



UNIVERSITY OF  
OREGON

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**BUILDING TRUST:**

***Public Trust Principles in State Water Law that Encourage Sustainable Management of Water Resources and Promote Principles of Intergenerational Equity***

**A White Paper of the University of Oregon School of Law  
Environmental and Natural Resources Law Center  
Oceans, Coasts and Watersheds Project**

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### **About this Paper**

This white paper was created through the University of Oregon Environmental and Natural Resources Law (ENR) Center's Oceans, Coasts and Watersheds Project, an interdisciplinary research project focused on engaging the law to promote sustainability for ocean, coastal, and freshwater resources. This project was funded by Northlight.

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As part of the ENR Center's mission of "engaging the law to support sustainability on earth," the ENR Center houses seven theme-based, interdisciplinary research projects that team law student enthusiasm with faculty expertise in an effort to bring intellectual energy to bear on some of the most challenging and cutting-edge environmental issues of our day. The seven interdisciplinary research projects are the Conservation Trust Project; the Energy Law and Policy Project; the Food Resiliency Project; the Global Environmental Democracy Project; the Native Environmental Sovereignty Project; the Oceans Coasts and Watersheds Project; and the Sustainable Land Use Project. Each academic year, the Center awards one-year fellowships to a select group of University of Oregon School of Law students to work with ENR faculty members on specific research projects within each of the theme-based, interdisciplinary research projects.

### **About the Oceans, Coasts and Watersheds Project**

The Oceans, Coasts, and Watersheds Project is one of seven theme-based, interdisciplinary research projects administered by the University of Oregon ENR Center. The Project is led by faculty leaders Adell Amos and Richard Hildreth. The mission of the Oceans, Coasts and Watersheds Project is to engage the law to promote sustainability for ocean, coastal, and freshwater resources. Important issues the Project has recently explored include the following: assessing instream flow in the Willamette River basin, evaluating U.S. ocean and coastal law and policy in a post-Obama administration, innovations at the nexus of food, energy and water, and integrated water resources planning.

For more information, please visit [enr.uoregon.edu/](http://enr.uoregon.edu/)

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## I. EXECUTIVE SUMMARY

This report was prepared with the generous support of the Northlight Foundation and in cooperation with the Natural Resources Defense Council. The project germinated from conversations around the common failure of existing natural resources management frameworks to achieve sustainable use and equitable distribution for both present and future generations despite the inclusion of these principles in regulatory frameworks. Two strategic areas of research—state water codes and forest planning—emerged from these conversations as potentially fertile areas for use in developing a strategy to advance sustainability and intergenerational equity as outcomes of natural resource management schemes.

This report examines the first strategic area—state water codes. Several attributes of water codes make it a unique context to examine how principles emanating from the public trust doctrine can moderate or rebalance existing resource management frameworks to make them more sustainable and equitable. Water resources are already recognized as having the attributes of a public resource and imbued with public trust obligations. In addition, water use rights have always straddled the line between public rights and private use, recognizing use rights but not permitting water itself to be privatized. Finally, states have already begun to integrate considerations of the broader public interest and the environment into water management frameworks. Notably, these provisions are often overlaid onto regulatory frameworks with discordant principles of inviolable private use rights and unlimited development. This attribute makes water codes a particularly interesting case study when considering how to integrate sustainability and equity principles into management frameworks that have prioritized resource extractions.

Four state water codes—Colorado, Nevada, Michigan, Virginia—were surveyed for regulatory mechanisms that integrate public

trust principles and the identified provisions were then analyzed to determine the provision's impact on the health and sustainability of the resource. Based on this research, the project identified key elements of the surveyed water codes that provided opportunity for integration of public trust principles:

1. Affirmation that water is a public resource.
2. Public interest as a criterion in management decisions.
3. Opportunity for the public to participate in management decisions and to enforce public interest obligations.
4. Requirements for planning and data collection.
5. Ability to adjust uses to address potential or actual overuse.
6. Identification of the needs of future generations and the environment as recognized beneficial uses.
7. Mechanism to protect environmental flows.
8. Requirement to manage within safe yields.
9. Flexibility to allow for the voluntary reallocation of water.

For each of these elements, the report offers model provisions drawn from the surveyed states. It is important to note, that while these provisions represent the most effective approach among the surveyed states, approaches taken by other states, tribes, and countries may provide even more innovative and effective means of advancing public trust principles.

## II. INTRODUCTION

This report first provides background information on the public trust doctrine and state approaches to water use management. With that grounding, the report then provides an overview of findings from each surveyed state. Finally, the report identifies provisions that can advance public trust principles within water codes and may be transferable to other natural resource management frameworks.

