PRELIMINARY FINDINGS OF THE SUBCOMMITTEE ON WATER RIGHTS AND REGULATORY AUTHORITIES

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SUMMARY OF RECOMMENDATIONS

1) **Establish WRB as arbiter of "reasonable use"**
2) **Establish legislative link between water quality and water quantity.**
3) **Establish legislative link between surface water and groundwater.**
4) **Develop policies that will enable predictable responses during a drought.**
5) **Continue to collect data to aid in current and future water use decisions.**
6) **Develop a new rights structure as a combination of Voluntary, Market, and Regulatory Approaches during droughts, Registration of certain users, and Full-time Permitting of certain uses.**

FINDINGS

REGULATORY AUTHORITY

- **Regulatory Authority Diagram**
- **Matrix of Deficiencies and Possible Solutions**

- **Encourage integration of water quality permit programs with applicable water allocation program.**
- **Identify self-supply users and educate them.**
- **Coordinate water restrictions within drought regions with oversight.**
- **Establish and maintain written wholesales agreements between water suppliers**

WATER RIGHTS: EXISTING DOCTRINE

- **Surface Water: Reasonable Use Riparian Doctrine [*Tyler v. Wilkinson* (1827)]**
- **Ground Water: American Rule of Reasonable Use *[Rose v. Socony-Vacuum Corp* (1934)]**

BACKGROUND TO WATER ALLOCATION

- **Water rights are limited to reasonable uses.**
- **Previously, reasonable uses ascertained by courts.**
- **Locus of determining whether uses are reasonable will shift to an administrative agency.**

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[1] The reasonable use riparian doctrine says that riparian landowners have a usufructuary right (a right-to-use) to a reasonable use of the water bodies that touch their land. Whether a use is reasonable depends upon a comparison of a number of factors, vis-à-vis other users of the water body. Domestic uses by a riparian landowner are reasonable per se.

[2] The significant text from this case is as follows: "When I speak of this common right [to use water as a riparian landowner], I do not mean to be understood, as holding the doctrine, that there can be no diminution whatsoever, and no obstruction or impediment whatsoever, by a riparian proprietor, in the use of the water as it flows; for that would be to deny any valuable use of it. There may be, and there must be allowed of that, which is common to all, a reasonable use. The true test of the principle and extent of the use is, whether it is to the injury of the other proprietors or not. There may be a diminution in quantity, or a retardation or acceleration of the natural current indispensable for the general and valuable use of the water, perfectly consistent with the existence of the common right. The diminution, retardation, or acceleration, not positively and sensibly injurious by diminishing the value of the common right, is an implied element in the right of using the stream at all." 24 F. Cas. 472, 474.

[3] There is very little common law regarding groundwater in Rhode Island. Most cases arise from contamination of groundwater sources, rather than a conflict over pumping and diversion.

[4] The significant text from this case is as follows: "In England this right to underground waters has been held to be absolute and the motive of the owner in appropriating or diverting the same is immaterial. Mayor of Bradford v. Pickles, (1895) App. Cas. 587. In this country the authorities are in conflict as to the nature of the right in underground waters. Some jurisdictions follow the English rule and others modify the rule to the extent that the owner of land may not through malice or negligence deprive the adjoining owner of percolating waters. To this extent in the latter jurisdictions the right is not absolute but relative. See Chatfield v. Wilson, 28 Vt. 49; Elster v. Springfield, 30 N.E. 274; Phelps v. Nowlen, 72 N.Y. 39; Chesley v. King, 74 Me. 164; Greenleaf v. Francis, 35 Mass. 117, 18 Pick. 117; Wheatley v. Baugh, 25 Pa. 528; Bassett v. Company, 43. N.H. 569; Roath v. Driscoll, 20 Conn. 533. Angell on Watercourses, (6th ed.) 114.
In this State the right to subterranean waters appears to be relative to the extent that they may not be purposely or negligently diverted. In Buffum v. Harris, 5 R.I. 243, it was held on motion for a new trial, after a verdict for the defendant, that the plaintiff received the benefit of all the direction to which he was entitled when the jury were charged: "That if the defendant had purposely or negligently constructed his drains, so as thereby to drain the water off from, or to lessen the quantity of water in the plaintiff's fountain, he would be liable to the plaintiff therefor."" 54 R.I. 411, 418.

