232 (Wash. 1969); Forestier v. Johnson, 127 P. 156 (Cal. 1912); Adirondack League Inc. v. Sierra Club, 706 N.E.2d 1192 (N.Y. 1998); *Ryalls*, 580 So. 2d 1140; People *ex rel.* Baker v. Mack, 97 Cal. Rptr. 448 (Ct. App. 1971); Day v. Armstrong, 362 P.2d 137 (Wyo. 1961); Lamprey v. Metcalf, 153 N.W. 1139 (Minn. 1893); *see also* Nat'l Audubon Soc'y v. Superior Court, 658 P.2d 709, 720 n.17 (Cal. 1983) (citing People *ex rel.* Younger v. County of El Dorado, 157 Cal. Rptr. 815 (Ct. App. 1979); People *ex rel.* Baker v. Mack, 97 Cal. Rptr. 448 (Ct. App. 1971)) (extending public trust to nonnavigable waters above mean high water line because diversion of these waters would affect navigable waters downstream). *But see*, *e.g.*, Rettkowski v. Dep't of Ecology, 858 P.2d 232 (Wash. 1993) (stating that the Washington Supreme Court has "never previously interpreted the [public trust] doctrine to extend to non-navigable waters or groundwater"); *Dycus*, 557 So. 2d 486 (finding that titleholders to submerged lands were entitled to exclude public from fishing in navigable breach in embankment even though it was connected to public lake when that connection was made navigable only by federal dredging activities).

195. *See, e.g.*, Just v. Marinette County, 201 N.W.2d 761 (Wis. 1972); Graham v. Estuary Props., Inc., 399 So. 2d 1374 (Fla. 1981).

196. *See, e.g.*, Pac. Gas & Elec. Co. v. Superior Court, 193 Cal. Rptr. 336 (Cal. Ct. App. 1983) *overruled on other grounds by* Hubbard v. Bram, 785 P.2d 1183 (Cal. 1990); Fogerty v. State, 231 Cal. Rptr. 810 (Ct. App. 1986); State v. Sorensen, 271 N.W. 234 (Iowa 1937); State v. Parker, 200 S.W. 1014 (Ark. 1918); *cf.* Golden Feather Cmty. Ass'n v. Thermalitos Irrigation Dist., 257 Cal. Rptr. 836 (Ct. App. 1989).

197. *See, e.g.*, Bohn v Albertson, 238 P.2d 128 (Cal. Ct. App. 1951); Ark. River Comm'n v. Echubby Lake Hunting Club, 126 S.W.3d 738 (Ark. 2003).

198. *See In re* Water Use Permit Applications (*Wai'ahole I*), 9 P.3d 409 (Haw. 2000) (extending public trust to groundwater). *But see* Seven Springs Ranch, Inc. v. Arizona, 753 P.2d 161, 165 (Ariz. Ct. App. 1987). One scholar recently suggested that the public trust also extends to atmospheric resources, and the doctrine thus should be employed to control human activities that are causing global warming. *See* Mary C. Wood, *Nature's Trust: A Legal, Political, and Moral Frame for Global Warming*, 34 B.C. ENVTL. AFF. L. REV. 577 (2007). Studies show that global warming will impact instream flows by altering the hydrologic cycle, ultimately amplifying the seasonal variations in stream flows and possibly diminishing long-term natural storage capacity. *See, e.g.*, INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, CLIMATE CHANGE AND WATER (Bryson Bates et al. eds. June 2008), www.ipcc.ch/pdf/technical-papers/climate-change-water-en.pdf; T.P. Barnett et al., *Potential Impacts of a Warming Climate on Water Availability in Snow-dominated Regions*, 438 NATURE 303 (2005), *available at* http://www.nature.com/nature/journal/v438/n7066/pdf/nature04141.pdf; P.C.D. Milly et al., *Global Pattern of Trends in Stream Flow and Water Availability in a Changing Climate*, 438 NATURE 347 (2005), *available at* http://www.nature.com/nature/journal/v438/n7066/pdf/nature04312.pdf; Sarah

In Mississippi, the state's high court has expanded the purpose of the public trust doctrine to reflect the "overall public interest and purpose in accommodating an expanding population, commerce, tourism and recreation."[199] That same court noted that the "purposes of the trust have evolved with the needs and sensitivities of the people—and the capacity of trust properties through proper stewardship to serve those needs."[200]

Mississippi's courts have displayed this evolution by declaring, for example, that the public trust doctrine imposes upon the government a duty to serve as a steward of the living resources within these waterways.[201] In 1940, the Mississippi Supreme Court stated that "since the fish . . . are not the subject of private ownership until reduced to actual possession, their ownership in the meantime so far as capable of ownership is in the state, not as proprietor, but in its sovereign capacity, as the representative, and for the benefit, of all its people in common."[202] Five decades later, the court reiterated that the title to fish "is in all the inhabitants in the state, and no person can acquire any absolute title, as against all others, except by capture and subjection to his own control."[203]

Slaughter, *Water Looms as "The Next Oil,"* WATER & WASTEWATER NEWS, May 1, 2008, *available at* http://www.wwn-online.com/articles/61594/. For excellent discussions of broad water law reforms necessary to counter the impacts of global warming, see, for example, Joseph W. Dellapenna, *Adapting the Law of Water Management to Global Climate Change and Other Hydropolitical Stresses*, 35 J. AM. WATER RESOURCES ASS'N 1301 (1999); A. Dan Tarlock, *How Well Can International Water Allocation Regimes Adapt to Global Climate Change?*, 15 J. LAND USE & ENVTL. L. 423 (2000) (suggesting adaptive regional management techniques to counter the severe droughts and floods predicted by climate change modeling).

199. Treuting v. Bridge & Park Comm'n, 199 So. 2d 627, 633 (Miss. 1967); *see also* Home for Aged Women v. Commonwealth, 89 N.E. 124, 129 (Mass. 1909) ("[I]t would be too strict a doctrine to hold that the trust for the public, under which the State holds and controls navigable tide waters and the land under them, beyond the line of private ownership, is for navigation alone. It is wider in its scope, and it includes all necessary and proper uses, in the interest of the public.").

200. Cinque Bambini P'ship v. State, 491 So. 2d 512 (Miss. 1986); *see also* Ryals v. Pigott, 580 So. 2d 1140, 1150 (Miss. 1990) (asserting that defining navigability in a specific instance "has been a function of the source and (potential) natural capacities of the waters and the public need therefor [sic], and these have been no more static than life itself"); Sec'y of State v. Wiesenberg, 633 So. 2d 983, 994 (Miss. 1994); Matthews v. Bay Head Improvement Ass'n, 471 A.2d 355, 366 (N.J. 1984) (stating that the public trust doctrine is not "fixed or static" but one to "be molded and extended to meet changing conditions and the needs of the public it was created to benefit").

201. *Wiesenberg*, 633 So. 2d at 994.

202. State Game & Fish Comm'n v. Fritz, 193 So. 9, 11 (Miss. 1940). In arguably the most prominent decision on the public trust doctrine in the nation's history, the United States Supreme Court found the doctrine supported "a title held in trust for the people of the state that they may enjoy the navigation of the waters, carry on commerce over them, and have liberty of fishing therein, freed from the obstruction or interference of private parties." Ill. Cent. R.R. v. Illinois, 146 U.S. 387, 452 (1892).

203. *Dycus*, 557 So. 2d at 502. The court labeled the right to fish "prominent among the federal sovereign's public purposes" in preserving trust lands for public use. *Id.* at 486-93.

The court went on to declare that Mississippi "has long identified fishing as among the uses to which public waters have been and shall forever remain dedicated."[204]

Mississippi broadened the traditional trust rights of the public to specifically include recreational uses such as swimming and boating.[205] In addition, the state's high court determined that, at least for purposes of admiralty jurisdiction, the trust applies to the nonnavigable portions of navigable inland waterways along with those influenced by the tide.[206] The court stated:

> Over the years [the] purposes [of the trust] have come to include navigation and transportation; commerce, fishing, bathing, swimming and other recreational activities; development of mineral resources, environmental protection and preservation; the enhancement of aquatic, avarian and marine life, sea agriculture and no doubt others.[207]

The next Part contends that these broad pronouncements on the state's public trust doctrine position the doctrine as an independent operative and potential authority to require the state as trustee to exercise its duties to serve the "needs and sensitivities" of the day with respect to instream flow preservation.[208]

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204. *Id.* at 498; *see also Ryals*, 580 So. 2d at 1147; *Cinque Bambini P'ship*, 491 So. 2d at 515. As trustee of the fishes, states have statutory and regulatory authority under their police powers to preserve and regulate fishery resources. *See generally* Douglas v. Seacoast Prods., 431 U.S. 265, 284-85 (1977) (defining states' public trust authority in terms of preserving resources for the benefit of the public, as opposed to proprietary ownership of such resources); Smith v. Maryland (*The Volant*), 59 U.S. 71, 75 (1855) ("The State holds the propriety of this soil [below the low-water line] for the conservation of the public rights of fishery thereon, and may regulate the modes of that enjoyment so as to prevent the destruction of the fishery. In other words, it may forbid all such acts as would render the public right less valuable, or destroy it altogether."). A Mississippi statute confirms that all citizens have the right to fish and engage in water sports on public waterways. *See* MISS. CODE ANN. § 51-1-4 (West 2008). While state codification concerning the exploitation of fisheries most often regulates fish of commercial interest or for nutritional quality, these more common legislative responses do not diminish the states' obligation as trustees of preserving the ecological integrity of all aquatic life.

205. *See* Treuting v. Bridge & Park Comm'n of City of Biloxi, 199 So. 2d 627 (Miss. 1967) (addressing Mississippi statute that allows lease or sale of public lands only when such lease or sale would not affect public's recreational uses); *see also* MISS. CODE ANN. § 49-27-8 (stating that "swimming, boating, or other recreation" are traditionally protected public uses).

