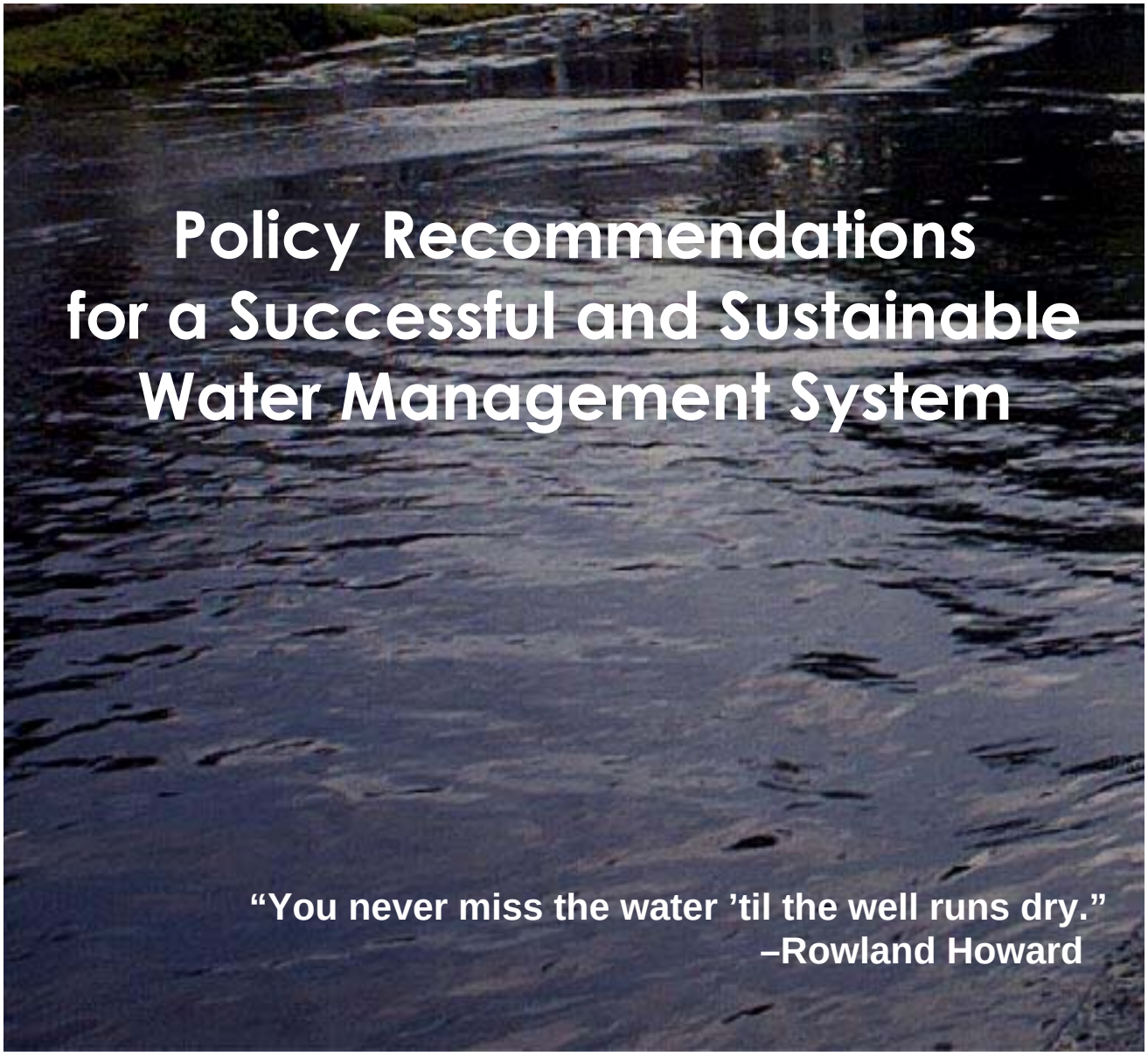

Policy Recommendations for a Successful and Sustainable Water Management System

"You never miss the water 'til the well runs dry."
–Rowland Howard

Coalition for Water Security

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Introduction

Clean, affordable water is critical to the health and well being of all Rhode Islanders. We need clean water to drink, sufficient clean water in the state's streams, lakes, and wetlands to protect aquatic life, and reliable water for a vibrant economy. The state is currently blessed with abundant water, but the supply is not inexhaustible.