[5] See discussion of section above on Existing Doctrine: Reasonable Use Riparian and American Reasonable Use.

GENERAL RECOMMENDATIONS (Revision of §46-15)

- **The waters of the State of Rhode Island are a natural resource owned by the State in trust for the public and subject to the State's sovereign power to plan, regulate, and control the withdrawal and use of those waters, under law, in order to protect the public health, safety, and welfare.**
- **An accurate inventory of withdrawals and supplies is necessary.**
- **Water withdrawals continue to be subject to the "reasonable use" standard.**
- **Water allocation decisions should recognize the interdependencies of water quality and water**

[6] This statement lays out the general idea that the waters of the state should be managed in a way that promotes the "public interest." Whether a use is in the public interest depends on a balancing of different considerations. These considerations include "promoting economic growth, mitigating the harmful effects of drought, resolving conflicts among competing water users, achieving balance between consumptive and nonconsumptive uses of water, encouraging conservation, preventing excessive degradation of natural environments, and enhancing the productivity of water-related activities" [Model Code, § 1R-1-01].

[7] As U.S. Supreme Court Justice Oliver Wendell Holmes, a champion of property rights, held in *Hudson County Water Co. v. McCarter*, "[F]ew public interests are more obvious, indisputable and independent of particular theory than the interest of the public of a State to maintain rivers that are wholly within it substantially undiminished, except by such drafts upon them as the guardian of the public welfare may permit for the purpose of turning them to a more perfect use. This public interest is omnipresent wherever there is a State, and grows more pressing as population grows. It is fundamental, and we are of the opinion that the private property of riparian proprietors cannot be supposed to have deeper roots. … The private right to appropriate is subject not only to the rights of lower owners but to the initial limitation that it may not substantially diminish one of the great foundations of public welfare and health." 209 U.S. 349, 356 (1908), cited in Joseph Sax, Barton Thompson, Jr., John Leshy, & Robert Abrams, Legal Control of Water Resources, 3rd ed., 539 (2000).

[8] The commentary to this section of the Model Code points out that this is based on the doctrine of public trust: "The reference to the ownership of the waters by the State in trust for the public echoes the idea of the public trust doctrine. National Audubon Soc'y v. Superior Ct., 658 P.2d 709 (Cal.), cert. denied sub nom. City of Los Angeles v. National Audubon Soc'y, 464 U.S. 977 (1983); United Plainsmen Ass'n v. North Dakota State Water Conserv. Comm'n, 247 N.W.2d 457 (N.D. 1976); Douglas Grant, Western Water Rights and the Public Trust Doctrine: Some Realism about the Takings Issue, 27 Ariz. St. L.J. 423 (1995); Joseph Sax, The Public Trust Doctrine in Natural Resource Law: Effective Judicial Intervention, 68 Mich. L. Rev. 471 (1970)."

[9] Proper management requires information. For water resources management, the information needed includes the quantities of available water resources, their locations, and demands on these water resources. With this information, creative solutions to water shortages may be found.

[10] The "reasonable use" standard is the foundation of the reasonable use riparian surface water and American reasonable use groundwater doctrines. Western water rights tend to be based on the "appropriation" standard. However, the conditions in Rhode Island imply that the reasonable use standard is more appropriate.

quantity, and between groundwater and surface waters.

- **Water allocation should play an important role in land use and development decisions, both in ensuring sufficient supply of water, and also in assessing the impact of development on water resources.**

PRIORITIES

- **The agricultural sub-group concluded that agriculture "is 'a' priority and usually ranked second next to direct human consumption or sanitation necessary for human survival and health."**

[11] These interrelationships are very important. For example, poor water quality can mean that water isunavailable for use, while additional water quantities for dilution can improve water quality. Meanwhile, the running of surface waters recharges underlying aquifers through seepage. In the past, water quality and water quantity, and groundwater and surface water have been treated separately. However, due to these interrelationships, joint management of water quality and water quantity, and groundwater and surface water is necessary. Also see Appendix A-3, showing the USGS flow diagram.

[12] Other states have adapted their regulatory systems for water resource management to recognize this interconnection. For instance, California merged the agency responsible for water quality and the agency responsible for water quantity decisions to form the State Water Resources Control Board.