206. *See Cinque Bambini P'ship*, 491 So. 2d at 515. The United States Supreme Court ultimately upheld this decision in *Phillips Petroleum Co. v. Mississippi*, 484 U.S. 469, 476 (1988). Mississippi's Mineral Lease Commission had leased oil and gas rights in tidelands to Saga Petroleum U.S., Inc., which belonged to Cinque Bambini Partnership and Phillips Petroleum Company. *See Cinque Bambini P'ship*, 491 So. 2d at 511.

207. *See Cinque Bambini P'ship*, 491 So. 2d at 512 (internal citations omitted).

208. *See supra* note 200 and accompanying text.

V. THE PUBLIC TRUST: AN INDEPENDENT OPERATIVE TO PROTECT INSTREAM FLOWS

The principle of preventing degradation of public trust uses by upstream activities is evident in case law dating back to the nineteenth century. For example, in 1884, a California court upheld an injunction prohibiting upstream hydraulic mining that silted downstream rivers, in light of the resultant flooding and navigation impediments.[209] Academic literature is rich with debate over the proper role of the public trust doctrine with respect to instream flow management in western states with appropriative rights regimes.[210] However, many scholars question the vitality of the public trust for instream flow management in regulated riparian states.[211]

Nonetheless, in a series of decisions beginning in 2000, the Supreme Court of Hawai'i for the first time offered a glimpse into the potential independent operation of the public trust doctrine in a jurisdiction with a regulated riparian system.[212] The high court of Hawai'i in *Wai'ahole I* declared that the preservation of waters in their natural state is a protected use within the state's common law public trust, and the doctrine must be considered in water allocation decisions beyond the considerations set forth in the state's water code.[213] The decision has come to be both praised as "seminal and long overdue" as a legal source for environmental protection[214] and simultaneously criticized as "the most far-reaching extensions of the public trust doctrine," impinging on the

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209. *See* People v. Gold Run Ditch & Mining Co., 4 P. 1152 (Cal. 1884); *see also* People v. Truckee Lumber Co., 48 P. 374 (Cal. 1897) (declaring public trust to encapsulate the protection of fish in nonnavigable waters).

210. For a sampling of academic literature on the public trust doctrine in appropriative rights jurisdictions, see sources cited *supra* note 15.

211. *See, e.g.*, Dellapenna, *supra* note 98, § 9.05(b) (contending *Wai'ahole I* does not explain what the public trust doctrine adds to terms of state water code); David L. Callies & Calvert G. Chipchase, *Water Regulation, Land Use and the Environment*, 30 U. HAW. L. REV. 49 (2007) (advocating that water is only a component of land use, not the primary concern, and asserting that *Wai'ahole I* upset the balance between land use and water law); Callies & J. David Breemer, *Selected Legal and Policy Trends in Takings Law: Background Principles, Custom and Public Trust "Exceptions" and the (Mis)-Use of Investment-Backed Expectations*, 36 VAL. U.L. REV. 339 (2002) (suggesting broad public trust pronouncements will reduce private commercial investment in water uses in light of an indeterminate number of future pronouncements). *But see* Proceedings of the 2001 Symposium on Managing Hawaii's Public Trust Doctrine, *supra* note 16, at 61 (statement of Joseph L. Sax) (arguing that similar investment-stifling concerns raised after the Mono Lake decision have not been realized).

212. *In re* Water Use Permit Applications (*Wai'ahole I*), 9 P.3d 409 (Haw. 2000); *In re* Water Use Permit Applications (*Wai'ahole II*), 93 P.3d 643 (Haw. 2004).

213. *Wai'ahole I*, 9 P.3d at 454.

214. *See* Proceedings of the 2001 Symposium on Managing Hawai'i's Public Trust Doctrine, *supra* note 16, at 74 (statement of Colin Kippen).

fundamental separation of powers among the three branches of government.[215]

The *Wai'ahole I* decision has been attacked for lacking standards as to exactly what constitutes public trust resources, uses, and values.[216] Still, this Article suggests it provides a framework for potential application of trust principles in other regulated riparian jurisdictions independent of the states' administrative water codes, though not without significant constitutional questions that must be addressed in any application.

This Part constructs and applies this conceptual approach reliant upon the public trust doctrine as an independent source for demanding a proactive method to protect instream flows that would supplant Mississippi's current policy and help avoid the ecological degradation that many drought-stricken eastern states now face. Subpart A provides background information on the recent Hawai'i Supreme Court opinion in *Wai'ahole I*, which serves to introduce the framework addressed in Subparts B and C.

Subpart B contends that for the public trust doctrine to play a significant role in a regulated riparian state, *Wai'ahole I* indicates that the state's courts must: (1) show a willingness to adopt a higher level of scrutiny when public trust resources are at stake than the traditional deference afforded to agency decisions, (2) recognize that the state's codification of the trust by state statute or regulatory code does not eradicate or subsume any function for common law public trust principles, and (3) regard the doctrine as a mandatory obligation as opposed to a voluntary authority.

Subpart C first analyzes the response of the Mississippi legislature and judiciary to the landmark United States Supreme Court holding in *Phillips Petroleum Co. v. Mississippi*,[217] which clarified the scope of the public trust doctrine and recognized its evolving nature. The Subpart then suggests that recent Mississippi case law may comport with the conceptual framework espoused in the Hawai'i decision and discussed in Subpart B, arguably setting forth an affirmative duty on behalf of the state, independent of its current water code, to expand the protection of instream trust resources.

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215. Callies & Breemer, *supra* note 211, at 357 (labeling the *Wai'ahole I* decision a judicial "rewriting [of] Hawaii's legislatively crafted water code").

216. *See* Proceedings of the 2001 Symposium on Managing Hawai'i's Public Trust Doctrine, *supra* note 16, at 43 (statement of Ken Kupchak).

217. 484 U.S. 469 (1988).

Subpart D broadly poses some of the important constitutional questions surrounding the separation of powers, takings jurisprudence, and standing, all of which state courts would need to address in implementing the conceptual framework set forth in this Part.

A. Background on the Wai'ahole I Decision

The water dispute at issue involved the suitable allocation of nearly twenty-seven million gallons per day that had been diverted since the 1920s by the Wai'ahole ditch system.[218] The system, a twenty-five-mile-long tunnel, channeled fresh surface water and dike-impounded ground water from the natural waters on the windward side of the Ko'olau mountain range on Oahu to irrigate sugar plantations on the more arid leeward side.[219] The irrigation structure's diversions reduced the natural flows of several streams on the windward side, "affecting the natural environment and human communities dependent upon them."[220]

The demise of the sugar industry in 1993 led the private owner of the irrigation system, Wai'ahole Irrigation Company (Company), to file a water use permit application to the State Commission on Water Resource Management (Commission) seeking to protect its distribution of water to existing users.[221] The City of Honolulu, Hawai'i, along with several local and private interested organizations, saw this as an opportunity for the reallocation of longstanding apportionments and sought permission from the Commission to reserve water.[222] Additionally, organizations on the windward side filed petitions to increase the minimum flow standards for streams.[223]

After allegations that the Company was simply disposing of the diverted water previously utilized by the sugar cane farms, the parties reached an interim agreement where this "surplus" water would remain on the windward side.[224] The Commission ultimately held combined hearings for over twenty interested parties.[225]

The complex administrative hearings lasted over six months.[226] In 1997, the Commission issued a 257-page order that required lowering the

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218. *Wai'ahole I*, 9 P.3d at 423.
219. *Id.*
220. *Id.*
221. *Id.*
222. *Id.*
223. *Id.* at 424.
224. The court later noted this caused "immediate apparent positive effects on the stream ecology" on the windward side. *Id.*
225. *Id.* at 425.
226. *Id.* at 424-26.

amount of water diverted to the leeward side, leaving some water in reserve for future state permitting authorizations for agricultural purposes and denying certain proposed use applications, including those for a golf course and specific residential landscaping, though allowing some continued flow for commercial and other offstream uses.[227] Ten parties appealed to the Hawai'i Supreme Court, which issued a 102-page opinion in 2000.[228]

B. Lessons of Wai'ahole I for Other Regulated Riparian Jurisdictions

The decision of the Hawai'i Supreme Court focused on the public trust doctrine, citing the state's longtime trust obligation "to maintain the purity and flow of [her] waters for future generations."[229] One commentator described the court's definition of the public trust as an "intragenerational, as well as intergenerational, equity doctrine."[230]

In addition to addressing the strong historical roots of the state's public trust doctrine, the *Wai'ahole I* court established three fundamental principles to support a role for the doctrine in instream flow protection in regulated riparian states.[231] As addressed in Subparts 1 through 3 below, the court: (1) showed a willingness to adopt a higher level of scrutiny when public trust resources are at stake than the traditional deference afforded to agency decisions, (2) dictated that the public trust doctrine operates independently of the state's codification of the trust by state statute or regulatory code, and (3) regarded the doctrine as a mandatory obligation as opposed to a voluntary authority.[232]

1. A Higher Level of Scrutiny When Trust Resources Are at Stake

In *Wai'ahole I*, the Hawai'i high court indicated at the outset that it would uphold the Commission's findings of fact unless they were "clearly erroneous" or otherwise unsubstantiated by the evidence.[233] Nonetheless, the court took a detailed interest in examining the Commission's factual findings and a "close look" at the decision to

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227. *Id.* at 428-30.

228. In accord with the Hawai'i State Water Code, contested case hearings are appealed directly to the Supreme Court. *See* HAW. REV. STAT. § 174C-60 (1997).

229. *Wai'ahole I*, 9 P.3d at 441 (quoting Robinson v. Ariyoshi, 658 P.2d 287, 310 (Haw. 1982)).

230. *See* Proceedings of the 2001 Symposium on Managing Hawai'i's Public Trust Doctrine, *supra* note 16, at 37 (statement of Timothy Johns) (asserting that trust resources must be distributed equally today and preserved for future generations).

231. *Wai'ahole I*, 9 P.3d at 409.