Water use is outgrowing the capacity of many water supply systems. Insufficient investment in conservation, efficiency and infrastructure maintenance has reduced the reserve water capacity that provides us with security during low precipitation years. Increasing and competing demands for water resources in Rhode Island lead to uncertain conditions for economic development and have begun to dangerously draw down some rivers, ponds and wetlands.

The Coalition for Water Security, a consortium of well-known state and local organizations, believes Rhode Island must change the way it manages water supply to meet the most critical needs and preserve the state's most valuable assets: its natural resources. Existing policies and governance do not ensure that all essential needs for water over the long run can be met.

Rhode Island needs to act now to change water management policies and its water budget. The Coalition for Water Security has spent the past year analyzing and developing these policy recommendations. We have looked at the experiences of other states, as well as built on the work of the Rhode Island Water Allocation Program Advisory Committee.

In this report, the Coalition for Water Security recommends actions in four key areas of water policy that must be addressed now to develop a successful and sustainable water supply management system:

Protecting Natural Resources. Rhode Island cannot balance its water budget without knowing how much water to leave in the natural system. **The Department of Environmental Management (DEM) must quickly establish standards and criteria for maintaining stream flows and water levels in all rivers, streams, wetlands and natural water bodies.**

Managing Water Withdrawals. Rhode Island does not have a system in place to manage water withdrawals. The state cannot balance its water budget without a way to assure that priority needs are met in areas where there is competition for water. **The Water Resources Board must quickly develop and implement a statewide system for authorizing water withdrawals that is consistent with the standards for maintaining stream flows and water levels.**

Reducing Demand. Summertime water use for suburban communities is significantly higher, and sometimes double, the use for the rest of the year. This summer peak use (primarily from lawn watering) drives the need for investment in costly new water supply infrastructure. Rhode Island can regain some of its lost reserve capacity and control future costs through proven demand management techniques including efficiency, conservation, and water reuse. **The Water Resources Board and the Public Utilities Commission should create incentives and programs for suppliers, distributors and end users for a more sophisticated and effective capacity for demand management.**

Permanently Protecting Water Supplies Through Land Conservation. Lands across Rhode Island have been acquired to protect drinking water supplies. However, there is no provision to ensure that land rights acquired with ratepayer or state funds cannot subsequently be sold or developed, an act that would put our water supplies at risk. **The General Assembly should declare that any lands acquired to protect drinking water supplies shall be permanently protected and only be used for the purposes for which the land was acquired.**

The Coalition for Water Security advocates a water system with sufficient management capacity to protect stream flow and enough flexibility to accommodate future growth. This report gives further background information on each of these critical areas of state policy and elaborates on the recommendations.

Protecting Natural Resources

Background

Rivers, ponds, wetlands, and Narragansett Bay are living aquatic systems that rely on both clean and abundant water to be healthy. Water is a finite resource. The water that flows in our streams and ponds and the water that is saved in groundwater come entirely from the rain and snow Rhode Island receives through the year. The amount of water in a river or stream is measured as flow, the volume of water flowing past a particular point during any given period of time. Flow is naturally variable, changing in response to weather conditions and the seasons of the year. Water withdrawals from both groundwater and surface waters decrease the flow of Rhode Island's rivers and streams.

Deciding how much water is available for human use and creating a water budget requires that a determination be made about how much water to leave in the natural system.

Sustainable water management requires balancing human demand for water with the requirements of the natural system. Other states, including neighboring Connecticut and Massachusetts, are developing numeric standards that define how much water must remain in a river, stream or wetland to maintain a healthy natural system. Once in place, these standards can be used to provide new and existing water users with predictable withdrawal limits that ensure the long-term sustainability of the state's water resources. Rhode Island currently lacks clear, specific, statewide standards that define how much water our state's rivers, ponds and wetlands need.

Because Rhode Island does not manage its water budget, some of our river systems are over-utilized and are showing unnaturally low flows. The Pawcatuck River system, the sole source of water for 14 towns in southern Rhode Island and four towns in southeastern Connecticut, is particularly sensitive, with low flows especially apparent in the Chipuxet River. The combined water withdrawals from the Chipuxet by the University of Rhode Island, the Kingston Water District and United Water can exceed the river's capacity and result in a dry riverbed during the summer and early fall.

