



CLEAN, FLOWING WATERS FOR WASHINGTON

The Center for  
Environmental Law & Policy

# Washington's Wasted Water:

How our lax water efficiency laws waste  
millions of gallons and millions of dollars



A Report by  
The Center for Environmental Law & Policy  
*August, 2002*

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# *Washington's Wa\$ted Water:* **EXECUTIVE SUMMARY**

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## **Purpose**

This paper provides suggestions for an effective Washington State water conservation policy. It also explores how implementing a more progressive, comprehensive water conservation program can benefit Washington's citizens, our precious rivers, streams and aquifers, and the wildlife that depend on them.<sup>1</sup>

## **Methodology**

The information in this report was gathered from a variety of sources, including public records, interviews with officials and administrators at public agencies, and other published reports on water efficiency.

## **Key Findings**

- ◆ As Washington State's population and economy have grown over time, water use has increased dramatically. A corresponding decline in river flows threatens water quality, endangers wildlife, and jeopardizes the State's long-term economic health.
- ◆ Using water more efficiently is the most cost-effective way to meet competing needs for water. Even water suppliers acknowledge that conservation could save significant water and money. One recent study (conducted by water suppliers in Snohomish, King and Pierce counties) found improved conservation could save the region 40 million gallons of water a day over the next two decades. The same study found that conservation is a much cheaper source of new water supply when compared to the cost of developing new water sources, storage and supply systems.
- ◆ Improving water conservation enjoys broad public support. A recent statewide poll conducted by Fairbank, Maslin, Maullin and Associates for the Washington Environmental Council revealed that 65% of Washington voters support mandatory water conservation standards and 79% agree that homeowners, businesses and farms should be required to use water more efficiently to help keep streams from drying up.
- ◆ The State Department of Health, which has jurisdiction over how water is supplied to communities, has publicly, repeatedly called on the Legislature to strengthen State laws pertaining to conservation. The State Legislature has repeatedly acknowledged the importance of using water efficiently – even going as far as to make willful or negligent wasting of water a misdemeanor – but has failed to ensure that State laws governing water use require that conservation techniques be implemented and enforced.

## Conclusions

- ◆ Water conservation can result in significant savings of water and money.
- ◆ There is broad agreement that water users should be more efficient with this precious resource, but so far support has not translated into an effective statewide water efficiency program that actually requires and enforces efficient water use.
- ◆ In order for meaningful water conservation to become a reality, the Governor and the Legislature must enact meaningful conservation requirements into law and energetically enforce them.

## Recommendations

The five most important steps elected leaders must take are:

- 1. Adopt water demand and allocation standards** - The Legislature should direct the Department of Health to develop and adopt standards for demand forecasting and for new water withdrawals and diversions.
- 2. Enact a state-wide water use fee schedule** - The Legislature should pass legislation charging water users an additional use-based fee that would be put into a State-managed fund to promote efficient water use. The fund should be used for financial assistance to implement and ensure compliance with the conservation requirements suggested here, and to buy and lease water rights for the Trust Water Right Program. Additionally, those water suppliers that waste water and fail to implement conservation measures should have to pay at a higher rate than water suppliers who implement sound conservation programs.
- 3. Create statutory incentives for conservation**- The Legislature should enact legislation that allows a non-municipal water supplier to use some portion of conserved water to meet future water needs. In this scenario, water suppliers would dedicate the remaining portion of conserved water to instream uses, without risk of relinquishment of any conserved water.
- 4. Create a consistent, universal, conservation-oriented rate structure** - The Legislature should direct the Department of Health to develop a rate system whereby all water suppliers are required to use conservation-oriented rate structures. The Legislature should also give the Department of Health the authority to monitor and enforce the rate structure requirements.
- 5. Strengthen metering requirements** - The Legislature should direct the Department of Ecology to require all existing water systems with 15 or more connections to install service meters within 3 years. All systems, regardless of size, should be required to install service meters as a prerequisite for obtaining state funding.

## Additional Information

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## INTRODUCTION

Water sustains life as we know it. People around the world depend on water to grow food, generate power, cool the machines of industry, quench our thirst, beautify our surroundings, and renew our spirits. Water provides habitat for countless freshwater and saltwater fish and other animals.

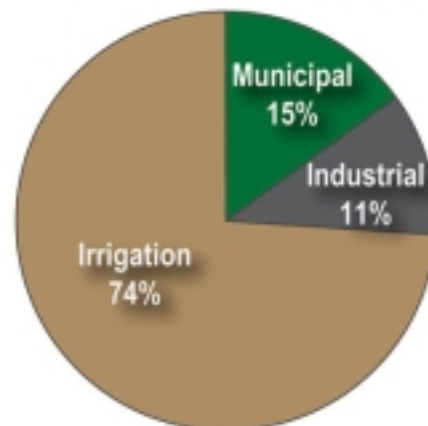
In Washington State, the availability of water determines our quality of life and the success of our farms, businesses and industries. Not surprisingly, in the face of Washington's growing population and increasing demand for water, the flows in our rivers are declining and water quality standards are violated nearly as often as they are met. Many fish and other animal species are listed as threatened or endangered because their water habitat is degraded or depleted.

One key approach to meeting the ever-increasing demand for water while reducing negative impacts on our ecosystem is to conserve the water we currently use. Efficient water use lowers demands for "new" water that would require costly new source development projects and wastewater treatment facilities. Water conservation also helps to ensure water is available to meet economic and population growth.<sup>2</sup> And of course, efficient water use leaves more water instream for the rivers, salmon and other wildlife that give our State its fundamental character.

All water users in Washington should make efficient use of the water they withdraw from surface and groundwater sources. Public water suppliers use only a fraction of the total water used in the State, but they have many opportunities for water conservation. Although public water suppliers are required to include conservation planning in their water system plans, there is no requirement that the plans be implemented, and no one enforces the conservation components of these plans.<sup>3</sup>

In an era when legislators spend countless hours each session debating changes to our water laws, it is unfortunate that Washington State has minimal funds committed to encouraging water conservation. In 1998, the Department of Health (DOH) received a budget allocation for 3.5 Full Time Employees (FTEs) to support its Conservation and Reuse programs, which amounted to \$678,000 during the 2001-2003 biennium.<sup>4</sup> That same allocation provided 3.5 FTEs to the Department of Ecology (DOE) — 2 FTEs in the Water Quality Program and 1.5 FTEs in the Water Resources Division, both dedicated to water conservation and reclaimed water issues.<sup>5</sup> However, that appropriation is "provided solely for technical assistance to local governments and special districts on water conservation and reuse," not to boost enforcement or regulatory efforts toward these programs.<sup>6</sup> In addition, DOH has approximately 0.25 FTE from its General Fund allocation for conservation, 1 FTE

**Washington State Water Use**  
total water use statewide = 8,820 million gallons per day



Source: U.S.G.S. Estimate of Water Use in the United States

devoted to engineering support and 0.25 FTE for policy support of its reclaimed water program.<sup>7</sup> In comparison to DOH's overall budget (DOH's total operating budget for the 2001-2003 biennium is \$635 million),<sup>8</sup> and when compared with the number of FTEs reviewing water system plans (21.5 FTEs),<sup>9</sup> these numbers are small. However, DOH has also invested significant resources beyond those specific allocations that are not tracked and not reflected in these FTEs.<sup>10</sup>

Under current law, the Department of Ecology (DOE) is responsible for issuing water permits for public water suppliers. A different agency, the Department of Health (DOH), regulates *how* that water is supplied. Strangely, there is no connection in the law between these two important functions – the availability of water and the means of use. DOE is required generally to insure efficient water use, but the mechanism to exercise that authority resides primarily with another agency. Neither DOE nor DOH have substantial assistance or incentive programs to encourage water efficiency from public water suppliers. As a result, the need to use water efficiently does not translate into a broad scale effective State policy.

While there are certainly efforts across the State to use water more efficiently, Washington must make some policy and legal changes in order to ensure that skyrocketing demands for water are not matched by skyrocketing utility costs, as well as costs to Washington's already fragile riverine ecosystems. Our elected leadership must understand the importance of protecting our precious water resources before we reach a crisis. Improving water use efficiency is a powerful, cost-effective tool to ensuring we can meet our needs for water while preserving our rivers, streams and aquifers.

## **I. WHAT IS WATER CONSERVATION?**

Water conservation is generally defined as the efficient use of water.<sup>11</sup> Historically, however, conservation has been viewed as a tool to be used during times of drought or emergency water shortage. It has primarily included short-term curtailments through restrictions on lawn-watering during hot summer months for instance, and has often carried the negative association of sacrifice.

Conservation can be viewed in a more progressive, realistic manner: as a multifaceted approach that is economical and accepted by the public, much like recycling, rather than just a necessity in times of drought. This multifaceted approach should include metering water use, reuse of reclaimed water, leak detection and repair, implementation of rate structures and billing practices that promote conservation, water audits, distribution and installation of water-saving appliances, and making pertinent and timely information about water use available to water users and policy-makers.

There are two main approaches to residential water conservation: 1) efforts by water consumers to be more efficient with how they use water, thereby lowering demand, and 2) efforts by water suppliers to minimize waste and inefficiency. We will address both approaches in this paper, and what can be done on a policy level to insure successful water conservation efforts in Washington.