232. *Id.*

233. *Id.* at 431.

determine whether the water allocations complied with the public trust doctrine, ultimately remanding to the Commission for further findings.[234]

The court criticized portions of the evidentiary record, along with elements of the Commission's methodology, in vacating a number of water allocations.[235] Citing the significance of the trust in Hawai'i, the Supreme Court declared, "[T]he ultimate authority to interpret and defend the public trust . . . rests with the courts. . . ."[236] When the case returned to the court in 2004, the court again looked at the Commission's findings using a strict standard of review, despite language in the opinion to the contrary, in declaring that the Commission's strengthened protections for the public trust nonetheless were erroneous.[237]

2. The Public Trust Doctrine Overrides Attempted Codification of the Trust

In addition to addressing the common law roots of the public trust doctrine, the court also cited to the state's Constitution, which, following the 1978 Constitutional Convention, declared:

> For the benefit of present and future generations, the State and its political subdivisions shall conserve and protect Hawaii's natural beauty and all natural resources, including land, water, air, minerals and energy sources, and shall promote the development and utilization of these resources in a manner consistent with their conservation and in furtherance of the self-sufficiency of the State.[238]

Hawai'i's Constitution went on to state, "All public natural resources are held in trust by the State for the benefit of the people."[239]

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234. *Id.* at 458-72; *see also* Jan Stevens, *Applying the Public Trust Doctrine to River Protection*, *in* 4 CALIFORNIA WATER PLAN UPDATE 2005, at 393 (2005), *available at* http://www.waterplan.water.ca.gov/docs/cwpu2005/vol4/vol4-environment-applyingpublictrustdoctrine.pdf (suggesting whether application of public trust to water rights "imposes additional mandate or merely a 'hard look'" is unsettled in California). Several commentators suggest that the higher level of scrutiny applied in *Wai'ahole I* disregards the city and county planning that the Commission is required to follow. On Oahu, these plans called for increased development on the leeward side, and the accompanying need for water, and limited development on the windward side. *See, e.g.*, Callies & Chipchase, *supra* note 211, at 56-64, 77 (stating that it is the Commission's role to follow planning process, not undertake land use planning itself).

235. *See Wai'ahole I*, 9 P.3d at 470-71, 501-02. The court held that the public trust doctrine required the Commission to make "precautionary" presumptions in favor of preventing environmental degradation when scientific data is uncertain. *Id.* at 471.

236. *Id.* at 455.

237. *See In re* Water Use Permit Applications (*Wai'ahole II*), 93 P.3d 643, 650-53 (Haw. 2004).

238. *Wai'ahole I*, 9 P.3d at 442 (quoting HAW. CONST. art. XI, § 1).

239. *Id.*

The Constitution required the state legislature to establish a water resource management agency, which ultimately led to the establishment of the State Water Code and the Commission to administer it.[240] The *Wai'ahole I* court found that these provisions make the protection of the public trust a constitutional prerogative that cannot be diminished simply by legislative or administrative action.[241]

The court rejected the arguments of several parties that the State Water Code eradicated or subsumed any role for common law public trust principles.[242] The decision asserted that the state's public trust obligations are "an inherent attribute of sovereign authority that the government 'ought not, and ergo, . . . cannot surrender.'"[243] Further, the court held that public trust obligations are preserved in the Hawai'i Constitution as a "fundamental principle of constitutional law."[244]

3. An Affirmative Duty Under the Public Trust Doctrine

The *Wai'ahole I* court found an affirmative duty on behalf of the State Water Commission to protect public trust resources wherever feasible, and that these resources are presumptively protected in favor of the public's use and enjoyment thereof.[245] The decision ordered the

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240. *See id.* (citing HAW. REV. STAT. § 174C-1 to -68 (1987)).

241. *See id.* at 444-45. Hawai'i's high court relied heavily upon the 1983 landmark opinion by California's Supreme Court in *National Audubon Society v. Superior Court* (*Mono Lake*). *See id.* at 440-41 (citing Nat'l Audubon Soc'y v. Superior Court (*Mono Lake*), 33 Cal. 3d 419, 447 (Cal. 1983)). In *Mono Lake*, the court held that the public trust doctrine imposes on the state a duty of "continuing supervision" of trust resources in allocating consumptive water rights to individuals and municipalities in an appropriative rights system, even where existing but antiquated government allocations to divert Mono Lake and its tributaries did not give the same credence to public trust rights. *Id.* at 447. Professor Joseph Sax has noted that there can be no such thing as a permanent, once-and-for-all allocation of trust waters or land. *See* Proceedings of the 2001 Symposium on Managing Hawai'i's Public Trust Doctrine, *supra* note 16, at 31 (statement of Joseph L. Sax); *see also Wai'ahole II*, 93 P.3d 643 (declaring on remand that state agency again had not sufficiently supported protection of trust resources in nonarbitrary manner).

242. *See Wai'ahole I*, 9 P.3d at 441 ("[T]he king's reservation of his sovereign prerogatives respecting water constituted much more than restatement of police powers." (internal citations omitted)).

243. *See id.* at 443 (quoting McBryde Sugar Co. v. Robinson, 504 P2d 1330, 1388 (Haw. 1973)).

244. *Id.* at 443-44.

245. *Id.* at 454. *But see id.* at 502-03 (Ramil., J., dissenting) ("The public trust doctrine, as expressed in the Hawai'i Constitution and as subsequently incorporated into the Code, does not mandate preference for instream uses or native Hawaiian rights."); Callies & Chipchase, *supra* note 211, at 52-53 (contending that *Wai'ahole I* prioritization improperly trumped legislative policy statements favoring economic development over protection of the natural environment). Hawai'i's Water Code states:

> The state water code shall be liberally interpreted to obtain maximum beneficial use of the waters of the State for purposes such as domestic uses, aquaculture uses, irrigation

restoration of significant stream flows on the windward side in order to realize those important rights.[246]

While acknowledging the necessity of maintaining a process for balancing of environmental costs and benefits against economic, social, and other factors where feasible, the high court explicitly rejected the claim that maintaining waters in their natural state represented "waste" and declared that private economic development was not a protected trust purpose.[247] Admittedly, though the *Wai'ahole I* decision clearly elevated the status of the public trust where such a balancing test is employed, just how high the trust is elevated in Hawai'i, as in many other states, remains undetermined. The next Subpart looks at the state of Mississippi's public trust jurisprudence in conjunction with the framework set forth in *Wai'ahole I*.

> and other agricultural uses, power development, and commercial and industrial uses. However, adequate provision shall be made for the protection of traditional and customary Hawaiian rights, the protection and procreation of fish and wildlife, the maintenance of proper ecological balance and scenic beauty, and the preservation and enhancement of waters of the State for municipal uses, public recreation, public water supply, agriculture, and navigation. Such objectives are declared to be in the public interest.

HAW. REV. STAT. § 174C-2 (2001). Professors Callies and Chipcase suggest that because economic uses are included in the first sentence of the statutory provision, those uses necessarily must be of superior preference to those uses in the second sentence. *See* Callies & Chipcase, *supra* note 211, at 57. However, the statute also could be interpreted as requiring ecologic safeguards before addressing beneficial economic uses; indeed, if it is not, obtaining "maximum" beneficial economic use could make any environmental protections in the second sentence meaningless. *See, e.g.*, Bailey v. United States, 516 U.S. 137, 145-46 (1995) (explaining tenet of statutory construction that discourages courts from adopting a reading of a statute that renders any part of the statute mere surplusage).

246. *See Wai'ahole I*, 9 P.3d at 454.

247. *Id.* at 454, 468-69. Still, Hawai'i's high court found that domestic and Native Hawaiian customary consumptive uses also garnered protection under state law. *Id.* at 448-49. Admittedly, the decision relied upon Hawai'i's unique history, as the state inherited common law from the Kingdom of Hawai'i in addition to that of England and the United States. *Id.* at 442. Further, the court explained that "the public trust may have to accommodate offstream diversions inconsistent with the mandate of protection, to the unavoidable impairment of public instream uses and values." *Id.* at 453. Indeed, the court moved back, in part, from the original decision of the Commission, which stated that trust interests must be protected as a "categorical imperative," in deciding that the Commission must weigh these competing public and private uses on a case-by-case basis. *Id.* at 454; *see also* Callies & Chipchase, *supra* note 211, at 68 (explaining how the *Wai'ahole I* court refused to adopt the Commission's establishment of preservation as the essential function of water use management, but rather one of several functions); Cal. Trout, Inc. v. Water Res. Control Bd., 255 Cal. Rptr. 184, 190-94 (Ct. App. 1989) (construing statutory requirement of "sufficient water" for preservation of fish to establish categorical priority). The court's resort to this balancing scheme has lead some commentators to question the actual role of the public trust doctrine in a regulated riparian state, where the state's water code already stresses the administering agency's obligation to engage in a similar balancing test among current and future water uses. *See, e.g.*, Dellapenna, *supra* note 21, § 9.05(b). For a discussion of this criticism, see *infra* note 316 and accompanying text.

C. Opening the Door for Independent Operation of the Public Trust To Protect Instream Flows in Other Jurisdictions

This Subpart posits that Mississippi's Supreme Court has shown a willingness not only to expand the public trust beyond traditional notions,[248] but also to address the public trust in three ways that Hawai'i's high court implicitly found essential to its holding. Subpart 1 shows an example of the state Supreme Court adopting a higher level of scrutiny when public trust resources are at stake than the traditional deference afforded to agency decisions. Subpart 2 outlines a recent decision by that same court implying that the public trust doctrine operates independently of the state's codification of the trust. Subpart 3 addresses the Mississippi high court's long history of regarding the doctrine as a mandatory obligation, as opposed to a voluntary authority.