The Hunt River is also flow-stressed by water withdrawals for supplies in North Kingstown, Kent County and Quonset. During the summer of 2005, the flow in the Hunt River was severely diminished.

In the Blackstone River watershed, the Abbot Run sub-basin has the highest level of stress from water withdrawal. These withdrawals provide water to Pawtucket and North Attleboro.

Unnaturally dry and severely low rivers are largely unavailable for drinking, manufacturing, tourism, fishing, swimming and boating. Low flows also damage aquatic life.

Recommendations

Rhode Island must quickly establish standards and criteria for maintaining stream flows and water levels in all rivers, streams, wetlands and natural water bodies

DEM should be required to develop presumptive[1] numeric standards and criteria for maintaining stream flows and water levels using desktop analyses (rather than field studies) that apply to all fresh waters of the state (lakes, ponds, wetlands, rivers and streams) by July 2008. The desktop analyses will rely on existing data, making this approach relatively inexpensive. The DEM can model these standards on those under development in neighboring states. The process should be flexible, allowing for refinement of the standards based on watershed-specific studies.

The Coalition recommends the following legislative language: "By July 15, 2008, the Department of Environmental Management shall develop narrative and numeric standards and criteria for maintaining stream flows and water levels in all rivers, streams, wetlands and natural water bodies within the State of Rhode Island. Said standards shall (1) be incorporated into the state's Water Quality Standards; (2) be based on natural variation of flows and water levels; (3) preserve and protect natural aquatic life, including diadromous fish; (4) be consistent with the needs and requirements of public health, water supply, flood control, industry, public utilities,

[1] With a presumptive standard, applicants would have an opportunity to demonstrate that the standard should not apply in their particular case.

public safety, agriculture, public recreation and other lawful uses of such waters; (5) be statewide presumptive standards, but may allow for later development of more detailed or basin-specific standards; and
(6) include criteria for designating watersheds most at risk from cumulative water use and watersheds with exceptional natural resource value."

Managing Water Withdrawals

Background

Rhode Island does not have a system in place to manage water withdrawals. The Water Resources Board has authority to manage the withdrawal and use of the waters of the state, but management programs have not been implemented. DEM has authority to review new withdrawals through the wetlands regulations, but existing withdrawals are not addressed in this way. As a result, the state has no way to assure that our rivers are being protected, that priority needs are being met, or to resolve competing demands for water when there are multiple withdrawals from the same source.

Rhode Island cannot assure that priority needs will be met without a system for managing water withdrawals.

The state needs a way to make sure it can provide water for our highest priority uses. The top priorities are:

- Clean water for drinking and sanitation
- Healthy levels of water in our rivers, lakes, ponds and wetlands, so they support fisheries, recreation and thriving ecosystems, on which the health of the Bay depends
- Sufficient water for fire suppression
- Reliable clean water for economic uses, including agriculture and tourism

Meeting priority needs requires a way to resolve competing demands for water in watersheds where multiple withdrawals occur. The state also needs to assure sustainability across watersheds (since water supplies cross watershed lines and many supplies are interconnected) and mechanisms to limit non-essential uses of water and encourage cost effective water management.

The state needs to manage water withdrawals to support economic development

Water management should support Rhode Island's economic strategy. The current patchwork system does not assure that water will be available for water suppliers and water users. Rhode Island needs to manage water withdrawals to meet our current needs and provide a margin of safety for drought periods and for economic development.

Recommendations

Rhode Island should implement a statewide system for authorizing water withdrawals.

Using the standards to maintain stream flows and water levels established by the DEM, a water withdrawal authorization program would assure that water is equitably distributed and priority needs are met. Authorizations should require information on uses of water and plans to reduce non-essential uses. Authorizations to withdraw are also a good vehicle for requiring demand management. Water withdrawal authorizations would increase the reliability and security of water supplies.

Rhode Island is far behind the other states in New England (and across the country) in not having such a program. Rhode Island should learn from what other states have done and avoid the problems that they have encountered.

The Coalition recommends the following policies:

1) Strengthen the authority of the Water Resources Board to review and authorize withdrawals[2]**,** including a prohibition on withdrawal without authorization, procedural protections and enforcement authority. Funding for the necessary work at the Water Resources Board can come from a combination of applicant fees and water use surcharges.

[2] The Water Allocation Program Advisory Committee selected 8,200 gallons per day as the threshold above which authorization for withdrawal should be required (with modifications to include seasonal withdrawers). As this was a well thought out and consensus position, it makes sense to adopt that position for legislation.