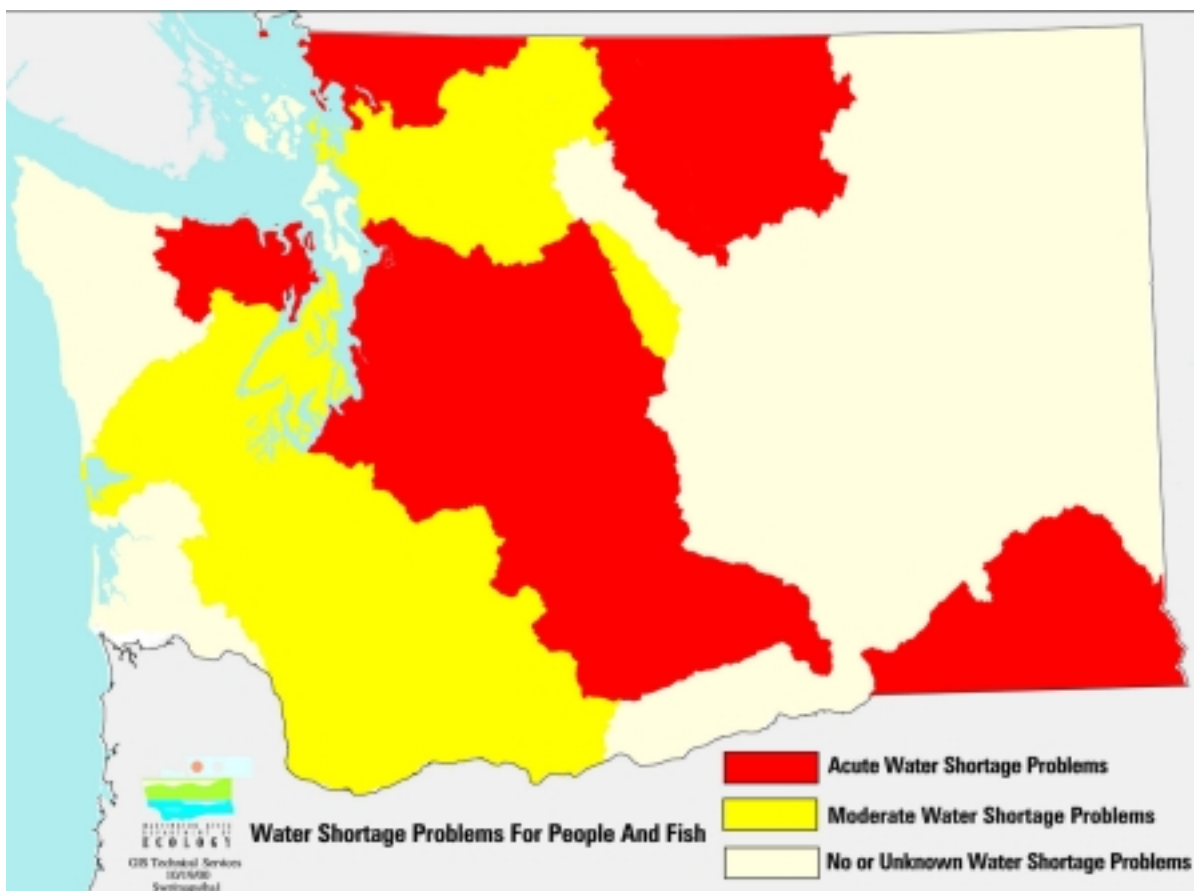
## II. WHY CONSERVE WATER?

### A. Conservation Can Help Meet Competing Needs For Water and Save Money

Water is a scarce and dwindling resource in Washington. Flows in Washington's streams and rivers have declined significantly over the past century and in many areas of the State we do not have enough water to satisfy both human and natural needs.<sup>12</sup> The struggle to provide a sustainable supply of water for people, industry, and agriculture, to provide opportunities for recreation, and to provide habitat for endangered and threatened fish species will only intensify over time as more people move to Washington. According to Washington's official Year 2000 census, 5,894,121 people live in Washington - an increase of over 21% since 1990. Growth projections indicate that by 2030, the population will increase by another 17% -or over one million more people.<sup>13</sup>

Complicating this picture is the fact that it rains significantly less in Washington in the summer than during the rest of the year. From July through September, rainfall is at its lowest while water use is at its highest.

In the face of increasing population and decreasing river flows, water suppliers are looking for answers to the question, "How are we going to provide water for all of these competing needs?" Conservation is one answer. The Central Puget Sound Water Suppliers' Forum (Forum), a consortium of water suppliers in Snohomish, King, and Pierce Counties, acknowledges conservation



as one solution to their problem of trying to supply water to an increasing population in light of dwindling supply. In a recent publication, the Forum identifies that by 2020, the summer demand for water could be reduced through conservation by 9% annually, resulting in a year-round savings of 40 million gallons per day (mgd) at an annual cost of \$7 million, or a total cost of \$140 million.<sup>14</sup>

The Forum also analyzed the potential cost of conventional water supply projects, such as developing new sources of water, storage facilities, and connecting water supply systems through interties.<sup>15</sup> The Forum provides an analysis of 10 proposed projects and one generic example desalinization project.<sup>16</sup> Assuming a high yield of water (a less conservative estimate of the amount of water made available), the annual cost per project ranged from \$56,000 to \$1.3 million for 1 million gallons a day, with an average cost of \$428,727 for a million gallons.<sup>17</sup> Comparing the costs provided by the Forum, conservation is the far less expensive source of supply: it costs merely \$175,000 for conservation of one million gallons versus \$428,727 per million gallons a day on average for developing new sources of water.

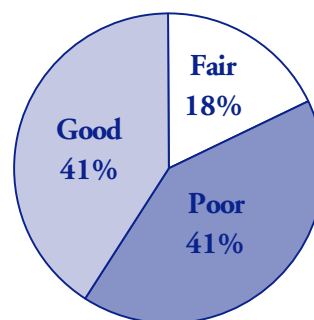
Conservation saves money in indirect ways as well. Over time, water conservation reduces the need for costly new infrastructure to supply water (supply pipes, pumps, treatment plants to insure safe drinking water quality), which are expensive to build and maintain.<sup>18</sup> Increasing system efficiency trims operation and maintenance costs of existing facilities as well, such as pumping, energy, and treatment costs.<sup>19</sup> For instance, reducing water use reduces the amount of effluent flowing to sewer systems, which increases the life of sewage treatment plants and ultimately saves both customers' and sewage treatment operators' money.<sup>20</sup> Sewer rates are often based on the amount of water used, so using less water also reduces customers' sewer bills.<sup>21</sup> Reducing water use also decreases the cost of electricity because less electricity is used to pump water.<sup>22</sup> Operators benefit by reducing maintenance costs and postponing or eliminating the need for capital improvements to sewage treatment plants.

Conservation also reduces impacts to water quality. When less water is used, less wastewater is generated that must be treated. A reduction in wastewater decreases the chance that a treatment system is overloaded and has to release untreated wastewater into rivers, lakes, and Puget Sound.

Customers who pay for water based on the amount they use can save money by limiting their use to reduce their bills. However, we recognize that this system can create a disincentive for water suppliers who face decreased revenues.<sup>23</sup> For example, Seattle Public Utilities reported a \$7 million revenue shortfall last summer, due in part to drought curtailment efforts of its customers.<sup>24</sup> While a short-term revenue loss might seem particularly injurious, it is important to factor in the long-term savings associated with conservation: reduced operation and maintenance costs, and postponing the need

### Condition of Washington's Streams

Source: Department of Ecology



for costly new supplies and infrastructure. These are difficult to quantify in relation to short-term revenue losses, but are, nonetheless, important considerations. Conservation does cost money up front, but costs much less than developing new supplies. Developing new water supplies—including drilling wells or installing pumps to withdraw water, installing pipes to convey it, and building treatment facilities when necessary—equates to very costly construction projects. When compared to the simple act of using less water, which costs water users nothing financially, it is common sense that conservation is often a far less expensive method of supplying water.

## **B. Conservation Protects Our Quality of Life And Helps Save Salmon and other Wildlife**

According to national research, people and businesses tend to locate in areas that provide a clean, natural environment and high-quality recreational opportunities. In a survey of 11 fast-growing counties across the United States, 45 percent of longtime residents and 60 percent of recent migrants to counties containing wilderness indicate that wilderness is an important reason for living in those counties.<sup>25</sup>

Each year, several million visitors to Washington State contribute some \$4.8 billion to our economy.<sup>26</sup> Tourism dollars are directly attributable to Washington's natural beauty. Our state is home to an abundance of rural and scenic areas, including three national parks (Mount Rainier, Olympic, and North Cascades), three national recreation areas (Lake Chelan, Coulee Dam/Lake Roosevelt, and Ross Lake), and extensive areas of national forests. Rivers and streams are the lifeblood of these areas, and contributions from visitors enjoying Washington's flowing rivers are likely to be in the hundreds of millions of dollars each year.

**“The unique natural resources of the Pacific Northwest remain among its most important economic assets. But the new jobs and income that are vital to the region's economic future will depend more on the protection of those assets than on their degradation.”**

*- Economic Well-Being & Environmental Protection in the Pacific Northwest*

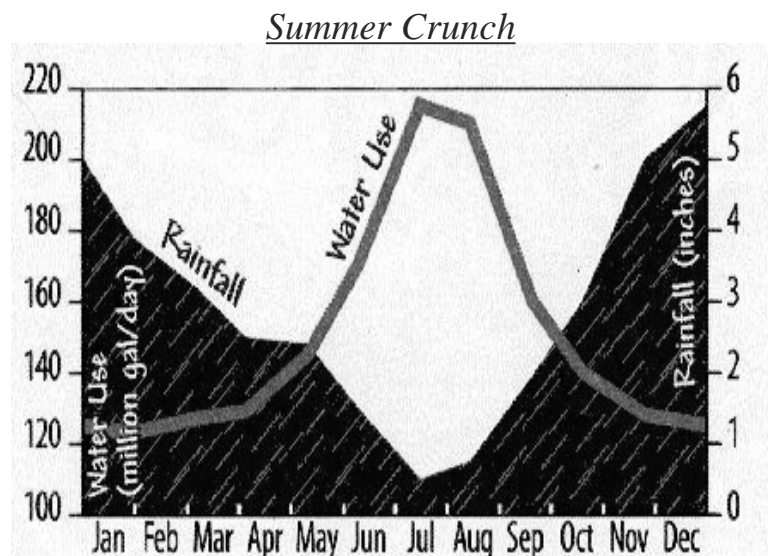
By the most conservative estimates, the monetary value provided by recreational use of our rivers tells us that water is vital to our economy – and not just any “water,” but clean and flowing water. Recreational opportunities that depend on sufficient river flows and clean water not only bring in tourism dollars, they make Washington a more attractive place to live. Economists widely recognize the importance of recreation to a vibrant economy.<sup>27</sup> For example, a 1995 report endorsed by more than 60 economists, primarily from Washington and Oregon, states, “In short, the Pacific Northwest does not have to choose between jobs and the environment. Quite the opposite: a healthy environment is a major stimulus for a healthy economy.”<sup>28</sup>