[13] Land use decisions are also interconnected with water allocation. Increased development of an area leads to reduction in the area available for aquifers to be recharged (due to roads and compaction of soil). As a result, increased development reduces the recharge rates of aquifers. Meanwhile, new developments have specific water requirements. As a result, again, joint management of land use and water allocation is necessary.

[14] This statement does not imply that there is any entitlement to water.

[15] This sub-group consisted of Al Bettencourt, Rhode Island Farm Bureau; William Stamp, III, Rhode Island Agricultural Council; and Kenneth Ayars, Chief of DEM's Division of Agriculture and Resource Marketing.

RECOMMENDATION OF APPROPRIATE STRUCTURE

- **Alternative 1: Management of Drought Situations**
  - **§7R-3-02 Declaration of Water Shortage**
  - **§7R-3-03 Decl. of Water Emergency**

- **Alternative 1a: Voluntary Approach**
  - **Involves education and encouragement to use water-saving**
  - **The voluntary system would endeavor to:**
    - **Educate the public about water shortages**

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[16] Please note: this section of the Regulated Riparian Model Code is inserted as a reference, and not as a specific recommendation.

[17] See also the findings of the Priority Uses Subcommittee.

[18] This section prioritizes use. Because low priority users may be denied some water during a drought, it is imperative that the prioritizing system reflect the public good.

In the interests of conservation, it may be worthwhile to allow users to "move up" the list within a priority by implementing documented water conservation measures: users who proactively save and manage water should be given priority over equivalent users who do not. A farmer who installs a high efficiency drip system watering his acres of should gain a 'surety' that his water will remain available long after flood irrigation has stopped. Likewise, a business which proactively installs water-saving appliances and reduces their water use by half should gain priority over one which does not do so. In order to have the most water available, it must be conserved, preferably voluntarily. In order to drive conservation, incentives are required. Priority is a direct and simple way to provide those incentives. Additional incentives to reduce use also exist with a market or barter system: if a high-volume user can net more income by using less water, he will do so.

Note that the Code suggests the following priorities, in order: 1) Human habitation and use, 2) agriculture, and 3) industry. This may or may not be suitable for Rhode Island.

1) Human survival, of course, comes first. Whether that should include watering lawns (a surprisingly large draw on water use, especially during dry times) is a matter of debate.

2) Rhode Island has a large tourism industry which might possibly outweigh agriculture in terms of employment and contribution to the economy. It might not make sense (for example) to save $50,000 worth of tomatoes, while causing $400,000 in lost business due to fish kills and closed recreational facilities.

3) Rhode Island has many hospitals which should perhaps be granted greater priority than general "industry".

4) In terms of {[(economic value) *(people affected)] / [gallons used]}, agriculture is probably below residential use, tourism, and possibly some industry. However, the beauty and tradition of Rhode Island's farms support their protection: they should not be sacrificed merely because they are high-level water users.

[19] A major question is whether the preferred alternative should have a limited scope, such as focusing only on drought situations, or whether it should be comprehensive, such as a full permit system. In comparing these alternatives, a full permit system will involve higher institutional costs. [For more on institutional costs, see Dale B. Thompson, "Beyond Benefit-Cost Analysis: Institutional Transaction Costs and Regulation of Water Quality," Natural Resources Journal, Vol.39, #3, pp. 517-541 (October 1999).] For instance, enforcement of a full permit system will be more costly because it will need to be in place at all times, whereas under the drought system, enforcement is focused on drought situations. Initial implementation costs, i.e. the costs incurred by the administrative agency in setting up these systems, may be somewhat similar. This is because the decisions necessary to implement both systems may be somewhat similar. On the other hand, enactment costs, i.e. the costs of obtaining the political support to institute a system, should be considerably less under a drought system. This is because it will be significantly easier to develop a political consensus to support increased management of water use during drought emergencies.

In order to compare the systems, we would also need to consider the additional benefits that might arise from increased management during non-drought situations. While some benefits can arise, it is likely that because Rhode Island does seem to

- **Collect data from farmers and businesses**
- **Establish minimum stream flows as a goal**

- **Alternative 1b: Market Approach**
  - **This approach could involve a combination of banking (intertemporal trades) and temporary transfers of water allocations.**
  - **Also use prices to allocate water.**

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have mostly adequate water supplies during non-drought situations, the benefits of a full-permit system would not be substantially greater than the benefits under a drought system. Consequently, it seems likely that, from an efficiency standpoint, compared with a full-permit system, a drought system would involve much lower costs without a significant decrease in benefits. In doing so, a drought system would focus attention on the clear need to develop an approach to deal with extended droughts that may have severe consequences on the economy of the state and the welfare of its citizens.