1. Exacting a Higher Level of Scrutiny

In *American Sand & Gravel Co. v. Tatum*,[249] the Mississippi Supreme Court seemingly redefined the traditional deference afforded to agency decisions by affirming the reversal of a permit granted by the MDEQ in light of public trust concerns.[250] Under the relevant statute at issue, MDEQ is responsible for achieving "an acceptable, workable balance between the economic necessities of developing [the state's] natural resources and the public interest in protecting our birthright of natural beauty and a pristine environment."[251] In this instance, MDEQ contended that it balanced the economic interests in development with the preservation of the natural condition of trust resources in granting American Sand a conditional permit to mine along a river.[252]

Landowners abutting that river filed suit, seeking to have a portion of the river and adjacent land declared unsuitable for mining in light of, amidst other concerns, its importance as an ecologically sensitive area.[253] The court affirmed the chancery court opinion, which had invalidated the permit in light of the agency's failure to support its decision with substantial evidence and comply otherwise with state statutory and regulatory law.[254] In rejecting the MDEQ's contention that American Sand's mining project included a reclamation plan that would support

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248. *See supra* notes 193-207 and accompanying text.
249. 620 So. 2d 557 (Miss. 1993).
250. *Id.* at 560, 564.
251. *Id.* at 559 (citing MISS. CODE ANN. § 53-7-3(2) (Supp. 1991)).
252. *Id.* at 559-60.
253. *Id.*
254. *Id.* at 557.

public trust uses, the court reminded the state of its common law obligations, asserting that "[d]esignated state agencies must . . . be more conscientious in fulfilling their duty to protect and preserve Mississippi's most precious natural resource[s]."[255]

2. Overriding Codification of the Trust

In *Phillips Petroleum Co. v. Mississippi*,[256] the petitioners held record title to forty-two acres of land lying beneath a bayou and several streams.[257] When the State issued oil and gas leases for the property, the Petitioners sought to quiet title.[258] A Mississippi chancery court declared that the State held title to these lands under the public trust doctrine, even though they were nonnavigable, because they were adjacent to, and tributaries of, a navigable river flowing into the Gulf of Mexico that is influenced by the tides.[259] The Mississippi Supreme Court upheld this decision, and, in 1988, the United States Supreme Court affirmed, not only clarifying that the state maintains trust ownership over all lands beneath waters subject to the tide's influence,[260] but also recognizing an expansion of appropriate uses protected under the doctrine.[261]

One year later, Mississippi's Secretary of State responded to the decision by establishing a commission to make recommendations for a methodology to use in determining the precise tidelands boundary.[262] The commission's findings prompted the Mississippi Secretary of State to recommend a mapping boundary for undeveloped areas reflective of the state's tidal waters at the inception of Mississippi's statehood in 1817.[263] However, the legislature chose 1973, the year the state adopted its Coastal Wetlands Protection Act, as the operative boundary determination date for undeveloped areas in enacting the Mississippi Public Trust Tidelands Act (Tidelands Act).[264]

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255. *Id.* at 564. The court found the evidence in the record did not support MDEQ's contention that American Sand's reclamation project would involve the creation of "a pristine lake with sandy beaches" for public trust uses. *Id.* at 561.

256. 484 U.S. 469 (1988).

257. *Id.* at 472.

258. *Id.*

259. *Id.* at 472-73.

260. *Id.* at 484-85.

261. *Id.* at 482 (identifying "bathing, swimming, recreation, fishing, and mineral development" as examples of appropriate trust uses).

262. *See* M. Casey Jarman & Richard McLaughlin, *A Higher Public Purpose? The Constitutionality of Mississippi's Public Trust Tidelands Legislation*, 11 MISS. C.L. REV. 5, 9 (1990).

263. *See id.* at 11-14.

264. *See* MISS. CODE ANN. § 29-15-7 (1990). The Act exempted development existing as of July 1, 1973, the time of the effective date of the Coastal Wetland Protection Act. For a

The Tidelands Act directed the Mississippi Secretary of State to depict on a map all public trust and private coastal boundaries.[265] The state legislature declared it Mississippi public policy to

> favor the preservation of the natural state of the public trust tidelands and their ecosystems and to prevent the despoliation and destruction of them, except where a specific alteration of specific public trust tidelands would serve a higher public interest in compliance with the public purposes of the public trust in which such tidelands are held.[266]

The disparity between the respective baseline proposals for undeveloped areas prompted the Mississippi Secretary of State to challenge the constitutionality of the Tidelands Act as violative of the state constitution's donation clause.[267]

Indeed, the state legislature had acknowledged that using the 1973 boundary might gratuitously confer to private owners valuable filled land that may have been validly claimed as part of the public trust.[268] However, the legislature asserted in the Tidelands Act that providing title

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detailed discussion on the background of the controversy over the boundary for undeveloped areas, see Jarman & McLaughlin, *supra* note 262, at 9-13.

265. *See* MISS. CODE ANN. § 29-15-7.

266. *Id.* § 29-15-3(1) (West 2008). Similar public policy statements can be found advocating for the preservation of coastal wetlands and "the air and waters of the state and to protect, maintain and improve the quality thereof for public use, for the propagation of wildlife, fish and aquatic life, and for domestic, agricultural, industrial, recreational and other legitimate beneficial uses." *Id.* §§ 49-17-3, 49-27-3. Determining what constitutes a "higher purpose" and "other legitimate beneficial uses" in Mississippi could certainly serve as fodder for additional research. For a lengthy discussion about the early interpretations of the "higher purpose" language in the Act, see John A. Duff & Kristen M. Fletcher, *Augmenting the Public Trust: The Secretary of State's Efforts To Create a Public Trust Ecosystem Regime in Mississippi*, 67 MISS. L.J. 645, 654-57 (1998) (arguing that the Mississippi Secretary of State's exchange with a budding casino operator of Gulf front lands for significantly more acreage for inland natural preservation met this higher purpose).

There is considerable debate as to whether trust property is strictly inalienable, or whether only the functionality of that trust property is inalienable. *Compare*, *e.g.*, Joseph L. Sax, *Liberating the Public Trust Doctrine from Its Historical Shackles*, 14 U.C. DAVIS L. REV. 185, 192-93 (1980), *and* John Moustakas, *Group Rights in Cultural Property: Justifying Strict Inalienability*, 74 CORNELL L. REV. 1179, 1218 (1989), *with* Harry R. Bader, *Antaeus and the Public Trust Doctrine: A New Approach to Substantive Environmental Protection in the Common Law*, 19 B.C. ENVTL. AFF. L. REV. 749, 759 (1992). Nevertheless, the common modern application of the doctrine allows for narrow circumstances in which alienation of trust resources is appropriate. *See* Duff & Fletcher, *supra* note 266, at 680; Susan Rose-Ackerman, *Inalienability and the Theory of Property Rights*, 85 COLUM. L. REV. 931 (1985).

267. *See* MISS. CONST. ANN. art. 4, § 95 ("Lands belonging to, or under the control of the state, shall never be donated directly or indirectly, to private corporations or individuals, or to railroad companies."). The Secretary argued that the Tidelands Act's validation of encroachments on public trust lands prior to 1973 vests title in persons who negligently or knowingly committed the encroachment. *See* Jarman & McLaughlin, *supra* note 262, at 26.

268. Sec'y of State v. Wiesenberg, 633 So. 2d 983, 987 (Miss. 1994).

stability to private landowners constituted a "higher public purpose" outweighing this possibility.[269] The Mississippi Supreme Court sided with the legislature and upheld the Tidelands Act in *Secretary of State v. Wiesenberg*.[270]

Some commentators rightly question the *Wiesenberg* decision as improperly allowing the legislature to prioritize landowner certainty and economic growth over the permanent depletion of the public's trust resources.[271] Nonetheless, similar to the *Wai'ahole I* court's reading of Hawai'i's water code, Mississippi courts, even without the explicit constitutional backing evidenced in Hawai'i, subsequently have acknowledged that while the Tidelands Act represents an integration of the public trust duties with statute-directed ecosystem management, it does not subsume the doctrine.[272] For example, since the holding in *Wiesenberg*, the Mississippi Supreme Court has affirmed the Secretary of State's broad discretion to deny the lease of public tidelands despite approval by other state agencies with authority to determine the legality and suitability of proposed uses of those public tidelands.[273]

In an even more relevant case, the state's high court in *Stewart v. Hoover*[274] recently confirmed that waters that did not appear on the Mississippi Secretary of State's statutorily mandated original map still may be classified as public trust tidelands if found in their natural state.[275]

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269. *Id.* at 987-88.

270. *Id.*; *see also* Columbia Land Dev., LLC v. Sec'y of State, 868 So. 2d 1006, 1014 (Miss. 2004).

271. *See* Duff & Fletcher, *supra* note 266, at 654; *see also* Jarman & McLaughlin, *supra* note 262, at 11-14, 30, 35 n.287 (contending prior to state Supreme Court's decision in *Wiesenberg* that the Act was not in keeping with United States Supreme Court precedent in *Phillips Petroleum Co.* or the Mississippi Constitution in light of fact that donation clause does not contain exceptions for "higher public interests"); Money v. Wood, 118 So. 357, 359 (Miss. 1928) ("[T]he state, as trustee, has no right or power to dispose of such [public trust] lands . . . inconsistent with the purpose for which the trust exists."); Rouse v. Saucier's Heirs, 146 So. 291 (Miss. 1933) (invalidating conveyance of tidelands made by State Land Commissioner); Int'l Paper Co. of Moss Point v. Miss. State Highway Dep't, 271 So. 2d 395, 398 (Miss. 1972) ("[T]he ownership of the state was and is as trustee for the use and benefit of all the people of the state and it is not subject to conveyances to private individuals for private purposes."); United States v. Harrison County, 399 F.2d 485 (5th Cir. 1968) (suggesting that Mississippi's donation clause prohibits private upland owners from gaining title to artificially filled trust tidelands). *But see* Treuting v. Bridge & Park Comm'n of Biloxi, 199 So. 2d 627 (Miss. 1967) (validating sale of submerged lands that promoted public trust uses despite "incidental private ownership" of fifty-three percent of the property).

272. *See, e.g.*, Columbia Land Dev., LLC v. Sec'y of State, 868 So. 2d 1006 (Miss. 2004).

273. *Id.* at 1014 (confirming the Mississippi Secretary of State's denial of lease despite Gaming Commission's approval of use of public tidelands for casino).

274. 815 So. 2d 1157 (Miss. 2002).