Income from water-related recreational activities, such as fishing, kayaking and river rafting, also play a significant role in Washington's economy. These activities would not be possible but for

sufficient amounts of flowing water in rivers and streams during warm summer months. For instance, in 1996, sport fishing contributed more than \$704 million to our economy.<sup>29</sup>

Salmon have been and continue to be a critical part of Washington's history, culture, economy, and recreational enjoyment.<sup>30</sup> They are a symbol of the natural beauty of this State.<sup>31</sup> But this critical symbol of our culture and heritage is in peril - an alarming number of salmon and other fish species in Washington are listed as threatened or endangered under the federal Endangered Species Act (ESA).<sup>32</sup> One of the key reasons for decline in their populations is not enough water flows in our streams and rivers to support healthy habitat.<sup>33</sup>

Many salmon species return to their home rivers and streams to spawn when stream flows are lowest and water use is highest. Without adequate flows in rivers and streams when salmon return from the ocean to their home rivers in early fall, salmon are unable to spawn and water temperatures can become lethal to fish.<sup>34 35</sup> ESA-listed species cannot recover without adequate instream flows to insure their survival and ability to regenerate.<sup>36</sup>



Water is our most incredible natural resource, and it is vital to our culture, economy, and quality of life. Implementing water efficiency requirements in the law would be a major step toward protecting the vital economic and natural assets of Washington State. Clearly, the benefits to the environment from conservation are significant.

### **III. THE CURRENT STATUS OF CONSERVATION REQUIREMENTS IN WASHINGTON**

Washington law requires water users to be efficient and use only that amount of water necessary for their purposes. Washington laws do not, however, spell out how water users are to use water efficiently, nor is this general requirement enforced. In fact, while Washington law does include general policy statements about the importance of conservation, and further requires public water suppliers to “address conservation” through their planning processes,<sup>37</sup> no legally mandated standards or specific requirements to conserve water actually exist. At the same time, no significant state incentives exist to encourage water conservation by public suppliers, and many state barriers to conservation have yet to be removed. Given the existing state framework of barriers and lack of incentives, and without clear, detailed requirements and enforcement of efficient use, many water utilities will not aggressively pursue water conservation.

## A. The Legislature and Water Conservation

The Legislature does acknowledge the importance of protecting water resources as a matter of public policy:

Although water is a renewable resource, its supply and availability are becoming increasingly limited, particularly during summer and fall months and dry years when demand is greatest. Growth and prosperity have significantly increased the competition for this limited resource. Adequate water supplies are essential to meet the needs of the state's growing population and economy. At the same time instream resources and values must be preserved and protected so that future generations can continue to enjoy them.<sup>38</sup>

The Legislature even goes as far as to state that people should be “made aware of the . . . need for wise and efficient use and development of this vital resource,” and shall be “encouraged to carry out water use efficiency and conservation programs,”<sup>39</sup> but these broad policy statements are not sufficient to create an enforceable efficiency program.

The Legislature also provides by law that no one has a right to waste water.<sup>40</sup> In fact, willful or negligent waste of water is a misdemeanor subject to penalties.<sup>41</sup> In 1989, the Legislature declared that DOE must reduce wasteful water use and take into account the benefits of improved water use efficiency, which include conservation:

...based on the tenet of water law which precludes wasteful practices in the exercise of rights to the use of waters, the department of ecology shall reduce these practices to the maximum extent practicable, taking into account sound principles of water management, the benefits and costs of improved water use efficiency, and the most effective use of public and private funds, and, when appropriate, to work to that end in concert with the agencies of the United States and other public and private entities.<sup>42</sup>

Nevertheless, although DOE has authority to and is required by law to enforce against waste, no specific requirements or standards provide a mandated benchmark for measuring success. Granted, while it is difficult to enforce a general policy statement in the absence of clear guidelines and benchmarks, implementation and enforcement against waste is largely left up to DOE's discretion, and DOE has rarely done so.<sup>43</sup>

It is clear the Legislature believes that water conservation is important and necessary given all of the policy statements to that effect. In order to make conservation a reality, however, the Legislature must take the crucial next step and give governing agencies the tools to make these policy directives real. The Legislature must adopt regulations that require water suppliers do more than talk about conservation—they must put it into practice. Phasing in enforceable conservation requirements should go hand in hand with phasing in of incentives that encourage water suppliers to conserve water so in the long-term, conservation occurs not only because of State requirements, but also because it is in the water suppliers' and ratepayers' interests to do so.

## **B. The Department of Health and Water Conservation**

The Department of Health (DOH) regulates how public water supply systems supply water, with a focus on protecting water quality for drinking and other domestic purposes. DOH does this, in part, by requiring some public water suppliers to go through a water system planning process. This planning process is only briefly and generally discussed below with regard to conservation.

A public water system<sup>44</sup> is required to submit a water system plan to DOH for “review and approval,” if it meets one of the following criteria:<sup>45</sup>

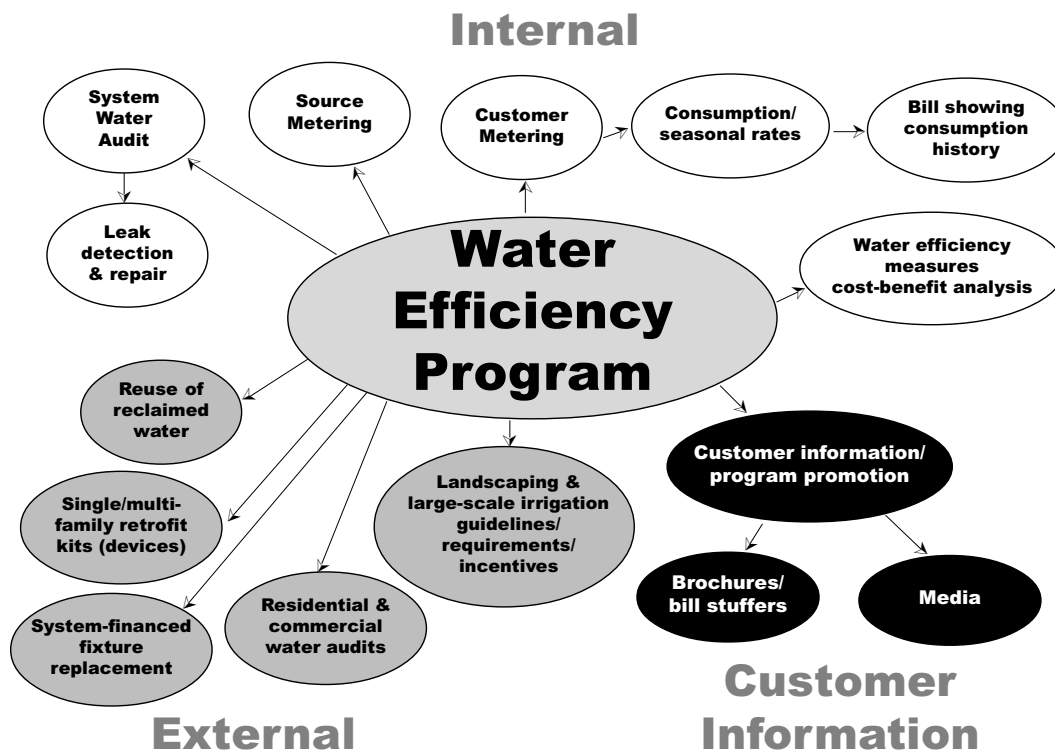
- 1) 1,000 or more connections
- 2) New or expanding systems
- 3) Systems experiencing problems related to planning, operation, or management as determined by DOH
- 4) Systems required to do so by the Public Water System Coordination Act of 1977 (Ch. 70.116 RCW)

Although a water system plan includes many required elements, the only requirement that addresses conservation specifically is that a plan must include the “development and implementation of a cost-effective conservation program, which includes evaluation of conservation-oriented water rate structures.”<sup>46</sup> In other words, these water suppliers must identify conservation measures but are not required to implement those measures.<sup>47</sup>

The fees for DOH’s review and approval of new and updated plans range from \$447 for those systems with 15 to 100 connections, up to \$4,978 for systems with 10,000 or more connections.<sup>48</sup>

According to the DOH Drinking Water System Database, there are currently 820 water systems in Washington, serving 4,851,658 residential connections, that are required to complete a water system plan every six years.<sup>49</sup> Of these, 198 systems have 1,000 or more connections.<sup>50</sup> About 68% of these larger systems serving 1,000 or more connections, which serve a total of 3,383,039 people, are currently in compliance with the requirements that they submit plans every 6 years to DOH.<sup>51</sup> Only four such systems do not have a required water system plan, and several other systems are currently working on their plans.<sup>52</sup> According to DOH, increasing federal water quality requirements, as well as increasing water right problems, have made the planning process a significantly more difficult and costly process.<sup>53</sup>

The vast majority of water suppliers in Washington operate systems that serve less than 1,000 connections—DOH reported in 1998 that there were 14,181 of these systems serving 777,191 people.<sup>54</sup> Only 622 of these smaller systems are required to submit a water system plan to DOH.<sup>55</sup> Smaller systems, roughly 2,000, that fall under the jurisdiction of the federal Safe Drinking Water Act are required to develop and implement a “small water system management program” that includes a “water conservation program.”<sup>56</sup> However, the majority of these “programs” need not be submitted to DOH unless a new transient noncommunity system<sup>57</sup> is created, or if an existing system has technical, operational, managerial, or financial problems as determined by DOH.<sup>58</sup> DOH also requires the completion and approval of a water system plan or small water system management