2) Direct the Water Resources Board to promulgate regulations including:

- Procedures for obtaining an authorization to withdraw water.
- A method for determining how much water is available for withdrawal within the watershed in which the withdrawal occurs based on the standards and criteria adopted by the DEM for maintaining stream flows and water levels in all rivers, streams, wetlands and natural water bodies.
- A process for the DEM to verify that any withdrawal authorization proposed by the Water Resources Board is consistent with these standards.
- A requirement that the Water Resources Board consider the cumulative impacts of all existing and expected withdrawals within a watershed when issuing a water withdrawal authorization. This will ensure that environmental standards and priority water needs are met.
- A requirement that water conservation and demand management be included in water withdrawal authorizations.
- Assistance with residential conservation and demand management.

3) Direct the Water Resources Board to develop an implementation plan in consultation with the DEM, water suppliers and municipalities. The plan may establish different authorization approaches for different user types. Authorization requirements can also be phased in, beginning with watersheds that are currently at or beyond sustainable water use levels and watersheds with high ecological value. All significant withdrawals should be required to register and report use volumes.

4) Authorize a mechanism to assist cities and towns to plan for water use to support growth that is consistent with Rhode Island's *Land Use 2025*.

Reducing Demand

Background

Levels and patterns of water consumption vary dramatically among different users. Summertime water use for suburban communities is significantly higher, and sometimes double, the use for the rest of the year. This summer peak use (primarily from lawn watering) drives the need for investment in costly new water supply infrastructure. Rhode Island can regain some of its lost reserve capacity and control future costs through proven demand management techniques including efficiency, conservation, and water reuse. The state should address the following issues related to peak demand:

Water use peaks when water is most scarce.

The natural flow of rivers and streams is highest in the spring, with melting snow and spring rains, and lowest in the summer and early fall, when rain is less and trees are in full leaf. Rivers, streams and wetlands are therefore most sensitive to water withdrawals during the summer and early fall – the very time when demand for water peaks in Rhode Island. It is not unusual for water use to double over the summer, exactly when the least water is available.

Rhode Island has inadequate incentives for water conservation and no effective mechanism to control non-essential uses, so higher priorities are being shortchanged.

Two island communities whose water use is obviously constrained – Jamestown and Block Island – do implement effective controls to reduce peak demand in the summer, but for the most part local attempts to control summer water use are limited and generally not effective.

Conservation pricing is one proven best practice in demand management. Water prices or rates for most Rhode Island suppliers are set by municipalities or the Public Utility Commission, and the existing rate structures are not sufficient to create strong incentives for efficiency and conservation or to discourage excessive or non-essential water use.

The need to plan to meet peak demand forces water suppliers to invest in expensive new sources.

New water supply is often either extremely expensive or not available. Expensive new supply is proposed primarily to meet peak demand that is driven by non-essential water uses.

Recommendations

Rhode Island can do a much better job at demand management. Demand management can reduce or even avoid the need for construction of expensive new supply. Demand management effectively creates a new supply of water that protects our natural resources and does not interfere with essential uses of water. If we implement effective demand management practices now and build them into our planning, we can avoid burdensome crisis measures and increase predictability of supply for the future. The Water Resources Board and the Public Utilities Commission should create incentives and programs for suppliers, distributors and end users for a more sophisticated and effective capacity for demand management.

Some of the critical elements of a demand management plan are:

1) Water suppliers should be required to have enforceable demand management programs. As part of the withdrawal authorization process, the Water Resources Board should require each system to have a plan to comply with the water withdrawal limits established in their authorization. Each plan should have a conservation element that would include programs to reduce peak demand and use water more efficiently, and a plan to meet the statewide goal for average water consumption (described below). For communities that exceed their water authorization limits, additional conservation measures may be needed to reduce summer peaks.

The Legislature should require that demand management be included in the water withdrawal authorization regulations developed by the Water Resources Board. The legislation could direct the Water Resources Board to specifically consider certain recommendations during rulemaking.