275. *See id.* at 1162 (finding that legislature did not contemplate loss of public trust lands "because of an oversight in the mapping process").

By allowing the attributes of a watercourse to override statutory codification of the public trust, the state supreme court implied that the public trust operates, in part, independently of the statute's expression of the public trust. The holding confirms that no declaration of the legislature shall be deemed to relinquish the public's rights of access to and use of lands and waters subject to the trust.[276]

3. An Affirmative Duty

Professor Dellapenna, a preeminent water law expert, contends that the *Wai'ahole I* decision does not "explain how the invocation of the public trust doctrine added anything to the terms" of the state's regulated riparianism code, but for a fleeting reference to an "affirmative duty" that is lessened by the court's call for balancing private consumptive interests.[277] This Article proposes that a focus on these affirmative duties of the trustee in Mississippi dictates that there may remain a role for the public trust in certain regulated riparian jurisdictions. As Professor Joseph Sax explained, the *Wai'ahole I* holding, when viewed as "a strong commitment to such a doctrine and a willingness in an energetic way to see that it's enforced," can empower legislators and administrators to move forward on some agenda items that otherwise would not have

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276. In recently promulgated public access regulations, New Jersey's Department of Environmental Protection explicitly stated what the Mississippi Supreme Court necessarily read into the Mississippi legislature's efforts to define its trust interest and duties. *See* N.J. ADMIN. CODE § 7iE-8.11(o) (2006) ("No authorization or approval under this chapter shall be deemed to relinquish public rights of access to and use of lands and waters subject to public trust rights."); *see also* Stevens, *supra* note 234 (stating that California courts have not held that statutes codifying the trust subsume the trust such that compliance therewith necessarily constitutes adequate compliance with trust duties). *But see* Envtl. Prot. & Info. Ctr. v. Cal. Dep't of Forestry & Fire Prot., 187 P.3d 888, 925-26 (Cal. 2008) (dividing the public trust into common law and statutory parts, and categorizing the duty to protect wildlife under the latter); District of Columbia v. Air Fla., Inc., 750 F.2d 1077, 1083-84 (D.C. Cir. 1984) (acknowledging possibility of a federal public trust in dicta, but failing to rule on city's argument that Congress delegated public trust responsibilities regarding a river to the city by conferring on the District significant authority over the river under federal statute, whereby the city exercises controls similar to that of a state over navigable waters within its boundaries, because city first raised it on appeal).

277. Dellapenna, *supra* note 98, § 9.05(b). Indeed, Justice Ramil, in dissent, assaulted the majority opinion for utilizing vague common law principles to trump the state's water code. *See In re* Water Use Permit Applications, 9 P.3d 409, 502-03 (Haw. 2000) (Ramil., J., dissenting). *But see*, *e.g.*, Proceedings of the 2001 Symposium on Managing Hawai'i's Public Trust Doctrine, *supra* note 16, at 39 (statement of Timothy Johns) (suggesting future applications of public trust doctrine will demonstrate that the Hawai'i Supreme Court's decision in *Wai'ahole I* was "cutting edge"); Ede, *supra* note 16, at 307 (suggesting the Hawai'i case may have significant influence in expanding public trust doctrine in other jurisdictions).

received adequate attention and "stand[] ready in the background to make sure that [administrative agencies] do their jobs."[278]

The essence of the traditional relationship between the trustee and the beneficiary is the trustee's obligation to act only in the interest of that beneficiary.[279] Clearly, the public trust doctrine must not be viewed as an implement in the toolbox of administrators for deployment at will. Rather, the doctrine creates an "inescapable" duty, which may go beyond that set forth in regulated riparian statutes, by requiring administrators to consider the impact of state actions on public trust interests and to act when private decisions impair those interests.[280] Professor Sax recently said, "[T]he effective question [a] court has to ask itself is: Did the agency in question act affirmatively to implement the duty that it had?"[281]

In Mississippi, what is the "agency in question" serving as trustee? The state legislature delegated the trust administration responsibilities to a state land commissioner in 1892, then transferred these obligations to the Mississippi Secretary of State nearly a century later in 1980.[282] Nonetheless, commentators have noted that the Governor and the state legislature remain the trustee of public lands, and the Secretary merely serves under their direction.[283] In 1994, the Mississippi Supreme Court equated the Secretary's office to a "tool in the implementation" of the trust responsibilities and described the trust duty as

> the Legislature and the Secretary of State are charged not only with maintaining title to trust properties in the State's name, but they have a higher duty. This duty being to *continuously seek avenues* for proper and

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278. Proceedings of the 2001 Symposium on Managing Hawai'i's Public Trust Doctrine, *supra* note 16, at 60 (statement of Joseph L. Sax).

279. *See, e.g.*, Hill v. Thompson, 564 So. 2d 1, 6 (Miss. 1989) ("At common law, one who holds as trustee is prohibited from giving away, appropriating to his own use, or otherwise, disposing of the corpus of a trust in derogation of the rights of beneficiaries."); AMY M. HESS & GEORGE G. BOGERT, TRUSTS AND TRUSTEES § 1, at 5 (rev. 3d ed. 2008).

280. *See* Sarah K. Kam, *Biopiracy in Paradise?: Fulfilling the Legal Duty To Regulate Bioprospecting in Hawai'i*, 28 U. HAW. L. REV. 387, 408-14 (2005); *see also The Public Trust Doctrine and Riparian and Appropriative Water Rights, State and Public Interest Perspectives*, *supra* note 1, at 39 (statement of Mark Sinclair); Proceedings of the 2001 Symposium on Managing Hawai'i's Public Trust Doctrine, *supra* note 16, at 31 (statement of Joseph L. Sax).

281. Joseph L. Sax, Transcript, *Environment and Its Mortal Enemy: The Rise and Decline of the Property Rights Movement*, 28 U. HAW. L. REV. 7, 18 (2005).

282. *See* Turney v. Marion County Bd. of Educ., 481 So. 2d 770, 776 (Miss. 1985); MISS. CODE ANN. §§ 7-11-2, -11 (1991); *id.* §§ 29-1-1, -15-7, -15-9 (1997); *see also* Duff & Fletcher, *supra* note 266, at 665-70 (surveying Mississippi and other states' delegations of supervisory powers over trust property). While the State can delegate some of her public trust power, as the Mississippi legislature has delegated some power to the Mississippi Secretary of State, the State cannot abdicate these powers and responsibilities. PUTTING THE PUBLIC TRUST DOCTRINE TO WORK, *supra* note 153, at 277.

283. *See* Duff & Fletcher, *supra* note 266, at 672.

> effective management of the public trust so that there is a return to the public of use, environmental protection and advancement and, in the appropriate areas, a return of economic growth.[284]

The state's high court also has said that the purposes of the trust "evolve with the needs and sensitivities of the people"[285] and "expanding population, commerce, tourism and recreation."[286] In Mississippi, the trustee of public lands has an explicit duty to manage the trust corpus in a productive way that reasonably maximizes its environmental, and, *where appropriate*, economic benefits.[287] The Hawai'i Supreme Court appeared to elevate ecosystem protection above some other trust uses by creating a rebuttable presumption in favor of ecologic interests.[288] Similarly, the Mississippi statute can be interpreted to qualify the status of economic growth on the priority scale by relegating such growth to those appropriate areas only after effective environmental protection.

D. Constitutional Challenges Facing Those States Considering Independence for the Trust

While the public trust doctrine potentially could serve a new, prominent role in protecting instream flows in Mississippi and other regulated riparian states, implementing the framework discussed above likely would take creative litigation that would face considerable, though not necessarily insurmountable, constitutional roadblocks. While these issues are generally beyond the scope of this Article (as are many procedural hurdles that potential litigants conceivably might face including the requisite burden of proof, standard of review, and alternative remedies), this Subpart poses some of the important constitutional questions which state courts would need to address

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284. Sec'y of State v. Wiesenberg, 633 So. 2d 983, 993-94, 997 (Miss. 1994) (emphasis added). Limitations are placed on conveyances of public trust property from the state to individuals: legislative authority must be clear and consistent with State and Federal Constitutional strictures, the conveyance must further public trust purposes, and remaining trust property must not be impaired. PUTTING THE PUBLIC TRUST DOCTRINE TO WORK, *supra* note 153, at 277.

285. Cinque Bambini P'ship v. State, 491 So. 2d 509, 512 (Miss. 1986).

286. Treuting v. Bridge & Park Comm'n, 199 So. 2d 627, 633 (Miss. 1967).

287. *See* Hill v. Thompson, 564 So. 2d 1, 6 (Miss. 1989) (citing RESTATEMENT (SECOND) OF TRUSTS § 181 (1959)) (referring to "continuing nature of the trustee's duty to manage the trust corpus so that the [benefits] therefrom [are] reasonably maximized"); *see also* PROCEEDINGS OF THE PUBLIC TRUST DOCTRINE AND ITS APPLICATION TO PROTECTING INSTREAM FLOWS, *supra* note 1, at 7 (statement of Joseph L. Sax).

288. For a discussion of the strength of this rebuttable presumption and what component of state government should determine it, see *infra* notes 233-247 and accompanying text.

surrounding the separation of powers, takings jurisprudence, and the doctrine of standing.

1. Separation of Powers

The legislature can demand that administrators protect fishery resources and require full disclosure on how they reach water use decisions affecting trust resources. But beyond that, while scientists have confirmed that $7Q_{10}$ is inadequate in that it significantly threatens the very survival of aquatic species, *Wai'ahole I* and other modern public trust decisions provide little guidance as to what specific stream flow is adequate.[289]

How elevated is the trust after *Wai'ahole I*? The Hawai'i Supreme Court stated that it was "neither feasible nor prudent" to prioritize water uses,[290] and instead framed trust uses as presumptively favored, which can be overcome only when private interests meet a high burden.[291] However, the embedded framework in *Wai'ahole I*, applied above to Mississippi's public trust doctrine case law in the context of instream flow protections, effectively did address the primacy of ecologic interests, which implicitly raises the concept of reaching an environmental threshold before considering economic interests in any balancing test. Indeed, the dissent in *Wai'ahole I* understood the majority opinion as an implicit prioritization, stating, "It is . . . apparent that by engrafting [trust] obligation[s] into the Hawai'i Constitution, the framers did not intend to prioritize uses; they reserved that matter for the legislature."[292]

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289. *See, e.g.*, Proceedings of the 2001 Symposium on Managing Hawai'i's Public Trust Doctrine, *supra* note 16, at 43 (statement of Ken Kupchak).