**From the Washington Department of Health Guide for Water Suppliers**

program as a minimum requirement to receive federal drinking water loans.<sup>59</sup> This rule also requires full system metering as a condition of funding, with a few discreet exceptions.<sup>60</sup> The majority of water systems in Washington are very small (12,609), generally serving less than 15 connections or 25 people, and are not subject to federal regulation.<sup>61</sup> Planning requirements for small these systems are limited to basic design and management at the time the system is approved.<sup>62</sup>

Pursuant to a Memorandum of Understanding with DOH, DOE has 60 days to review certain sections of water system plans submitted to DOH, including the conservation program section, and may provide comments to DOH.<sup>63</sup> If DOE takes regulatory action against a water supplier that is subject to an administrative appeal, DOE can request that DOH conditionally approve a water system plan accordingly.<sup>64</sup> In all other cases, DOE may provide comments but must recommend approval.<sup>65</sup> DOH maintains discretion to evaluate and consider DOE's recommendations.<sup>66</sup> In most cases, DOE requires all existing and proposed public water suppliers to submit conservation plans in order for them to obtain a water right, even if a water system plan is not required by DOH.<sup>67</sup> Again, the plans that DOE requires have only minimal requirements and if those are met, DOE has no ability to actually require the implementation of other, more meaningful, conservation measures.

One important caveat to the fact that DOH has authority to approve or disapprove water system plans is that, as a matter of policy it does not disapprove them.<sup>68</sup> Rather, it is only when public health issues are identified in the planning process that enforcement action, either formal or informal, is taken.<sup>69</sup> The preferred method is to work with water systems on a technical basis to resolve such issues.<sup>70</sup> This approach is also evidenced by the legislative mandate accompanying the

budget proviso for conservation in 1998—DOH’s primary role is to provide technical assistance rather than enforce statutory and regulatory requirements.<sup>71</sup>

## IV. KEY OBSTACLES TO CONSERVATION IN WASHINGTON

### A. The Lack of Political Will to Prioritize Conservation

Perhaps the biggest obstacle to achieving efficient water use in Washington is the widespread attitude that water is not scarce or valuable enough to warrant conservation. The disconnect between laws that regulate how water is supplied (those enforced by DOH) and the laws that dictate who gets a water right (those enforced by DOE) is no accident. Conservationists have long advocated for stronger laws regarding efficient water use, and numerous recommendations have been proposed to the Legislature to strengthen conservation program requirements.

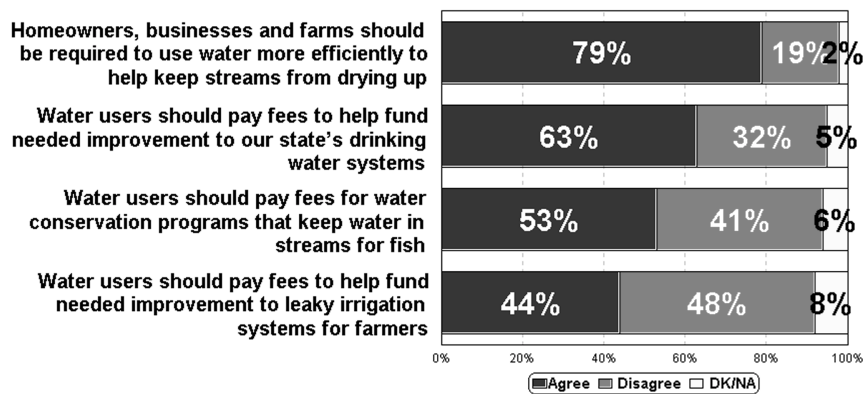
In a 1998 report, DOH summarizes five such recommendations and makes a sixth attempt by analyzing numerous potential conservation options and recommending 21 specific actions the State could take to strengthen existing law.<sup>72</sup> Yet, water suppliers have long fought such reform. We Washingtonians have not addressed the real barriers to water conservation, and we lack specific

conservation requirements and a mandate for coordinated agency implementation. This provides strong evidence that we lack the political will to make progressive change towards more efficient water use in our state. *Until we as citizens send a clear message to policy makers that water is a valuable resource and must be protected in order to insure a long-term supply of drinking water and a healthy environment—both of which are vital to our economy—there will be no real political will to achieve meaningful water conservation.*

### B. Impediments to Conservation Exist in the Law

In addition to a lack of enforceable requirements for measurable conservation, there are actually disincentives to conservation inherent in Washington water law. The biggest disincentive to conservation repeatedly cited by public water suppliers is the “Use it Or Lose It” doctrine. According to this law, a water supplier “relinquishes” a water right if it is not used for a period of five successive years.<sup>73</sup> Exceptions are spelled out in law, and may include inactive use of a water right due to a drought, active service in the military, or legal proceedings.<sup>74</sup> Municipal use of water is specifically

#### Voters believe that homeowners, businesses and farms should be required to use water more efficiently.



exempted from relinquishment, and while not defined in law, “municipal use” is generally interpreted to include water supplied by a city.<sup>75</sup> The reality is that DOE must go through a court process to confirm relinquishment when it “appears” to DOE that a water right holder has not used a water right to its fullest extent,<sup>76</sup> and DOE rarely takes the initiative to do so. However, the threat of relinquishment is real, even if the risk is low.

As a result of the Use-It-Or-Lose-It doctrine, any water supplier that is not a city has both a disincentive to require its customers to conserve water (which would allow the water supplier to take less water from a river or aquifer) and an incentive to use the full extent of a water right so as not to “relinquish” any portion that would not otherwise need to be used.

There are two solutions to this deterrent to conservation: 1) the State Trust Water Rights Program, and 2) legislative changes to provide incentives for non-municipal water suppliers to conserve water without fear of relinquishment.

The first solution, Washington’s Trust Water Rights Program, provides immunity from relinquishment if a water right holder agrees not to use all or a portion of his or her water right.<sup>77</sup> The water that is not used theoretically, then, remains in the stream or aquifer. The Trust Water Rights Program has been underutilized, however, due in large part to the requirement that water users first prove to DOE the amount of water they intended to transfer had been put to beneficial use and was not subject to relinquishment. This requirement raised fears among water right holders with any doubt as to the validity of their water rights, and further instigated distrust of a state agency that held the power to relinquish all or part of a water right through the process. A recent amendment to State law now allows only the portion of a water right that is actually put in the Trust Water Right Program need be validated by DOE (proof of actual use); the portion of a water right retained need not have been actually used.<sup>78</sup> Putting aside any argument about whether this is actually a good policy, it remains to be seen whether this is incentive enough to encourage use of the Program.

The second solution is a legislative change that allows a non-municipal water supplier to use some portion of conserved water to meet water needs and that dedicates the remaining portion of conserved water to instream uses, without risk of relinquishment of any conserved water, would provide the ultimate level of clarity and resolve the issue of relinquishment.

There is another barrier to conservation inherent in State law. Currently, the State financially benefits from inefficient water use because it has a consumption-based utility tax that is collected from water users—the more water that is used, the more the State collects in taxes. Currently the State dedicates almost none of this tax revenue to water conservation, and in fact, the State has a built-in financial disincentive to do so by virtue of this consumption-based tax. In essence, the State has a vested interest in inefficient water use.

## **V. COMPONENTS OF A SOUND WATER CONSERVATION POLICY**

Progressive and successful water conservation programs feature a multifaceted approach that addresses both the supply and the demand sides of water use and customer information measures

tailored to meet the needs of the system and the customers. Washington's DOH recommends a program that includes:

- 1) internal efficiency activities undertaken by a water system (supply) such as metering, leak detection and repair, and rate structures that encourage conservation; and
- 2) external measures to motivate customers to reduce their water use (demand), such as the distribution of water-saving devices and fixtures, water audits, and reuse of reclaimed water; and
- 3) pertinent and timely information to customers<sup>79</sup>

CELP recommends an effective water efficiency program that includes these components and that they be incorporated into *enforceable* regulations. Without the ability to enforce conservation requirements, they simply will not be effective.

Following are discussions of some of these key components to an effective water efficiency program by topic.

### **A. Metering: The Most Important Step in Improving Efficiency**

Meters are the most important part of a water efficiency program.<sup>80</sup> They are essential to overall water resource management: they help customers identify how much water they use so they can take measurable steps to conserve water, and help identify unaccounted for water losses so systems can identify and repair leaks. The development of an effective conservation plan relies heavily on information about how water is being used and where efficiency improvements can be made. To quote a recent Seattle Time Editorial, "Water conservation cannot work without a quantifiable yardstick that measuring provides."<sup>81</sup>

All public water systems should have master **source meters** in order to collect accurate water use data for planning. Likewise, individual users should have **service meters** to measure their use, and water suppliers should provide information to customers about their water use and bill progressively in order to encourage efficient use of water.