Within each state summary, the research focused on five broad categories that exist within every state's water code: (1) the general water management framework; (2) the provisions for managing and regulating groundwater; (3) any requirements for public interest analysis when making water management decisions; (4) provisions for the protection of non-consumptive or often-called "environmental flow"; and (5) comprehensive planning tools for engaging communities and addressing long-term water management goals. As this paper demonstrates, these five categories each have particular language and approaches for addressing sustainable yield and intergenerational principles. While each state water code is distinct and the particular language may differ, it is clear that in adopting provisions of state water law, legislatures and agencies are cognizant of the need to manage water resources in ways that protect the long-term viability of that resource for all of its citizens and for the environment. As a matter of policy and politics these provisions may not have been fully implemented or reached their potential in each of these states, but that is where the work lies—making more salient and visible the potential embedded in each of these code provisions.

Each state section closes with a summary of the public trust principles that are embedded within that state's water code. These summaries offer a quick roadmap and references for the potential pathways within that particular state. Public trust principles, as a general term used in the paper, encompass a wide range of provisions in state water law that capture the ideas of sustainability and

intergenerational water use. The hope is that these closing sections offer a way to pursue greater focus and attention on the ways in which the law and policy may already contain the mechanisms to pursue more sustainable practices or provide pathways for legislative or policy reform within the context of the existing state water code.

This paper concludes with nine recommendations for advancing sustainable water use and pursuing trust principles in state water law. Each of these recommendations pulls particular examples of legislative or policy language from the four states that are the focus of this report, but these recommendations are designed to be a matrix that could be utilized in any of the 50 states. These nine recommendations focus on the themes of building on public trust in the long-term sustainable management of water resources utilizing state water law provisions. As this project was initially imagined, there is also the hope that by looking more closely at state water codes and the potential embedded within these complex and individualized systems, wider ideas about how to integrate the themes and structures of state water codes into other resources management areas may be possible. State water law represents an area of natural resources law, though replete with issues and problems, where the principles of public trust have always been an animating and a concretely articulated force. The public trust doctrine writ large, after all, had its birth in state water law cases in the U.S.

Further, research that focuses on these nine principles across any of the 50 states would be worthwhile but was beyond the scope of this project. In addition to further state specific research, there are important questions regarding inter-basin transfer within states and the role and significance of federal water policy that could also be added to this body of inquiry. While beyond the scope of this specific project, these would also be significant lines of further research.

## I. BACKGROUND PRINCIPLES: PUBLIC TRUST AND STATE WATER LAW FRAMEWORKS

### A. PUBLIC TRUST PRINCIPLES

The public trust doctrine recognizes that certain natural resources (“trust resources”) are reserved for the public and imposes obligations on the trustee to manage the resource to ensure its availability for present and future generations. Fundamental to the doctrine is the understanding that certain resources are essential to the wellbeing of the public and the public’s right to utilize the resources should not be impaired.<sup>1</sup> While not always conceived of as advancing environmental sustainability, those consequences naturally flowed from obligations around ensuring the continued availability of the resource and prohibitions on privatization. The doctrine is now understood to incorporate principles of environmental stewardship—e.g., prevention of degradation of the resource and management of the resource to support ecological health.<sup>2</sup>

In the United States, the doctrine was first recognized as applicable to navigable waters.<sup>3</sup> As distilled, the doctrine prevents the privatization of land under navigable waters in order to preserve the public’s access and use of the water. Where the public trust is recognized, it operates as an independent and judicially enforceable constraint on a state’s management of resources encumbered by the trust.<sup>4</sup>

The doctrine was first applied as a limit on state-regulated water use rights by the California Supreme Court in *National Audubon Society v. Superior Court*.<sup>5</sup> Commonly referred to as the Mono Lake decision, the court held the public trust doctrine applied to water resources and imposed a continuing obligation on the state to ensure the use of water was in the public’s interest—“[o]nce the state has approved an appropriation, the public trust imposes a duty of continuing supervision over the taking and use of the appropriated water.” More recently, Hawaii similarly extended the doctrine as an independent constraint on state regulatory authority over water use.<sup>6</sup>

As described above, the public trust doctrine has traditionally been applied as a common law doctrine imposing obligations on resource managers separate from statutory requirements. While this application of the public trust doctrine is an important mechanism for protecting resources from unsustainable use, this research project does not consider the application of the public trust as a common law doctrine. Excellent work has been done to help advance the adoption and development of the common law public trust doctrine as a means to protect water resources.<sup>7</sup>

This project instead examines how states have integrated principles underlying the doctrine—the public nature of the resource, sustainable use to preserve the environment and to support future generations, and protection from degradation—into regulatory structures and how the integration of public trust principles into regulations can provide an

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<sup>1</sup> Joseph L. Sax, *The Public Trust Doctrine in Natural Resource Law: Effective Judicial Intervention*, 68 MICH. L. REV. 471, 475 (1970).

<sup>2</sup> Robin Kundis Craig, *Comparative Guide to the Western States’ Public Trust Doctrines: Public Values, Private Rights, and the Evolution toward an Ecological Public Trust*, 37 ECOLOGY L.Q. 53 (2010).

<sup>3</sup> *Illinois Cent. R.R. v. Illinois*, 146 U.S. 387 (1892).