290. *See In re* Water Use Permit Applications (*Wai'ahole I*), 9 P.3d 409, 454 (Haw. 2000) ("Given the diverse and not necessarily complementary range of water uses, even among public trust uses alone, we consider it neither feasible nor prudent to designate absolute priorities between broad categories of uses under the water resources trust.").

291. *Id.*

292. *See id.* at 506 (Ramil, J., dissenting). Justice Ramil further asserted that the majority allowed the Commission to exceed its authority, stating that the holding "transgress(es) the separation of powers doctrine by allowing an executive agency to transcend its statutory authority and usurp the legislature's lawmaking function under the guise of enforcing the agency's interpretation of what the 'public trust' demands." *Id.* at 508; *see also*, *e.g.*, City of Waterbury v. Town of Washington, 800 A.2d 1102, 1137 (Conn. 2002) ("[W]hen there is an environmental legislative and regulatory scheme in place that specifically governs the conduct . . . whether the conduct is unreasonable under [the Connecticut Environmental Protection Act] will depend on whether it complies with that scheme."). *But see* Mayland, *supra* note 17, at 698 (criticizing *Waterbury* as effectively holding that "no matter how ecologically damaging an activity may be, as long as it complies with poorly crafted state or local regulations, it apparently cannot be challenged").

Even assuming the *Wai'ahole I* majority's broad view of the judiciary's role, few would contend it is the courts' charge to suggest or mandate a return to "natural flow," a minimum flow, or a seasonally fluctuating standard. But *Wai'ahole I* does generate debate as to who actually determines the place of the environment on the priority scale among the many uses at stake in water management. Is it the courts' job to take a "close look" at state actions[293] or even to define an ecologic threshold for balancing other competing uses, leaving the subsequent balancing to the legislature?

Wai'ahole I seems to echo, in part, United States Supreme Court Justice William O. Douglas's interpretation of the courts' role as a corrective force in the face of inadequate or improvident actions by governmental agencies with respect to trust resources.[294] However, if the courts continually make these balancing determinations, there is the risk they could lose their independence as a check on the legislature and the executive under the Constitution's basic separation of powers doctrine. It is fair to query why individual voters and interest groups would seek action from their legislatures if the ultimate balancing decision will be made by the courts. Is this phenomenon already playing itself out in some environmental contexts, particularly in states, like Mississippi, with elected judiciaries and the associated lengthy, policy-driven election campaigns?

2. The Takings Clause

Regardless of which entity of government makes a decision to give greater weight to environmental concerns over private uses, the Takings Clause is sure to rear its head. Nonetheless, private interests in real

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293. *Wai'ahole I*, 9 P.3d at 456 (majority opinion) ("[T]his court will take a *'close look'* at the action to determine if it complies with the public trust doctrine and it will not act merely as a rubber stamp for agency or legislative action."). The *Wai'ahole I* court also stated, "[T]he state may compromise public rights in the [water] resource pursuant only to a decision made with a level of openness, diligence, and foresight commensurate with the high priority these rights command under the laws of our state."). *Id.* at 455; *see also*, *e.g.*, *In re* State Water Res. Control Bd. Cases, 39 Cal. Rptr. 3d 189, 272 (Ct. App. 2006) (quoting Nat'l Audubon Soc'y v. Superior Court (*Mono Lake*), 33 Cal. 3d 419, 446-47 (1983)) (finding that when the state approves appropriations of water "despite foreseeable harm to public trust uses," "the state must bear in mind its duty as trustee to consider the effect of the taking on the public trust, and to preserve, so far as consistent with the public interest, the uses protected by the trust").

294. *See* Sierra Club v. Morton, 405 U.S. 727, 745-50 (1972) (Douglas, J., dissenting) (stating that governmental agencies charged with protecting the environment "are notoriously under the control of powerful interests who manipulate them through advisory committees, or friendly working relations, or who have that natural affinity with the agency" and it is the courts' task to hear "the voice of the existing beneficiaries of these environmental wonders" if the agencies do not).

property generally are recognized as stronger than any interests in water.[295] And because the takings doctrine is founded on the principle of fairness, such that individuals are not shouldering burdens that should be borne by the public at large, requiring all water users to safeguard ecosystems arguably does not single out anyone.[296]

In *Wai'ahole I*, the Hawai'i Supreme Court rejected a takings challenge concerning the exercise of public trust rights over groundwater, holding that the state assumed the duty to protect those lands and waters long before the formation of individual property rights, and private interests cannot claim a vested right to them.[297] Because the plaintiffs never claimed absolute entitlement to the water, any permitted diversions remained impressed with public trust rights.[298] Therefore, the court implied, there was no taking, based on the state's predictable, settled background principles of common law public trust property.[299]

Professor Sax has noted that the United States Supreme Court ultimately would look at state law as the critical factor in determining whether reliance upon the public trust for instream flow protection will

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295. *See, e.g.*, United States v. Willow River Power Co., 324 U.S. 499, 510 (1945) ("Rights, property or otherwise, which are absolute against all the world are certainly rare, and water rights are not among them."); Pratt v. State Dep't of Natural Res., 309 N.W.2d 767, 772 (Minn. 1981) (finding water rights incapable of private ownership); Eddy v. Simpson, 3 Cal. 249, 252 (1853) ("[T]he right of property in water is *usufructuary*, and consists not so much of the fluid itself as the advantage of its use. . . . The right is not in the *corpus* of the water, and only continues with its possession."); Town of Chino Valley v. City of Prescott, 638 P.2d 1324, 1328 (Ariz. 1981) (declaring usufructuary right afforded weaker constitutional protections under takings clause than other types of property). *But see* Casitas Mun. Water Dist. v. United States, 543 F.3d 1276 (Fed. Cir. 2008) (holding in a 2-1 decision that the federal government must pay just compensation to regulate diversions of water for wildlife protection purposes under federal Endangered Species Act, if plaintiffs prove ownership of the water); Tulare Basin Water Storage Dist. v. United States, 49 Fed. Cl. 313 (2001) (holding that a reduction in water deliveries mandated by the Endangered Species Act was a taking of property requiring compensation under the United States Constitution); Hage v. United States, 35 Fed. Cl. 147, 172 (1996) (asserting that water rights are subject to same degree of protection under Fifth Amendment as rights to real property).

296. *See, e.g.*, Armstrong v. United States, 364 U.S. 40, 49 (1960).

297. *Wai'ahole I*, 9 P.3d at 492-95.

298. *Id.*

299. *See id.* at 494 ("[T]he reserved sovereign prerogatives over the waters of the state precludes the assertion of vested rights to water contrary to public trust purposes."); *see also*, *e.g.*, Proceedings of the 2001 Symposium on Managing Hawai'i's Public Trust Doctrine, *supra* note 16, at 40 (statement of William Tam) (stating that sovereign prerogatives in Hawai'i go back to 1848, lessening the takings risk in light of the Supreme Court's reference in *Lucas v. South Carolina Coastal Council*, 505 U.S. 1003 (1992), to background principles of state property or nuisance law already placing restrictions on private interests in land); Zachary C. Kleinsasser, Note, *The Law and Planning of Public Open Spaces: Boston's Big Dig and Beyond*, 32 B.C. ENVTL. AFF. L. REV. 421 (2005) (asserting that state dominion over public trust resources must be considered a "background principle" under *Lucas*).

result in an unconstitutional taking.[300] Of course, given the diverse state water right rules, takings challenges to the government's regulation of private water rights have led to, and will continue to lead to, disparate results.

It is possible that the explicit language in the regulated riparian statute in Mississippi, declaring that the regulations are created under the state's police power, could serve as a defense to any takings or other constitutional claim, if the court were to require a stricter stream flow standard than the statute, based on the state's public trust obligations.[301] But can the state now claim that title to certain real property is now, and has always been, with the state, despite state policies suggesting differently for decades or more?[302]

3. Standing

In addition to the respective duties of the branches of government and any compensation owed by the government to private property owners for unconstitutional infringements resulting from the exercise of those duties, one commentator stated that the public has its own obligation—to be vigilant about protecting and acting upon their rights as beneficiaries.[303]

Science suggests that policies, like $7Q_{10}$, requiring low minimum flows that focus on consumptive uses of water rights, will cause irreparable harm to instream biota. But what is a citizen's role if the state fails to remedy this harm by fulfilling its trust obligations through legislation or administrative regulation, or via participation by a public

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300. *See* Proceedings of the 2001 Symposium on Managing Hawai'i's Public Trust Doctrine, *supra* note 16, at 62 (statement of Joseph L. Sax) (referring to the *Lucas* court's assertion that a background principle must be of "the State's law of property and nuisance"). Professor Sax suggests the ruling very well could hinge on the breadth of the public trust doctrine, wide in states like Hawai'i, but narrow in states like Maine, New Hampshire and New York. *Id.* For example, New York refused to expand the public trust doctrine to nonnavigable waters in light of the concern for injecting uncertainty into the private property investment market. *See* Douglaston Manor, Inc. v. Bahrakis, 678 N.E.2d 201, 203 (N.Y. 1997).

301. *See* MISS. CODE ANN. § 51-3-1 (West 2008); *see, e.g.*, Chow v. City of Santa Barbara, 22 P.2d 5, 17 (Cal. 1933) ("It has long been established that all property is held subject to the reasonable exercise of the police power and . . . constitutional provisions declaring that property shall not be taken without due process of law have no application in such cases.").