Current Washington law requires public water suppliers to have source meters generally for:

- 1) all new surface water diversions,
- 2) all new and existing surface water diversions where the diversion of any volume of water is from waters containing depressed or critical salmon stocks,
- 3) new and existing ground water withdrawals where the withdrawal of any volume of water may affect surface waters containing depressed or critical salmon stocks, and
- 4) for all existing surface water diversions where the diversion volume exceeds one cubic foot per second.<sup>82</sup>

The City of Issaquah provides a positive example of how metering can be an effective conservation measure. In response to numerous water system problems and pressure from DOH, Issaquah began installing service meters in 1988 as a first step in developing a conservation plan.<sup>83</sup> Meter installation

cost \$575,000 and was funded by DOH, a community development block grant, a public works trust fund loan, and charges for individual commercial meter installation.<sup>84</sup> The mere installation of the meters appeared to have had a major effect on water use: summer use after installation went down 18% compared to previous summers, even before water rates were raised.<sup>85</sup> As another example, in 1990, after Leavenworth introduced an increasing block rate between May and October, water consumption dropped an average of 43% during the same months in the previous year.<sup>86</sup>

**Research shows that conservation rate structures can motivate customers to reduce their water consumption. However, absent a regulation requiring conservation-oriented rate structures, most public water systems will not adopt them.**

## **B. Rates that Encourage Conservation**

A conservation-oriented rate is one that encourages conservation, typically by charging more for increased use. As an example, an **increasing or inclining block rate** structure charges customers with higher water consumption a higher rate. **Seasonal rates** differ by season to reflect the price of producing water in different periods, with higher rates generally imposed during times of peak use and low availability, which is summer in Washington. These are the two most common conservation-oriented rate structures in Washington.<sup>87</sup> Some water suppliers charge a fixed rate in addition to a fee based on consumption. In contrast, rates that are not considered to encourage conservation include a **flat rate**, by which a customer is charged only a fixed amount of money that is not dependent on water use, and a **declining block rate**, by which customers are charged less per increment of water as usage increases.

Research shows that conservation-oriented rate structures can motivate customers to reduce their water consumption.<sup>88</sup> However, absent a regulation requiring conservation-oriented rate structures, most public water systems will not adopt them.<sup>89</sup> There are several reasons for such reluctance: lost revenue from reduced consumption, the imposition of costs to implement rate changes (overhauling a billing system, mailing out information about rate changes), and opposition from customers. Also, some operators may fear problems if less water flows through water or sewer systems.<sup>90</sup>

Large public water systems are required to “evaluate” rates that promote efficient use and implement cost-effective rates, but there are no regulatory guidelines for evaluation or cost-effectiveness. Therefore it has historically been easy for suppliers to meet this requirement without actual implementation of conservation-oriented rates.<sup>91</sup>

Commercial, industrial, and agricultural customers also typically pay flat rates.<sup>92</sup> According to a survey of municipal water suppliers compiled by the Association of Washington Cities, of 49 reported cities and towns that submitted water systems plans to DOH since 1998, only 9 reported using an increasing or inclining block rate.<sup>93</sup> The majority, however, 22 out of 49, reported using a flat rate structure.<sup>94</sup>

As important as conservation rate structures is the issue of what water users are actually paying for. Rates can and should be designed to collect sufficient revenue to cover costs, such as the actual cost of delivery of water and the costs associated with wastewater treatment. Rates should also reflect increasing demand and increasing need for new supply and the corresponding cost of that new supply.

In addition, environmental costs should be factored into what water users pay for water delivery. These costs include diminished stream flow and associated impacts on fish and wildlife resources, and diminished aesthetic and recreational opportunities. Although quantification of environmental costs associated with water supply is both difficult to assess (there is no accepted method for such quantification) and controversial, environmental costs can and should be acknowledged through a nominal fee all users pay.

Conservation and conservation-oriented rates have no environmental impact compared to the development of new water supplies. Public water systems should consider these relative impacts and costs when considering rate structures. For example, a credit or other incentive could be given to water users who conserve, and alternatively, a lack of conservation should compel a corresponding environmental cost. Although the calculation of the environmental cost of water supply is a complex and imprecise business, and generally done on a case-by-case basis, CELP recommends a nominal environmental cost be assessed by all public water suppliers and used to promote the efficient use of water.

### **C. Creating Incentives to Encourage Water Suppliers to Conserve Water**

Without creating a system of incentives that encourages and aids water suppliers to conserve water, a purely regulatory approach will be only partially successful. Ideally, water suppliers and ratepayers conserve water not only because of State requirements, but also because it is in their interest to do so. In addition to removing the disincentives to conservation, discussed above, the Legislature needs to provide financial assistance to water suppliers in order that they are able (not just willing) to take steps toward effective conservation. Those water suppliers that are willing to implement sound conservation measures should be eligible for State financial assistance in order to do so. That assistance should come from two sources — from a use-based fee that all water users pay and from a general revenue stream to which all individuals who benefit from water conservation contribute.

### **D. Water Audits**

System water audits are an important component to effective conservation strategies.<sup>95</sup> Audits typically include a determination of actual water use, testing meters for accuracy, testing for leakage and identifying the amount of unaccounted-for water, identifying water conservation opportunities, and a cost-benefit analysis of conservation measures.<sup>96</sup> Service meters are crucial to an audit in order to record actual water use. Though audits vary, the most effective audits include recommending efficiency devices and time spent educating customers about how to reduce their use.<sup>97</sup>

Water audits are not required by Washington State law, although many larger public water supply systems conduct them in order to identify areas for conservation improvements.<sup>98</sup> Although there is an up-front cost associated with conducting audits, the long-term savings in water and money far outweigh the short-term costs.

## E. Leak Detection and Repair

Leaks in water pipes are typical, and range from miniscule to staggering. Over time, even small leaks add up to significant amounts of lost water and increased cost. For example, one drip per second equals about 10 gallons per day.<sup>99</sup> With a combined water and sewer rate of \$.09 per gallon, this leak alone would cost \$33.85 a year. Repairing leaks saves water and money, and limits the potential for unsafe conditions and property damage. Leaks can appear in seemingly insignificant ways, like a toilet with a deteriorated flapper valve (accelerated by caustic toilet bowl cleaners). A toilet that leaks 15 gallons a day wastes 5,475 gallons of water per year.<sup>100</sup> In Seattle, such a leak can easily cost \$50 a year in water and sewer costs.<sup>101</sup> Since 1984, Tacoma's leak detection and repair activities resulted in a savings of more than 5.7 million gallons a day.<sup>102</sup>

On a larger scale, nearly all water supplies have some measure of water loss through distribution systems, or “unaccounted-for water.” Unaccounted-for water is attributed to meter inaccuracies, human errors in meter reading, and include leaks, line flushing and system maintenance, as well as water used for firefighting, construction, and street cleaning.<sup>103</sup> In Washington, water suppliers that prepare a water system plan are required to have a leak detection and repair plan if unaccounted for water

**“Advances in technologies and expertise should make it possible to reduce lost and unaccounted-for water to less than 10%.”**

- “Committee Report: Water Accountability,” by the American Water Works Association Leak Detection and Water Accountability Committee.

exceeds 20% of total withdrawals.<sup>104</sup> However, few systems exceed 15% and most are around 10%.<sup>105</sup> In 1998, DOH recommended mandatory leak repair for public water systems having unaccounted-for water exceeding 10% or more of total withdrawals, which is a national industry standard.<sup>106</sup> Currently, though, leak repair is required if unaccounted-for water exceeds 20% of the total withdrawal.<sup>107</sup> This standard should be updated to be in keeping with sound conservation practices. As pointed out in a leading conservation publication, “Excessive amounts of water loss or unaccounted-for water will not be tolerated by regulatory agencies or the general public as water rates continue to increase.”<sup>108</sup>

The American Water Works Association (AWWA), a nationally recognized expert on water conservation, recommends that the goal for unaccounted-for water should be less than 10%, and states that, “Advances in technologies and expertise should make it possible to reduce lost and unaccounted-for water to less than 10%.”<sup>109</sup> In fact, the AWWA recommends that unaccounted-for water should be expressed in terms of actual volume: “Regardless of the water system’s size, water loss should be expressed in terms of actual volume, not as a percentage. This is necessary for the utility to be able to determine the true annual cost of unaccounted for water.”<sup>110</sup>

A leak repair plan should include regular preventive maintenance, testing and repairs of meters, water mains, pipes, reservoirs, and hydrants, as well as regular distribution system leak detection surveys. The AWWA printed a manual in 1990 (Water Audits and Leak Detection, AWWA Manual M36) that includes step-by-step instructions for conducting a comprehensive, system-wide water

audit, step-by-step instructions for conducting a comprehensive leak-detection project to locate non-visible underground leaks, and a procedure to evaluate the cost-effectiveness of the leak detection project.

## **F. Billing Practices**

The manner in which a public water supplier bills its customers can greatly affect the level of effective conservation. When water bills include information about historical use, customers can better understand their consumption patterns and take measures to conserve water. Bills should be sent monthly or bi-monthly so customers are aware of their water consumption and can react to excessive use.<sup>111</sup> Billing water users more frequently during high-use periods focuses customer attention on water use and conservation, and allows customers to spread costs out over time.

## **G. Reclaimed and Reused Water**

The Legislature recognizes that putting reclaimed water to use is an important potential new water supply that can help meet both existing and future water needs.<sup>112</sup> Indeed, there is significant opportunity for using reclaimed water considering that more than 300 million gallons a day are discharged to marine water in the Puget Sound area.<sup>113</sup> Reclaimed water is defined as sewage effluent from a wastewater treatment system that has been adequately treated so that as a result of treatment, it is no longer considered wastewater.<sup>114</sup> Wastewater is defined as water and waste discharged from homes, businesses, and industry to a sewer system.<sup>115</sup> Reuse is defined as the process of putting reclaimed water to beneficial use.

Unlike wastewater treatment and disposal alternatives, water reclamation and reuse provides an opportunity to address several objectives simultaneously, including water shortages, conservation and supply needs, environmentally sound wastewater treatment and disposal, and watershed enhancement.<sup>116</sup>

Any entity that has a permit to discharge wastewater can apply to DOE for a permit authorizing uses of reclaimed water.<sup>117</sup> In 1997, DOH and DOE developed standards for water reclamation and reuse. DOH and DOE identify a multitude of uses of reclaimed water: irrigation of crops, golf courses, parks and play fields, cemeteries, residential landscapes; groundwater recharge through surface percolation; streamflow and wetland augmentation; decorative fountains; street cleaning; dust control; fire fighting; ship ballast; washing aggregate and making concrete; industrial cooling and other processes.<sup>118</sup>

In many cases, reuse of reclaimed water is a logical, cost-effective method of providing water instead of using more valuable potable water. However, in some cases, the cost of reclaimed water may be more than existing or new supply suitable for drinking. For example, Tacoma investigated reclamation and reuse and determined the technology was more expensive than existing water supply.<sup>119</sup> In addition, the potential locations of treatment facilities are limited by the source of treatable water and ease of using treated water.