[20] The choice of triggers can have a distinct effect. A Water Shortage might be triggered by current levels of reservoirs or streams, irrespective of use: "If Reservoir A falls below 50 million gallons, it constitutes a Water Shortage". This is both certain and predictable, as it is simple to monitor the level of a reservoir or stream on a regular basis. Alternatively, the triggers can take into account both levels and current use: "If Reservoir A holds less water than has been used in the previous two weeks, it constitutes a Water Shortage." This provides more flexibility, as it acknowledges that higher or lower usage will affect when a Water Shortage actually occurs. However, this approach carries more risk, as a period of low use followed by heavy use can exacerbate a water shortage before the restrictions come into effect.

[21] Under the voluntary approach, an individual user would bear most or all of the costs of conservation (perhaps with some cost sharing program with the State), while the benefit would be split among all users. Compare this to the conservation benefits under the Regulated Riparian system, described in § 7R-3-06.

[22] A voluntary approach would seem to be the least intrusive alternative. However, this approach brings with it the risks that voluntary reductions will be insufficient to deal with a drought emergency. In such a situation, a resort to emergency regulations could be a consequence of following this approach. Because these regulations would be developed under emergency conditions, they could involve much more intrusive management of water use than an approach that dealt with a drought emergency at its onset, rather than at its peak.

[23] Markets function well when there is heterogeneity in users and approaches. When some users are more efficient in their operations than other users doing the same type of operations, then a one-size-fits-all approach, such as one used with across-the-board regulations, will be inefficient. Similarly, when a particular problem can be addressed through a number of different approaches, the applicability of these approaches may depend on site-specific and context-specific factors and information. Consequently, a regulation requiring the use of only one approach will therefore involve inefficiencies. In contrast, market mechanisms allow the shifting of responses among more efficient users, and site-specific and context-specific selection of approaches to problems. As a result, market mechanisms can lead to significant cost savings when there are large differences among users and among the applicability of approaches.

[24] One thing that must be emphasized is that with a market approach, tight enforcement of permits is an absolute requirement. Under a market approach, the trading currency is credits that are gained when actual (or expected) water use is less than the amount allowed under the initial permit. Close enforcement is required to ensure that these credits represent the quantity of reduced water use. Without this enforcement, a user could claim a credit in far excess of the amount of water actually conserved.

Furthermore, enforcement is also required to ensure that other users have an incentive to purchase credits. Without close enforcement, a user whose use exceeds the levels specified in their permits will be able to use the excess water without anyone knowing about this excess. As a result, the excess user will have no need to purchase credits. Thus, to ensure proper operation of a market mechanism, tight enforcement is required.

[25] Another important requirement for a successful market system is the establishment of baselines. Sometimes, standards determined under a command-and-control system can aid in the development of baselines. See Dale B. Thompson, "Political Obstacles to the Implementation of Emissions Markets: Lessons from RECLAIM," Natural Resources Journal , Vol. 40, #3, pp. 645-697 (October 2000), for an account of how the existence of adopted regulations enabled the formation of one emissions market, but the lack of regulations in another instance presented a barrier to the formation of another market.

- **Prices may adjust according to drought conditions**
- **Requires significant information reporting, and establishment of baselines.**

- **Alternative 1c: Regulatory Approach**
  - **As drought conditions worsen, additional mandatory restrictions will be put into place.**
  - **Priority criteria applied to determine restrictions.**
  - **Also requires information reporting.**

Alternative 2: Registration System

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[26] Banking may involve actual storage, which generally requires some additional construction for storage of water. Reservoirs are the most widely used, though some settings may facilitate reverse pumping of water *into* aquifers for later use. Alternatively, banking can refer to saving 'credits' on record for later use; see footnote 22 below.

[27] If you consider the year as having periods of high and low flow, it is most sensible to restrict temporal transfers or banking to within-period exchanges, or else to use some sort of equivalency factor in making exchanges. It may not be as effective to allow reduction of flow in November to compensate for increased flow in July.