The Coalition's recommendations are:

- **The plans should be renamed Water System Supply *and Demand* Management Plans (WSSDMPs)** to emphasize the importance of demand management. Individual water supply systems would have flexibility to choose demand reduction strategies most appropriate for their system. Reaching the consumption goal will require time for many systems, so plans should contain a compliance schedule. Conservation plans should be submitted no later than June 30, 2008. The Water Resources Board should provide technical assistance to suppliers to support their residential demand reduction programs and to assist with their conservation plan implementation. The conservation elements of the WSSDMP should be incorporated in the authorization of withdrawals.
- **Systems should report implementation progress annually to the Water Resources Board.** One option for enforcing submission of an approvable plan and compliance with the plan is to require the Water Resources Board to make a finding of compliance with the plan before releasing water quality protection charges (currently 1/3 of the rates) or Clean Water Finance funds to suppliers. Providing for administrative fines for non-compliance is likely to be less effective, given the reluctance to fine municipal systems (and in any case, the penalty is merely passed along to the consumers).

2) Conservation pricing should be enabled and encouraged. Prices send a very effective signal to customers. Prices should reflect the real costs in infrastructure expense, environmental harm and forgone economic opportunities. Conservation pricing allows consumers to make informed decisions about water use. The Coalition recommends that conservation pricing be structured so customers with low consumption for essential uses would be protected by low (life-line) rates. Because of the many advantages of conservation pricing, this strategy for demand management should be particularly encouraged, and all barriers to the use of conservation pricing should be removed.

The legislature can help the state achieve water prices that better reflect the real value of water by:

- **Specifically requiring that communities consider pricing changes to reduce demand, especially over the summer, as part of their demand management plans.**

- **Directing the Public Utilities Commission to respond favorably to conservation pricing proposals from water suppliers**, and allowing expenses in support of conservation pricing to be recovered. For conservation pricing to be most effective, consumers need quick feedback about how much water they are using and what it is costing them. Remote read meters and monthly billing are important tools in making this happen. Legislation could clarify that these expenses are recoverable. Although Public Utilities Commission rules do not prohibit conservation pricing, the time and expense to get through a Public Utilities Commission proceeding can be a deterrent to systems that want to try this approach. Legislation expressing a preference for conservation pricing can make the outcome of such proceedings more predictable, and thus encourage greater use of this important demand management tool.

- **Specifically providing for establishment of revenue stabilization funds by water suppliers.** Conservation pricing strategies are likely to have unpredictable initial effects on the revenues of water suppliers. The authorization of revenue stabilization funds and mechanisms for the recovery of conservation investments by local suppliers is a critical aspect of conservation pricing. So, too, is the establishment of enterprise funds through which suppliers can direct a portion of revenues to capital funds dedicated to support infrastructure maintenance and replacement. State laws should be revised to provide for creation of such funds by all systems, whether or not regulated by the Public Utilities Commission.

3) Rhode Island should have a goal for per capita residential consumption. Rhode Island currently has a huge range of water consumption patterns across the state. Some communities use water quite efficiently, others use water at rates that far exceed what their population would reasonably require. A statewide goal for per capita water use would help everyone to recognize that efficient water use is necessary. As the goal is implemented, it would start to reduce demand during the summer months when water supplies and our rivers and streams are most at risk. Such a goal would not be a mandated limit per household, but instead a system-wide average goal to help water suppliers measure the effectiveness of their demand management programs.

The Legislature could direct the Water Resources Board to quickly promulgate regulations that set a goal for per capita water consumption by residential consumers, drawing on the experience of nearby states. This goal would provide one performance standard for evaluation of the conservation element of the water suppliers' plans submitted to the Water Resources Board. This goal should have statewide applicability – all should share the burden, since all benefit. This standard would also provide guidance for consideration of potential new water supplies. New supplies would not be considered until the average residential consumption rates in that community met the goal.

4) Major users should conduct and comply with the recommendations of an independent water efficiency audit. Conservation plans should include provisions to ensure that major users have had a water efficiency audit conducted by an independent auditor and have implemented (or are on a schedule to implement) recommended water conservation and wastewater reuse practices. The use of potable water for evaporative cooling is of particular concern since it contributes to summer consumption peaks. Evaporative cooling therefore should receive special attention and the substitution of non-potable water should be considered.

The Legislature can help achieve this objective by requiring the Water Resources Board to include this provision in its rules for water withdrawal authorizations.