When contemplating a reuse project, cost-benefit comparisons should be made that compare total costs for services with or without reclaimed water rather than simply accounting for costs before and after the project.<sup>120</sup> It is essential to include the avoided costs of developing new potable water

sources, as well as the expansion costs of wastewater treatment plants that would otherwise occur and the project cost recovery from selling reclaimed water.<sup>121</sup> Analyses should also factor in the avoided costs, although difficult to quantify, associated with the prevention of environmental degradation, protection of instream flows for fish, and the value of watershed enhancement.<sup>122</sup>

DOE reports that there are currently 16 reclaimed water projects operating in Washington; 14 of those are producing Class A reclaimed water.<sup>123</sup> There are an additional 18 projects in various stages of planning proposed throughout the State.<sup>124</sup>

## H. Individuals Can Make a Difference

Many of the conservation measures discussed in this report focus on systematic changes and improvements. There is also significant unrecognized potential in Washington to reduce water use by replacing or retrofitting appliances and fixtures, such as washers, dishwashers, and toilets. If utilities

would promote these measures, and offer rebates and other financial assistance, more of the population would understand that they can make a difference by making some short-term investments.

**“If utilities would promote these measures, and offer rebates and other financial assistance, more of the population would understand that they can make a difference by making some short-term investments.”**

### Residential Appliances & Fixtures

Toilet flushing is the largest single indoor use of water.<sup>125</sup> The vast majority of toilets in use today are less efficient than the 1.6 gallon-per-flush toilets required to be installed in new homes because they exist in homes and apartments that were built before 1994. Although the federal standards require that all new fixtures manufactured or imported comply with the maximum water-use level requirements, unless a toilet cracks or fails completely, consumers tend to repair them rather than replace them.

Toilet rebate programs across the country have resulted in significant, measured water savings. For instance, New York City sponsored a \$297 million rebate program for residential and commercial customers between 1994 and 1997.<sup>126</sup> It installed 1.3 million 1.6 gallon-per-flush toilets and saved an estimated 70 million gallons of water a day.<sup>127</sup> Los Angeles had similar success with its toilet rebate program, which began in 1990. It installed more than 900,000 1.6 gallon-per-flush toilets since 1990, spending \$107 million over 10 years and achieving an estimated water savings of 28.7 million gallons a day.<sup>128</sup>

Replacing an older clothes washer with a high-efficiency clothes washers (27-gallon-per-load) can save anywhere from 4.4 to 10.7 gallons per capita per day<sup>129</sup> and between \$40 and \$60 a year in water, sewer, and energy costs (assuming 5 loads a week), plus \$15 annually in detergent costs.<sup>130</sup>

Although dishwashers represent the smallest amount of indoor residential water demand, there are

water-efficient dishwashers on the market that reduce both water and energy consumption. Water-efficient dishwashers use a maximum of 7 gallons per load, and as little as 4.5 gallons per load, compared to conventional dishwashers, which use 7 to 14 gallons per load.<sup>131</sup> This means a savings for a water-efficient dishwasher of between .2 and .7 gallons of water per capita per day.

### Rebates

Often the main disincentive to more efficient water use is users' inability to afford upgrading to water efficient appliances and fixtures. Providing financial assistance or rebates to customers who wish to replace or install water efficient technology is a very effective incentive to conservation.<sup>132</sup> Such assistance can be as simple as providing plumbing fixture retrofit kits that allow quick and inexpensive fixes for high-use fixtures, to rebates for low-flow toilets, washing machines, and dishwashers.

Many utilities in Washington participate in a residential washing machine market transformation program, called WashWise, sponsored by the Northwest Energy Efficiency Alliance, to promote the purchase of water-efficient clothes washers. In addition, some water utilities offer rebates to customers who purchase qualifying washers up to \$130.

### Retrofit Kits

An even less expensive route to buying new appliances or toilets is installing retrofit kits to existing high-use toilets and faucets that lower the amount of water that is used. Displacement bags put in toilets can save from .5 to 1.5 gallons per flush (at a cost of \$.59 to \$1.50),<sup>133</sup> which results in a savings of 2 to 4 gallons per capita per day. Installing a 2.5 gallon per minute showerhead (typically at a cost of \$4 to \$8)<sup>134</sup> can save anywhere from 1.8 gallons per capita per day to 5.3 gallons per capita per day, depending on the showerhead that was replaced (typically a 3 or 4 gallon per minute showerhead).<sup>135</sup> Replacement of showerheads also saves on sewer use and energy from reduced hot water use.<sup>136</sup> Replacing a high-volume faucets with a low-volume one can save anywhere from 5.4 to 18.9 gallons per capita per day, depending on the type of faucet replaced (with a flow of 2.75 to 7 gallons per minute) and the type of faucet installed (1.5 or 2.5 gallons per minute faucet),<sup>137</sup> as well as some amount for sewer and energy cost savings.<sup>138</sup>

While the savings from these seemingly minor measures appear small, they add up when millions of people take these relatively simple steps simultaneously. New York and Los Angeles provide real examples of how large-scale programs can result in significant water savings on the order of millions of gallons of water a day.

## **I. Water-Wise Landscaping**

One of the key places we can reduce water use is in our yards. Although we all want landscapes that are beautiful and help us enjoy outdoor activities, lawns and gardens can consume large amounts of water. There are many small steps we can take to minimize the amount of water we use on our lawns and gardens and still maintain a beautiful and functional yard. The Washington Public Utility Districts Associations recommends seven water-wise steps for having a water-efficient landscape, including planting drought-tolerant grasses and plants, using mulch to minimize evaporation and

discourage weeds, and watering in the early morning or late evening when evaporation is less likely to occur.<sup>139</sup>

### J. Change Public Attitudes about Water Use and Conservation

There is public support in this State for water conservation. It simply has not yet translated into legislative action. Recent results from a state-wide poll indicate citizens believe we should all be required to use water more efficiently and that water users should pay fees for water conservation programs.<sup>140</sup>

A poll of water suppliers resulted in similar findings. In 2000, DOH published results of a survey of 255 small and medium water systems (100 to 1,000 connections) focused on attitudes about water conservation. Although only 56% of the respondents reported that they currently have programs that encourage their customers to conserve, another 15% are planning to implement such programs.<sup>141</sup> With regard to questions about conservation, the DOH reported:<sup>142</sup>

<b>Best Reasons for Saving Water</b>				
	Total Respondents	East	Northwest	Southwest
Preserve Capacity	62%	58%	64%	69%
Right thing to do	38	46	34	38
Save money	38	43	42	29
Don't waste water	41	46	36	40
Save Salmon	10	6	11	15
Prepare for potential regulations	9	9	10	11
Other reasons	2	0	3	2

In addition, the survey asked if customers would voluntarily conserve water if:

... they knew it would benefit the economic health of the community?

Yes 63%                      No 25%                      No answer 12%

... they knew it would help keep water bills down?

Yes 83%                      No 11%                      No answer 6%

... they knew it would delay the need for water/wastewater system improvements?

Yes 62%                      No 21%                      No answer 17%

... they knew what steps/actions they should take?

Yes 62%                      No 29%                      No answer 9%

As DOH reported, water conservation is seen as a way to preserve capacity and reduce costly waste of water by these water suppliers. They are also optimistic about their customers' willingness to conserve, especially when they can see some financial benefit to doing so.

Seattle Public Utilities conducted a survey of its residential customers in 1999 in order to identify and evaluate changes in the attitudes and behaviors of its customers toward conservation, and to help guide effective conservation programs in the future.<sup>143</sup> They used a telephone survey conducted of 603 residential customers from Seattle and 620 residential customers from its wholesale purveyor service areas. In general, the data showed significant gains in conservation efforts over time that corresponded directly to the utility’s education efforts.<sup>144</sup> Customers reported they were generally concerned about water supply and conservation, and 91% reported they “believe it’s important for their households to

actively conserve water” (49% very important, 42% somewhat important).<sup>145</sup>

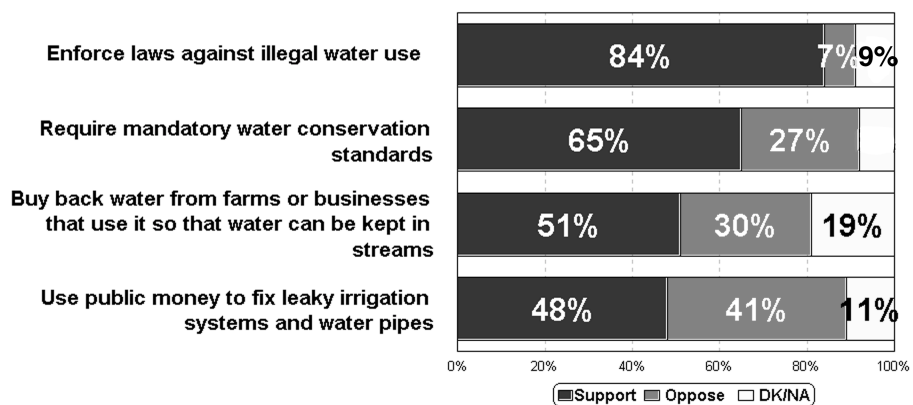
Respondents also reported that they believe their actions can greatly affect (87%) or somewhat affect (45%) future supply.<sup>146</sup> Not only did customers support conservation, they reported that they believe they could

save more water.<sup>147</sup> The survey found that environmentalism was the single most important motivator for saving water (over saving money, having enough water for salmon, and delaying the development of more costly sources of supply).<sup>148</sup>

The results of these surveys indicate there is potential to tap into a general interest and willingness to conserve water and affect water users’ attitudes about the water they use. Perhaps the most important attitude to affect is the State’s institutional attitude about the seriousness with which it addresses conservation. As pointed out earlier, there are no mandatory requirements that conservation be implemented, only “addressed” in water system plans. Nor do any enforceable regulations lay out a framework of what should be included in a water efficiency program that tracks, at least to some extent, the recommendations made by DOH. Until our elected leadership takes the need for efficient water use seriously and understands that water is a valuable resource that must be protected, water conservation will continue to be a voluntary practice that is underutilized.