302. *Compare*, *e.g.*, Callies & Chipchase, *supra* note 211, at 73 ("[T]he state has no more power to declare that recognized water rights never really existed than it does to claim that title to all real property is now and always has been with the state. Water rights are property rights and cannot be taken except for a public use and upon the payment of compensation."), *with* Ariz. Ctr. for Law in the Pub. Interest v. Hassell, 837 P.2d 158, 171 (Ariz. Ct. App. 1991) ("That generations of trustees have slept on public rights does not foreclose their successors from awakening.").

303. *See* PROCEEDINGS OF THE PUBLIC TRUST DOCTRINE AND ITS APPLICATION TO PROTECTING INSTREAM FLOWS, *supra* note 1, at 27-28 (statement of Thomas J. Dawson).

advocate, or the Secretary of State assuming a public advocate's role?[304] Do members of the public have standing to attempt to fulfill their duties by seeking judicial redress for insufficient ecosystem protection?

The United States Supreme Court has taken a relatively narrow view of standing in environmental matters,[305] and numerous scholars have stated that the public does not, or should not, have unfettered standing to challenge action or inaction allegedly harming trust resources.[306]

However, Professor Sax suggests that, absent a state statute mandating ecosystem protections, the general public must have an

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304. Of course, challenges may be available when state administrators fail to fulfill their statutory or regulatory duties. However, as discussed *supra* Part II, the $7Q_{10}$ minimum flow standard is authorized by Mississippi's regulated riparian statute and the implementing regulations.

305. *See, e.g.*, Lujan v. Defenders of Wildlife, 504 U.S. 555 (1992) (defining the sole legitimate interest in species in terms of their use as photographic or scientific objects and dismissing claim under Endangered Species Act for lack of standing because plaintiffs failed to demonstrate sufficient or redressable injury because plaintiffs would not return to the site to see species at issue); Sierra Club v. Morton, 405 U.S. 727 (1972) (holding that Sierra Club lacked standing to challenge construction of ski resort as an ecologic impediment where organization did not exhibit individualized harm to itself or its members). *But see id.* at 741-42 (Douglas, J., dissenting) ("The critical question of 'standing' would be simplified and also put neatly in focus if we fashioned a federal rule that allowed environmental issues to be litigated before federal agencies or federal courts in the name of the inanimate object about to be despoiled, defaced, or invaded by roads and bulldozers and where injury is the subject of public outrage. Contemporary public concern for protecting nature's ecological equilibrium should lead to the conferral of standing upon environmental objects to sue for their own preservation."). As this Article went to press, the United States Supreme Court issued its decision in *Summers v. Earth Island Institute*, which drastically limited the ability of private persons and conservation organizations to seek redress for environmental wrongs. *See* No. 07-463, slip op. (U.S. Mar. 3, 2009), *available at* http://www.supremecourtus.gov/opinions/08pdf/07-463.pdf. The 5-4 majority opinion, authored by Justice Scalia, seemingly looked with disfavor upon the utilization of statistical analysis to establish the likelihood of environmental injury, which had been recognized previously by the federal circuit courts. *See, e.g.*, Nat'l Res. Def. Council v. EPA, 464 F.3d 1 (D.C. Cir. 2006) (finding standing for an environmental group for which statistics revealed that two to four members of the group would develop skin cancer from the alleged damage that unlawful increases in methyl bromide emissions would cause to the ozone layer). Justice Kennedy's concurrence in *Summers* is troubling, to say the least, and could have the effect of narrowing the broad standing requirements acknowledged in *Massachusetts v. EPA*, 549 U.S. 497, 515-21 (2007), where Justice Kennedy supported standing.

306. *See, e.g.*, Nathan Piwowarski, Comment, *Trouble at the Water's Edge: Michigan Should Not Extend the Public Trust Doctrine of the Great Lakes, as Reinterpreted in* Glass v. Goeckel*, to Its Navigable Inland Rivers and Lakes or To Grant the Public Lateral Access to Trust Properties*, 2006 MICH. ST. L. REV. 1045, 1055-56 (2006) (suggesting broad environmental standing increases litigation and prompts inconsistent results); Abraham Bell & Gideon Parchomovsky, *Of Property and Antiproperty*, 102 MICH. L. REV. 1 (2003) (noting expanding environmental standing but concluding that politics serves as only true conservation avenue); Richard J. Lazarus, *Changing Conceptions of Property and Sovereignty in Natural Resources: Questioning the Public Trust Doctrine*, 71 IOWA L. REV. 631 (1986) (acknowledging private standing under public trust doctrine to preserve environmental quality, but suggesting doctrine is preempted by broad modern standing interpretations).

opportunity to oblige the state to meet its continuing duties under the public trust doctrine.[307] There is significant support in state courts for private citizen or organization suits alleging state and local government violations of the public trust doctrine.[308] As the Illinois Supreme Court once noted:

> If the "public trust" doctrine is to have any meaning or vitality at all, the members of the public, at least taxpayers who are the beneficiaries of that trust, must have the right and standing to enforce it. To tell them that they must wait upon governmental action is often an effectual denial of the right for all time.[309]

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307. *See also* PROCEEDINGS OF THE PUBLIC TRUST DOCTRINE AND ITS APPLICATION TO PROTECTING INSTREAM FLOWS, *supra* note 1, at 17 (statement of Joseph L. Sax).

308. *See, e.g.*, Paepcke v. Pub. Bldg. Comm'n, 263 N.E.2d 11, 13-19 (Ill. 1970) (holding that public trust doctrine allows taxpayers to challenge conversion of city parks); Marks v. Whitney, 491 P.2d 374, 381-82 (Cal. 1971) (stating that member of general public has standing to request court to recognize and declare public trust easement on private tidelands); Gewirtz v. City of Long Beach, 330 N.Y.S.2d 495, 501-03 (Sup. Ct. 1972) (holding that state resident has standing to dispute city ordinance restricting beach access); Payne v. Kassab, 312 A.2d 86, 88 (Pa. Commw. Ct. 1973) (permitting taxpayers to challenge expansion of highway into public common area); United Plainsmen Ass'n v. N.D. State Water Conservation Comm'n, 247 N.W.2d 457, 458-59 (N.D. 1976) (holding that public trust doctrine allows citizens to seek injunction on issuance of future water permits); Superior Pub. Rights, Inc. v. State Dep't of Natural Res., 263 N.W.2d 290, 292 (Mich. Ct. App. 1977) (declaring that nonprofit corporation whose members were residents may seek to invalidate agreements that permitted private use of public trust lands); City of Berkeley v. Superior Court, 606 P.2d 362, 363-64 (Cal. 1980) (holding that corporation and individual have standing to quiet title and determine whether land is free of public trust interests); Selkirk-Priest Basin Ass'n v. State *ex rel.* Andrus, 899 P.2d 949, 953-55 (Idaho 1995) (holding that public trust doctrine conferred standing to environmental group to challenge timber sale on state lands because sedimentation from logging would harm fish spawning grounds and appurtenant creek bed); Ctr. for Biological Diversity, Inc. v. FPL Group, Inc., 83 Cal. Rptr. 3d 588 (Ct. App. 2008) (finding that private parties have standing to bring an action to enforce protection of wildlife public trust resources); Marc R. Poirier, *New Jersey's Public Trust Doctrine, Private Development and Exclusion, and Shared Public Uses of Natural Resources*, 15 SOUTHEASTERN ENVTL. L.J. 71, 114 (2006) (noting continuation of broad environmental standing with respect to public trust over past two decades); Serena M. Williams, *Sustaining Urban Green Spaces: Can Public Parks Be Protected Under the Public Trust Doctrine?*, 10 S.C. ENVTL. L.J. 23 (2002); Deveney, *supra* note 159, at 23-25 (describing individuals' rights under Roman law to seek "popular injunctions" in effort to protect public rights on and along public waters). In the 1970s, Christopher Stone, and several others since, made the rather zealous claim for standing rights of nature itself. *See* Christopher D. Stone, *Should Trees Have Standing?—Toward Legal Rights for Natural Objects*, 45 S. CAL. L. REV. 450, 456 (1972) (advocating legal standing for "forests, oceans, rivers and other so-called 'natural objects' in the environment" via appointed guardians); Christopher D. Stone, *Should Trees Have Standing? Revisited: How Far Will Law and Morals Reach? A Pluralist Perspective*, 59 S. CAL. L. REV. 1, 9 (1985) (advocating a "moral pluralism" that supports the provision of legal rights to unconventional entities). *But see*, *e.g.*, Bertram C. Frey & Andrew Mutz, *The Public Trust in Surface Waterways and Submerged Lands of the Great Lakes States*, 40 U. MICH. J.L. REFORM 907, 985 (2007) (stating that individuals do not have inherent standing rights under public trust doctrine in Indiana, Minnesota, and Ohio).

309. *Paepcke*, 263 N.E.2d at 18.

VI. CONCLUSION

The public trust doctrine may have untapped potential as an independent source for preserving instream flows in a regulated riparian jurisdiction, such as Mississippi, where the judiciary has shown a willingness to adopt a higher level of scrutiny when public trust resources are at stake, recognized that the state's codification of the trust does not subsume any function for common law trust principles, and considered the exercise of authority under the doctrine as a mandatory obligation. This Part returns to the foundational structure of regulated riparian systems—effectively and efficiently managing, protecting, and utilizing water resources amidst competing uses—in forecasting what may remain of a balancing approach should a state court in a regulated riparian jurisdiction choose to follow this conceptual approach derived from *Wai'ahole I*.

Implementing this framework surely does not negate the need for *any* balancing of ecological benefits with economic uses. The public trust, of course, should not and cannot transform our post-industrial economy to one of complete natural preservation.[310] As one scholar explains, "Our legal institutions do indeed require a tolerable amount of 'uncertainty' to make room for public deliberation and successful adaptation to changed circumstances."[311]

However, land and water are employed almost exclusively in ways that degrade nature, and today's "public interest" balancing tests[312] continue to weigh disproportionately in practice against the "salutary guidelines"[313] of the public trust in favor of consumptive uses. While the concept of "public interest" at times can complement the public trust, some commentators suggest that actions taken in the public interest often impair the trust by predominantly focusing on present economic and

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310. Joseph L. Sax, *The Unfinished Agenda of Environmental Law*, 14 HASTINGS W.-NW. J. ENVTL. L. & POL'Y 1, 4-5 (2008).