5) Water banking (and/or offsets) should be required of new consumers in stressed basins. As prerequisite to connection to a public water

system, proposed development in stressed basins should be required to offset the new water demand by reducing demand (at a ratio of 2 units reduced to 1 unit of new consumption) elsewhere in the system. This approach allows economic development in areas that are water constrained while not making the situation worse. The Legislature can ensure that the state maintains opportunities for economic development while addressing water constraints by directly requiring water banking in legislation, or by directing the Water Resources Board to promulgate rules requiring this approach.

6) Land use strategies should be utilized to control water demand. The state's *Land Use 2025* encourages development to be concentrated within the urban services boundary – where water supply infrastructure is available. Local communities may require technical assistance in making their comprehensive plans and the zoning ordinances that implement them consistent with *Land Use 2025* and informed by local constraints on water supply. Local zoning ordinances should limit irrigated areas and require drought-tolerant landscaping. Impact fees for irrigated areas are an alternative to outright limits, but have not yet been used for this purpose in Rhode Island.

The Legislature could make these goals a reality by specifically referencing the goals of *Land Use 2025* in the water management legislation, and expressing a goal for the state to make development choices that reflect the real constraints of a sustainable water supply.

7) Private wells should be accurately located and registered on-line in a data base, and should not be used to evade consumption goals or public water supply regulations. Some consumers may seek to install private wells to allow continued lawn watering as prices go up and other constraints on summertime water use are implemented. The higher prices go, the more cost effective a private well will seem. In some areas this will make the water problems worse, as the private well simply pulls water from the public supply. Some mechanism to prevent this from happening on a large scale and to monitor how many new wells are installed should be included in the rules.

The Legislature can help address this problem by requiring that private well registration procedures be updated to include precise position, as determined by Global Positioning Satellite, and be submitted on an on-line system that stores information in a publicly accessible database. The Legislature should require that large developments that currently drill multiple small wells for their supply be subject to the same requirements as public supplies.

8) Enable the appropriate reuse of water. The reclamation, reuse and/or recycling of wastewater and water (including storm water, gray water, industrial process water and other non-potable water) for beneficial reuse should be incorporated into the state's overall water strategy as a viable alternative water source.

Permanently Protecting Water Supplies Through Land Conservation

Background

Protecting the lands around our public drinking water supplies is essential to Rhode Island's water security. Protecting these watershed lands helps ensure a high quality water supply because protected, forested lands filter out pollution and contaminants from runoff before they can enter the public water supply system. State law has recognized this principle for decades. The state's Water Quality Protection Fund was initiated to ensure implementation of this strategy (land conservation) for protecting drinking water supplies.

Unfortunately there are no provisions in statute, or in the Water Resources Board rules, to ensure that land rights that have been acquired and held in public trust to protect our drinking water supplies cannot subsequently be sold or developed[3], even if

[3] Senate Bill 2497, adopted by the General Assembly in 2006, addresses this threat for state-owned parks and management areas. Most land that has been acquired to protecting drinking water supplies is not state owned. Yet these protected lands should have the same system of "good government" checks and balances as state parks and management areas to ensure their long-term protection.

the water supply that the land protects is still used as a public water supply or is included as part of a public water supply plan.

Ratepayers and taxpayers who have funded land conservation to protect drinking water supplies should be assured that land and rights of land acquired for the purpose of water supply protection shall only be used for the purposes for which they were originally acquired.

Recommendations

The General Assembly should amend RIGL 46-15.3-11 to declare that any lands acquired for water supply protection purposes with, or prior to, the Water Quality Protection Fund shall only be used for the purposes for which it was originally acquired.

Conclusion

Rhode Island has significant potential to better manage our water supply and reduce our demands on the system in order to meet all of our needs. The Coalition for Water Security urges the Governor and General Assembly to act this session to adopt these recommendations. We look forward to the opportunity to work with other interested parties to develop solutions to meet Rhode Island's water needs.

Coalition for Water Security

The Coalition for Water Security is made up of Rhode Island groups dedicated to the development of a rational water supply system that protects natural waters while allowing dependable supply for our residents and for economic development.

Coalition Partners:

Aquidneck Island Land Trust • Audubon Society of Rhode Island • Clean Water Action
Conservation Law Foundation • Environment Rhode Island • Grow Smart Rhode Island
Narragansett Bay Estuary Program • Narrow River Preservation Association
Rhode Island Economic Policy Council • Rhode Island Land Trust Council
Sierra Club Rhode Island Chapter • Save the Bay • Trust for Public Land
Wood-Pawcatuck Watershed Association