## Voters want more enforcement of laws against illegal water use.

Does each of the following proposals for making Washington streams healthy and ensuring a reliable supply of water for farms, communities and industry sound like something you would support or oppose?



## VI. RECOMMENDATIONS FOR REFORM

In order to increase the efficient use of water state-wide, CELP believes regulatory and policy reform is necessary and that compliance with new laws will require financial assistance and incentives to water suppliers. We make the following recommendations:<sup>149</sup>

1. **Adopt water demand and allocation standards** - The Legislature should direct the Department of Health to develop and adopt standards for demand forecasting and for new water withdrawals and diversions. These standards should be flexible enough to allow for the diversity of utilities across the state and recognize their unique demand circumstances.
2. **Enact a statewide water use fee schedule** - The Legislature should pass legislation charging water users an additional use-based fee that would be put into a State-managed fund to promote efficient water use. The fund should be used for financial assistance to implement and ensure compliance with the conservation requirements suggested here, and to buy and lease water rights for the Trust Water Right Program. Additionally, those water suppliers that waste water and fail to implement conservation measures should have to pay at a higher rate than water suppliers who implement sound conservation programs. We also support an additional stable revenue stream that goes to financially assisting water suppliers in implementing sound conservation measures.
3. **Create statutory incentives for conservation**- The Legislature should enact legislation that allows a non-municipal water supplier to use some portion of conserved water to meet future water needs. In this scenario, water suppliers would dedicate the remaining portion of conserved water to instream uses, without risk of relinquishment of any conserved water.
4. **Create a consistent, universal, conservation-oriented rate structure** - The Legislature should direct the Department of Health to develop a rate system whereby all water suppliers are required to use conservation-oriented rate structures. The Legislature should also give the Department of Health the authority to monitor and enforce the rate structure requirements.
5. **Strengthen metering requirements** - The Legislature should direct the Department of Ecology to require all existing water systems with 15 or more connections to install service meters within 3 years. All systems, regardless of size, should be required to install service meters as a prerequisite for obtaining state funding. The Department of Ecology should also include a requirement on all new water rights for public water systems that service meters be installed for all connections. All existing systems with 1,000 or more connections should be required to install service meters at a rate not less than 10% per year.
6. **Make leak detection and repair mandatory** - The Legislature should direct the Department of Health to require development and implementation of a leak detection and repair program for all new water systems obtaining a water right. All existing systems with 1,000 or more connections should also meet this requirement. Leak detection investigations should be required every 6 years and to reported in water system plan updates. Require all cost effective unaccounted-for water reductions to be completed within 6 years and reported in water system plan updates.
7. **Require water systems to meet unaccounted-for water standards of 10% or less** - The Legislature should direct the Department of Health to adopt a mandatory standard for all public water suppliers to reduce unaccounted-for water to 10% or less of total water used.

8. **Require water use audits** - The Legislature should direct the Department of Health to require audits every 6 years for systems with 1,000 or more connections, and the results should be published in water system plan updates. The Department of Health should develop a baseline standard for what an audit includes in keeping with national industry standards.
9. **Create a system to collect and manage water use data statewide** - The Legislature should direct the Department of Health to develop a statewide water use data collection and management program that is tied to DOE's water right tracking system, and is available to the public.
10. **Develop model water conservation ordinances** - The Legislature should direct the Department of Health to develop model water conservation ordinances that would be available for use by local governments. The Legislature should also require adoption of model landscape ordinances for new housing developments.
11. **Keep all water system plans in a central location** - The Department of Health should keep copies of all water system plans at a central location, rather than having them spread out at regional offices across the state. This would facilitate public access and accountability.
12. **State facilities should implement conservation plans** - The Legislature should require development and adoption of a conservation plan for all State-owned facilities (such as public parks, correctional facilities, and state schools) to ensure efficient water use, such as installation of efficient appliances and fixtures, outdoor landscaping and water use guidelines, and regular audits.

## CONCLUSION

It is broadly accepted and well-proven that water conservation can result in significant savings of water and money. There is broad agreement in Washington that water users should be more efficient with this precious resource. Based on recent surveys of water suppliers and the public, it appears that there is public support for requiring water conservation measures. Unfortunately, however, public opinion, legislative policy, and DOH recommendations have not translated into a statewide water efficiency program that actually requires and enforces efficient water use.

In order for meaningful water conservation to become a reality across the State, policymakers must remove existing barriers and enact enforceable conservation requirements into law. These requirements must include requiring more meters to be installed than currently are required, developing standards for water use that translate into the basis for water supply, requiring stringent leak detection and repair programs and water use audits to be performed regularly, and requiring public water suppliers to utilize rate structures whereby they charge their customers for water based on the amount used. The State also needs to set an example and implement meaningful conservation measures for all State-owned facilities. These requirements need to be enforceable and be enforced.

As with most things, the benefits of implementing a statewide water conservation program will not come without costs. The Water Suppliers' Forum estimated that a savings of 40 million gallons a day would cost \$7 million annually. The costs associated with these legislative changes could be offset by the collection of an additional utility fee from all individual water users by public water suppliers, which would be managed by the State to promote conservation. As an example, that \$7 million a

year cost would be covered if each of the 4,777,191 people that DOH reported are served by public water supply systems paid an additional \$1.47 a year toward that end. In the long run, we cannot afford not to use our dwindling water supplies more carefully.

## RESOURCES

In addition to the references provided in the endnotes below, the following are excellent resources for information about efficient water use:

American Water Works Association  
6666 West Quincy Ave.  
Denver, CO 80235  
303/794-7711  
[www.awwa.org](http://www.awwa.org)  
[www.waterwiser.org](http://www.waterwiser.org)

National Drinking Water Clearinghouse  
Western Virginia University  
PO Box 6064  
Morgantown, WV 26506-6064  
800/624-8301  
[www.ndwc.wvu.edu](http://www.ndwc.wvu.edu)

U.S. Environmental Protection Agency  
Water Efficiency Program (4204M)  
1200 Pennsylvania Avenue, NW  
Washington, D.C. 20460  
202/564-0623 or 202/564-0624  
[www.epa.gov/owm/genwave.htm](http://www.epa.gov/owm/genwave.htm)  
Washington State Department of Health

Division of Drinking Water  
Northwest Regional Office 253/395-6769  
Eastern Regional Office 509/456-5067  
Southwest Regional Office 360/664-2543  
[www.doh.wa.gov/ehp/dw](http://www.doh.wa.gov/ehp/dw)

Washington State Department of Ecology  
TREE Program  
PO Box 47775  
Olympia, WA 98504-7775  
360/407-6338

Evergreen Rural Water of Washington  
510 N. Pine Street  
Ellensburg, WA 98826  
509/962-6326  
[www.erwow.org](http://www.erwow.org)

Water Use It Wisely  
602/957-7323.  
[www.wateruseitwisely.com](http://www.wateruseitwisely.com).

See also: U.S. Environmental Protection Agency (EPA), *Water Conservation Plan Guidelines*; and the American Water Works Association (AWWA), *Water Conservation Guidebook For Small and Medium-Sized Utilities*. In addition, the California Urban Water Conservation Council (CUWCC), a recognized think-tank on water conservation, has developed comprehensive conservation Best Management Practices (BMPs) that include conservation measures, incentives, and programs that together provide a comprehensive conservation strategy. The CUWCC is comprised of urban water suppliers and public interest groups who are signatories to a historic Memorandum of Understanding (MOU) created to increase efficient water use in California. The MOU was signed by nearly 100 urban water agencies and environmental groups in December 1991 and has since grown to over 260 members. See CUWCC website for more information at [www.cuwcc.org](http://www.cuwcc.org).

Recognizing the need to provide comprehensive conservation programs to the Puget Sound Region, a small group of utility and environmental stakeholders are working to form a multi-representational organization - or "conservation entity" - that could fill in gaps identified as regional conservation needs. Contact CELP for more information.