[28] Trading or sales can be handled either directly between users, or through a central agency. Using an agency allows tracking of usage changes and ensures accurate trades: users 'sell' or 'buy' rights to or from the agency rather than with each other. It is often considered preferable to avoid a system which leads to, or allows, profit speculation in water rights, and if a central agency sets prices or trade equivalencies, it can avoid the price fluctuations of a completely open market.

[29] Some risks of a market credit system are that a) users will 'claim' more credits than they actually use or are entitled to, and b) users will sell or trade rights, but not actually reduce use as promised. Clearly, the WRB needs to know exact usage to determine how much water an individual is originally allowed, how much 'credit' he is able to store by reducing consumption or trading, and that he actually reduces his use. With some limited exceptions, users who do not have metering installed would have difficulty trading, because they would be unable to prove reduced use. Thus, the benefits of trading may further increase voluntary metering and usage reporting.

[30] The market pricing system has some distinct advantages: 1) It easily allows for temporary or limited fluctuations in use. If someone needs more water temporarily, then he may simply buy it—without going through any additional permitting process. Likewise, unexpected 'extra' water will rarely be wasted because it has value if unused. 2) It encourages conservation: even when water is plentiful, less water use translates directly and predictably into money in users' pockets. Costs of conserving water can be evaluated against money saved when making choices. 3) It encourages economically efficient use, but does not require the state to make 'value judgments' as to which uses are more beneficial: user who require continuation of specific use may continue even in a drought, so long as they are willing to pay.

[31] Some users may try to claim more use than actually occurs during the initial registration period. Care should be taken to avoid or restrict such behavior.

[32] While this approach focuses on drought emergencies, additional guidance for developing this approach can be obtained from the sections of the Regulated Riparian Model Code discussed under Alternative 2: Full Permit System.

[33] Under the voluntary approach, an individual user would bear most or all of the costs of conservation (perhaps with some cost sharing program with the State), while the benefit would be split among all users. Compare this to the conservation benefits under the Regulated Riparian system, described in § 7R-3-06.

[34] A voluntary approach would seem to be the least intrusive alternative. However, this approach brings with it the risks that voluntary reductions will be insufficient to deal with a drought emergency. In such a situation, a resort to emergency regulations could be a consequence of following this approach. Because these regulations would be developed under emergency conditions, they could involve much more intrusive management of water use than an approach that dealt with a drought emergency at its onset, rather than at its peak.

[35] At its onset, this system would primarily be for the purpose of collecting information about individual users' use of water.

- **Under this system, users of both surface and groundwaters above a threshold level would be required to register their water use.**

- **Alternative 3: Full Permit System**
  - **Under this system, a permit would be required for withdrawing water from either groundwater or surface water resources. Exceptions to the permit requirement could be available for withdrawals below a specified quantity.**
  - **Development of this permit system would take guidance from the Regulated Riparian Model Water Code.**

- **Alternative 4: Combinations of these systems**

[36] As noted above, the costs of this approach alternative may be significantly higher than a drought management system, while the benefits of this approach in normal times may be limited by the general adequacy of water supplies during normal periods.
[37] Some states have found difficulty with excluding small users, since their total effect can be very large. For example, a city of houses, each of which consumes 500 gpd year-round, can easily exceed the total use of multiple large farms. In other states, some high volume users dig multiple smaller (and thus exempt) wells in an effort to avoid regulation. Conversely, some states have extremely high levels before permits are required. The perfect solution has yet to be discovered.
[38] This is an effective way to encourage conservation. If you conserve water, you will gain priority in times of water shortage over those who do not. Thus monies spent on conservation provide a financial and equitable benefit.
[39] At its onset, this system would primarily be for the purpose of collecting information about individual users' use of water.

GROUNDWATER RECOMMENDATIONS

- **Groundwater should be managed in a manner consistent with the management of surface waters.**
- **Additional information about the use of groundwater and availability of groundwater for specific aquifers is necessary.**

[40] Certain types of aquifers are vulnerable to the effects of over-pumping, which can include salt water intrusion, large drops in water level, etc. Other aquifers may be limited in size to a distinct geographic area. Just as a surface water management system takes into account seasonal variations of flow, distinct uses, watershed protection, and many other factors, a groundwater management system should take the aquifer characteristics into consideration. This is more crucial in areas with heavy groundwater use.