311. Michael Warburton, *Toward Greater Certainty in Water Rights? Public Interests Require Inherent "Uncertainty" To Support Constitutional Governance of Our State's Waters*, 36 MCGEORGE L. REV. 139, 163 (2005); *see also* Jan Stevens, *Applying the Public Trust Doctrine to River Protection*, CALIFORNIA WATER PLAN UPDATE 2005, *supra* note 234 (asserting that the *Mono Lake* decision in California recognized that test to be applied in water allocation is not as stringent as that applicable to attempted alienation of beds of navigable waters).

312. *See, e.g.*, *In re* State Water Resources Control Bd. Cases, 39 Cal. Rptr. 3d 189, 277 (Ct. App. 2006) ("[I]n determining whether it is 'feasible' to protect public trust values like fish and wildlife in a particular instance, the Board must determine whether protection of those values, or what level of protection, is 'consistent with the public interest.'").

313. *See* Proceedings of the 2001 Symposium on Managing Hawai'i's Public Trust Doctrine, *supra* note 16, at 62 (statement of Jan Stevens).

consumptive considerations, as opposed to common property benefits to both present and future generations.[314]

As statutory law has recognized, for example, that industrial wastewater can no longer be discharged without controls in light of proven human health effects, so too must legislatures, and if not the legislatures, the courts, recognize that protecting aquatic habitats deserves those same protections.[315] The corpus of the trust, including riverine resources, has to be preserved, and diminishing biodiversity must be respected as a serious threat to continued health and prosperity.[316]

The *Wai'ahole I* decision directed natural resource managers to ensure the long-term health of a wide range of trust resources. Forthcoming users, however, cannot express their interests today. Healthy fish populations are indicators of healthy waters, and the protection of instream flows is the only way to preserve water

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314. *See* ANNEAR ET AL., *supra* note 12, at 63; PUTTING THE PUBLIC TRUST DOCTRINE TO WORK, *supra* note 153, at 277. For example, Mississippi's public trust obligations are clouded by the economic benefits flowing from the institution of legal gaming along the Gulf Coast in the early 1990s. *See* MISS. CODE ANN. § 75-76-1 to 76-313 (Supp. 1997); MISS. CODE ANN. § 97-33-1 (1994); *see also* Timothy M. Mulvaney, *Trial Court Disallows Proposal To Construct Luxury Resort and Conference Center on Alabama Coast*, 28 WATER LOG 6, 6-7 (Aug. 2008) (describing similar phenomenon regarding waterfront gaming in Alabama).

315. *See* Sax, *supra* note 310, at 8.

316. *See, e.g.*, Harrison C. Dunning, *A Short Tribute to Joe Sax*, 14 HASTINGS W-NW. J. ENVTL. L. & POL'Y 19, 21 (2008) (citing Joseph Sax, *Bringing an Ecological Perspective to Natural Resources Law: Fulfilling the Promise of the Public Trust*, *in* NATURAL RESOURCES POLICY AND LAW—TRENDS AND DIRECTIONS (Lawrence J. MacDonnell & Sarah F. Bates eds., 1993) ("[L]egal and managerial institutions are going to have to start . . . learning to manage [ecosystems] to meet both the needs of the conventional economy and those of what might be called the economy of nature—where rivers produce fish, forests provide wildlife habitat, and wetlands remain biologically productive.")). However, some scholars suggest that ecosystem-based interests deserve only tempered consideration when measured against human consumption and economic interests. *See, e.g.*, Callies & Chipchase, *supra* note 211, at 49 (asserting that the *Wai'ahole I* decision distorted traditional balancing between land use and water by implementing a "communitarian regime" where water is preserved for uses such as minimum stream flows); George P. Smith II & Michael W. Sweeney, *The Public Trust Doctrine and Natural Law: Emanations Within a Penumbra*, 33 B.C. ENVTL. AFF. L. REV. 307, 342-43 (2006) (concluding that "rarely can it be shown that the benefits of resource preservation outweigh the economic concerns of property owners" and thus "any expansion of the [public trust] doctrine should be slow and scrutinized to the highest degree and with a spirit of judicial restraint").

management options for those future generations.[317] Indeed, these rivers and streams often "can only be spent once."[318]

The time to be proactive about instream flows in Mississippi is now in light of increased diversions for irrigation, population rise, droughts in neighboring states, and the grim outlook regarding increased seasonal variations in watercourses due to global warming. Any hesitation will put Mississippi in the reactive position of so many other states.[319] The *Wai'ahole I* court concluded that inattention to the "basic, modest principle that use of the precious water resources of our state must ultimately proceed with due regard for certain enduring public rights . . . may have brought short-term convenience to some in the past. But . . . we can ill-afford to continue down this garden path this late in the day."[320] A reassessment of traditional relationships between water devoted to diversionary consumptive uses and instream preservation is in order, and it may take motivated trust beneficiaries to initiate this reassessment through litigation.[321]

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317. *See* ANNEAR ET AL., *supra* note 10, at 84; Am. Sand & Gravel Co. v. Tatum, 620 So. 2d 557, 564 (Miss. 1993) (quoting D. ZWICK & M. BENSTOCK, WATER WASTELAND 3 (1971)) (noting that agencies designated to administer the trust must heed a wise American Indian proverb: "'[T]he frog does not drink up the pond in which he lives.'"). *But see* Callies & Chipchase, *supra* note 211, at 76 (arguing that *Wai'ahole I* destroyed predictable system for private commercial ventures and stating "preservation for the sake of preservation . . . serves neither this nor the next generation").

318. Morse v. Or. Div. of State Lands, 581 P.2d 520, 524 (1978) ("Because the trust is for the public benefit, the state's trustee obligation is commonly described as the protection of specified public usages, e.g., navigation, fishery and, in more recent cases, recreation. The severe restriction upon the power of the state as trustee to modify water resources is predicated not only upon the importance of the public use of such waters and lands, but upon the exhaustible and irreplaceable nature of the resources and its fundamental importance to our society and to our environment. These resources, after all, can only be spent once. Therefore, the law has historically and consistently recognized that rivers and estuaries once destroyed or diminished may never be restored to the public and, accordingly, has required the highest degree of protection from the public trustee.").

319. *See, e.g.*, Dellapenna, *supra* note 18, at 20-21 (suggesting fundamental changes in water allocation law are unlikely except in response to crises as perceived by most interest groups). While the following quoted passage explicitly refers to a western state that follows an appropriative rights regime, it conveys the failure to move proactively to address water quantity calamites in many parts of the country: "New Mexicans have known for years that the day of reckoning was coming but they have repressed this unpleasant reality. . . . [T]here is increasingly visible evidence of the collision between explosive population growth and diminishing water supplies." Lora Lucero & A. Dan Tarlock, *Water Supply and Urban Growth in New Mexico: Same Old, Same Old or a New Era?*, 43 NAT. RESOURCES J. 803, 817 (2003).

320. *In re* Water Use Permit Applications (*Wai'ahole I*), 9 P.2d 409, 502 (Haw. 2000).

321. *See* Proceedings of the 2001 Symposium on Managing Hawai'i's Public Trust Doctrine, *supra* note 16, at 39 (statement of Joseph L. Sax); *see also id.* at 69-70 (statement of William Devick) ("I see public trust as both a philosophy and a potential tool to shift that thinking, to shift the balance in decision-making towards protection and conservation, thinking about the future, rather than simple, immediate, economic advantage."). While Mississippi's

Of course, as Professor Sax notes, the strategic problem in creatively litigating in the public trust arena is pushing the envelope too fast at the risk of generating decisions that actually restrict the protection of trust resources.[322] But some might ask whether Mississippi's instream flow protection can get much worse.

The first step in developing a confidence that the public trust doctrine can protect these ecologic resources simply requires "a belief that words like 'trust' ought to be taken seriously."[323] From there, ambitious creative thought, reliant on the public trust doctrine as an independent operative, can challenge the existing theoretical paradigm favoring consumptive uses of Mississippi's fragile watercourses, and possibly those in other regulated riparian states.

Public Trust Tidelands Act seemingly prioritizes ecosystem protection absent a "higher public purpose," these "higher public purposes" remain undefined. For a further discussion of the Tidelands Act, see *infra* notes 262-273 and accompanying text. Further, the current $7Q_{10}$ standard displays an utter disregard for any priority scale implied in the Tidelands Act. For a further discussion of the documented failures of utilizing a $7Q_{10}$ standard to protect aquatic habitat, see *supra* notes 122-126 and accompanying text.

322. *See* Sax, *supra* note 287, at 17; *see also* PROCEEDINGS OF THE PUBLIC TRUST DOCTRINE AND ITS APPLICATION TO PROTECTING INSTREAM FLOWS, *supra* note 1, at 42 (statement of Richard Roos-Collins) ("[T]he Public Trust Doctrine is a very sharp knife, and it can cut the hand of the person who holds it.") For example, in December of 2007, the New Jersey Department of Environmental Protection adopted progressive amendments to the state's public waterfront access regulations in an effort to meet its public trust obligations as interpreted by the state's Supreme Court. *See* N.J. Admin. Code §§ 7:7E-8.11, 8.50 (2008). Shortly thereafter, the state legislature placed a moratorium on implementation of the new regulations under the guise of the "Public Access and Marina Safety Task Force Act." *See* N.J. ADMIN. CODE § 13:19-38 to -44 (2008); *see also*, *e.g.*, Kootenai Envtl. Alliance, Inc. v. Panhandle Yacht Club, Inc., 671 P.2d 1085 (Idaho 1983) (rejecting an environmental group's claim that state grant of a permit application to build a private dock on trust waters violated the trust).

323. Charles F. Wilkinson, *The Headwaters of the Public Trust: Some Thoughts on the Source and Scope of the Traditional Doctrine*, 19 ENVTL. L. 425, 471-72 (1989).