## CITATIONS

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1. Although agricultural, hydroelectric, and self-supplied industrial water use represent the majority of water use in the State of Washington, this report does not address a change in State policy for them. These more diverse users will require a more complex assessment of their conservation opportunities.
2. Washington State Department of Health, *Municipal Water Conservation Analysis and Recommendations* (December 1998), p. 1.
3. *Id.* at 20.
4. Personal communication from Jim Rioux, Water Resources Planner, Department of Health, Division of Drinking Water, August 6, 2002.
5. Personal communication with Kathy Cupps, P.E., Water Reclamation and Reuse Lead, Water Quality Program, Department of Ecology, August 7, 2002.
6. Personal communication from Jim Rioux, Water Resources Planner, Department of Health, Division of Drinking Water, August 7, 2002.
7. *Id.*
8. Washington State Department of Health, “State Department of Health - 2001-2003 Budget Funding Sources.”
9. According to Jim Rioux, Water Resources Planner, Department of Health, Division of Drinking Water, August 6, 2002, review of water system plans directly involves all DOH planners (4.5 FTEs) and all regional engineers (17 FTEs) at some level. Water quality, reclaimed water, coliform monitoring and compliance staff may also be involved with water system plan review on a case-by-case basis.
10. *Id.*
11. See WAC 246-290-010 definition of “conservation program.”
12. At least one-quarter of our State’s watersheds now do not have enough water to meet the needs of both people and fish. DNR, *Changing Our Water Ways*, p. 35.
13. Washington State Office of Financial Management, “Forecast of the State Population by Age and Sex: 1990 – 2030 November 2001 Forecast.”
14. Central Puget Sound Water Suppliers’ Forum, *2001 Central Puget Sound Regional Water Supply Outlook* (2001), p. 8-3.
15. *Id.* at 9-1 - 9-62.
16. *Id.*
17. *Id.* at 9-10.
18. Washington State Department of Health, *Why Develop a Water Efficiency Program?*
19. Washington State Department of Health, *Water Conservation Planning Handbook*, p. 3.
20. *Id.*
21. *Id.*
22. *Id.*
23. See Seattle Times, “‘Little guy’ may bear brunt if Seattle water rate rises.” June 12, 2002.
24. *Id.*
25. EcoNorthwest, *Salmon and the Economy: A Handbook for Understanding the Issues in Washington and Oregon* (November 1999).
26. <http://access.wa.gov/government/awgeneral.asp#tou>
27. See generally, EcoNorthwest, *supra*.
28. *Id.*, citing T.M. Power, et al., *Economic Well-Being and Environmental Protection in the Pacific Northwest* (December 1995).
29. <http://access.wa.gov/government/awgeneral.asp#tou>
30. Governor Locke’s Joint Natural Resources Cabinet, “Statewide Strategy to Recover Salmon, ‘Extinction is Not An Option.’” September 1999
31. *Id.*
32. *Id.*

33. *Id.* at 14-17; Governor Locke, *The State of Salmon*.
34. State of Washington Governor's Salmon Recovery Office, *Statewide Strategy to Recovery Salmon: Extinction is Not an Option* (1999), pp. 1-3.
35. *Id.* at 17.
36. *Id.* at 4-5; Final Joint WDFW/Tribal Wild Salmonid Policy, December 1997.
37. When public water suppliers prepare their water plans, they need only **consider** that "[r]eadily available water for use in public water systems is limited and should be developed and used efficiently with a minimum of loss or waste." RCW 70.116.010.
38. RCW 90.54.010(1)(a).
39. RCW 90.54.180.
40. RCW 90.03.005.
41. RCW 90.03.400, 90.44.120.
42. RCW 90.03.005.
43. Telephone conversation between Karen Allston, Executive Director, Center for Environmental Law & Policy and Steve Hirschey, Department of Ecology Water Resources Program, May 2002.
44. A public water system is basically any water supply system that provides water for human consumption through pipes or other constructed conveyances, excluding a system serving only one single-family residence. WAC 246-290-020.
45. WAC 246-290-100(2).
46. WAC 246-290-100(4)(d); *see also*, RCW 43.20.235.
47. The only conservation measures required to be implemented are program promotion and the installation of service meters. The installation of meters is required under a separate provision of law enforced by DOE. See the section on metering below.
48. WAC 246-290-990.
49. Personal communication from Jim Rioux, Water Resources Planner, Department of Health, Division of Drinking Water, July 25, 2002.
50. *Id.*
51. *Id.*
52. *Id.*
53. *Id.*
54. DOH, *Municipal Water Conservation Analysis and Recommendations*, p. 26.
55. Personal communication from Jim Rioux, Water Resources Planner, Department of Health, Division of Drinking Water, July 25, 2002.
56. WAC 246-290-105; personal communication from Jim Rioux, Water Resources Planner, Department of Health, Division of Drinking Water, August 7, 2002.
57. According to WAC 246-292-010, a transient noncommunity system means a Group A water system that serves 25 or more different people each day for 60 or more days within a calendar year, or 25 or more of the same people each day for 60 or more days, but less than 180 days within the calendar year.
58. Personal communication from Jim Rioux, Water Resources Planner, Department of Health, Division of Drinking Water, August 7, 2002.
59. Ch. 246-296 WAC.
60. *Id.*
61. Personal communication with Jim Rioux, Water Resources Planner, Department of Health, Division of Drinking Water, August 7, 2002.
62. Ch. WAC 246-291.
63. Appendix 3 to the Memorandum of Understanding Between the Washington State Department of Ecology and the Washington State Department of Health Related to the Coordination of Water System Plan Review and Public Water Systems Water Right Application Review, signed in February 2002, p. 4.
64. *Id.* at 5.
65. *Id.* at 5-6.
66. *Id.* at 6.
67. *Id.* at 7-8

68. Personal communication with Jim Rioux, Water Resources Planner, Department of Health, Division of Drinking Water, August 6, 2002.
69. *Id.*
70. *Id.*
71. This was confirmed through personal communication with Jim Rioux, Water Resources Planner, Department of Health, Division of Drinking Water, August 6, 2002.
72. DOH, *Municipal Water Conservation Analysis and Recommendations*, pp. 22-25.
73. RCW 90.14.160 - .180.
74. RCW 90.14.140 (providing a complete list).
75. RCW 90.14.140(2)(d). Note: the interpretation of what constitutes a “municipal use” has not yet been tested in court.
76. RCW 90.14.130.
77. *See generally*, Ch. 90.38 RCW.
78. RCW 90.38.020(7).
79. Washington State Department of Health Fact Sheet, *What is a Water Efficiency Program?*
80. Washington State Department of Health Fact Sheet, *Metering: The First Step To Improving Efficiency*.
81. Seattle Times Editorial, “Grumble or not, time to measure water use,” July 9, 2002.
82. *See*, RCW 90.03.360 for specifics; WAC 173-173-040.
83. Washington State Department of Ecology & Washington State Department of Health, *Water Conservation Planning Handbook for Public Water Systems*, Pub. No. 91-39, November 1991.
84. *Id.*
85. *Id.*
86. *Id.*
87. *Id.* at 20.
88. Washington State Department of Health, *Conservation-Oriented Rates for Public Water Systems in Washington*, December 1995, p. 4.
89. *Id.* at 10.
90. *Id.* at 11.
91. *Id.* at 11.
92. *Id.* at 51-52.
93. Association of Washington Cities & Washington State Department of Health, “What are Cities doing now in the area of Water Conservation?” 2001. CELP makes no claim as to the accuracy of this survey.
94. *Id.*
95. Washington State Department of Health Fact Sheet, *System Water Audits*.
96. *Id.*
97. Amy Vickers, *Water Use and Conservation*, 2001, p. 20.
98. DOH, *Municipal Water Conservation Analysis and Recommendations*, p. 31.
99. Vickers, p. 314.
100. Vickers, p. 72.
101. City of Seattle, 1% Water Conservation Fact Sheet.
102. Tacoma Public Utilities, *Conservation Accomplishments 1987-1999*.
103. DOH Fact Sheet, *System Water Audits*.
104. Washington State Department of Ecology and Washington State Department of Health, *Conservation Planning Requirements*, (DOE Pub. No. 94-24, DOH Pub. No. 331-08), pp. 15 and 23.
105. Association of Washington Cities and DOH review of conservation plans of 51 cities and towns.
106. DOH, *Municipal Water Conservation Analysis and Recommendations*, p. 36.
107. *Id.* at 30.
108. AWWA Leak Detection and Water Accountability Committee, “Committee Report: Water Accountability,” *Journal AWWA*, July 1996, pp. 108-111.

109. *Id.*
110. *Id.*
111. DOH, *Conservation-Oriented Rates for Public Water Systems in Washington*, p. 42.
112. RCW 90.46.005.
113. Washington State Department of Ecology and Washington State Department of Health, *State Salmon Strategy Report, Instream Flows – Reuse Element*, p. 3, June 1998.
114. RCW 90.46.010(4).
115. RCW 90.46.010(7).
116. Communication with Kathy Cupps, Water Reclamation and Reuse Lead, Water Quality Program, DOE, August 7, 2002.
117. RCW 90.46.030 & .040 and Chapter 90.48 RCW:
118. Washington State Department of Ecology and Washington State Department of Health, *Water Reclamation and Reuse Standards*, Pub. #97-23, September 1997, pp. 13-19.
119. Tacoma Water, *Conservation Accomplishments 1987-1999*.
120. Communication with Kathy Cupps, Water Reclamation and Reuse Lead, Water Quality Program, DOE, August 7, 2002.
121. *Id.*
122. *Id.*
123. *Id.*
124. *Id.*
125. Osann, E.R. & Young, J.E., *Saving Water, Saving Dollars: Efficient Plumbing Products and the Protection of America's Waters*, April 1998, p. 15.
126. Vickers, p. 32.
127. *Id.*
128. *Id.* at 32-33.
129. *Id.* at 118.
130. City of Seattle, *Clothes Washers Fact Sheet*.
131. Vickers at 126.
132. DOH, *Municipal Water Conservation Analysis and Recommendations*, p. 38.
133. Vickers, pp. 60-61.
134. *Id.* at 94.
135. *Id.* at 93.
136. *Id.*
137. *Id.* at 103.
138. *Id.* at 110.
139. Washington Public Utility Districts Association, *Water-Wise Landscaping*.
140. The Washington Environmental Council retained Fairbank, Maslin, Maullin & Associates, who conducted a survey of 500 registered voters in the State of Washington between May 18 and 21st who are considered likely to cast ballots in the November 2002 general election. The reported margin of error for the full sample +/- 4.4%.
141. Washington State Department of Health Division of Drinking Water, "Water Conservation Survey of Small and Medium Water Systems," June 30, 2000.
142. *Id.*
143. Dethman, Linda, *Seattle Public Utilities and Its Wholesale Purveyors 1999 Water Conservation Survey*, April 2000, p. i.
144. *Id.* at ix.
145. *Id.* at ii.
146. *Id.*
147. *Id.*
148. *Id.* at viii.
149. Note that these recommendations generally track DOH's recommendations made in its 1998 report, *Municipal Water Conservation Analysis and Recommendations: Handbook for Public Water Systems*, November 1991, Pub. No. 91-39.

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