<sup>4</sup> Hon. Milan D. Smith, Jr., *A Blast from the Past: The Public Trust Doctrine and Its Growing Threat to Water Rights*, 46 Lewis & Clark Envtl. L. Rev. 461,476 (2016).

<sup>5</sup> *Nat’l Audubon Soc. et al. v. Superior Court of Alpine County*, 658 P.2d 709, 719-24, 728 (1983).

<sup>6</sup> *In re Water Use Permit Applications*, 9 P.3d 409 (Haw. 2000) [hereinafter *Waiahole I*]; *In re Water Use Permit Applications*, 93 P.3d 643 (Haw. 2004).

<sup>7</sup> Alexandra B. Klass & Lin-Yee Huang, *Restoring the Trust: A Manual for Advocates*, CENTER FOR PROGRESSIVE REFORM (Sept. 23, 2009), <http://ssrn.com/abstract=1477556>.



additional opportunity to advance the public trust doctrine's key principles. The benefit of incorporating these principles into state water code is at least two pronged. First, it provides a procedural mechanism to advance sustainability and intergenerational equity considerations in state regulatory decisions. These types of provisions can establish goals and policies that direct agency decision making. In addition, they create procedural obligations that allow for citizen engagement in the management of water resources. These types of opportunities may be particularly important in states where the common law public trust doctrine is not recognized. Second, the inclusion of public trust considerations in regulatory schemes may provide a further basis of support for the development of a common law public trust doctrine in the state. For example, in Hawaii's *Waiahole* decision, the court cited the state's water code as a basis for recognizing the public trust doctrine within the state, noting, "the legislature appears to have engrafted the doctrine wholesale in the Code."<sup>8</sup> In contrast, the Colorado Supreme Court declined to recognize the public trust doctrine in part due to incompatible statements in both the state constitution and water code.<sup>9</sup>

## B. STATE MANAGEMENT FRAMEWORKS

For context, the following provides a brief overview of the water management frameworks adopted by states.<sup>10</sup> States have primary control over the allocation of water resources within its borders and most, through delegation from the EPA, also administer water quality regulations. With respect to the

management of water use, states historically adopted either the prior appropriations doctrine or riparian system. The choice of management approaches was principally driven based geography and the availability of water. Western states, characterized by water scarcity, adopted the prior appropriations doctrine. Eastern states, characterized by plentiful water, adopted the riparian system.

The prior appropriations doctrine, followed by Colorado and Nevada, promotes development of water resources for specific "beneficial uses" (historically limited to uses requiring diversion from the river to the exclusion of environmental needs). Priority of use was based on the first person to make use of the water—the older water right is termed a senior water right. These water management systems were heavily regulated by the state through a permit (Nevada) or court decree (Colorado). State-authorized water uses created a quasi-property right—usufructuary right—the right to use the quantity of water actually put to beneficial use. The promotion and protection of water use was the primary goal of the doctrine. More recently, states have modified water codes to integrate public interest considerations in water resources management. The effectiveness of these provisions has been challenged by overallocated water systems and regulatory schemes that prioritize water development and protect existing uses. They are also challenged by the specter of private property interests in state-authorized water rights that if curtailed may result in takings liability for states.

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<sup>8</sup> *Waiahole I*, 9 P.3d at 458 (relying on Haw. Rev. Stat. § 174C-2 "However, adequate provision shall be made for the protection of traditional and customary Hawaiian rights, the protection and procreation of fish and wildlife, the maintenance of proper ecological balance and scenic beauty, and the preservation and enhancement of waters of the State for municipal uses, public recreation, public water supply, agriculture, and navigation. Such objectives are declared to be in the public interest.").

<sup>9</sup> Stephen H. Leonhardt & Jessica J. Sphuler, *The Public Trust Doctrine: What it Is, Where it Came From, and Why Colorado Does Not (And Should Not) Have One*, 16 U. DENV. WATER L. REV. 47, 50 (2012).

<sup>10</sup> It is important to note that there have been other means of managing water resources in the United States by tribal and indigenous sovereigns. While this report does not address those approaches, they may provide further insights into innovative ways to manage resources to support goals of sustainability and intergenerational equity.

In contrast, the riparian system, followed by Michigan and Virginia, recognized a riparian landowner's right to use water flowing by its property. As practiced in the United States, the riparian doctrine follows the "reasonable use" approach that provides for a riparian landowner's right to use a reasonable quantity of water that maintained the natural flow of water for downstream property owners. The right to use water was correlative, so in times of shortage all users would correspondingly decrease water use. Historically, states adopting the riparian approach did not have state-regulated water permitting systems. Water use was administered through the application of common law by the courts. More recently, riparian states have adopted an amalgamated approach to water management termed "regulated riparianism." Under this approach, states implement a state system for regulating and permitting certain water uses. For unregulated uses, the common law system continues to control. Unlike states adopting the prior appropriations doctrine, the riparian states may have more latitude in integrating public trust principles into water management frameworks. First, the framework of "reasonable use" carried with it the indicia of the public trust doctrine by requiring water use to not adversely impact other users or disrupt the natural flow of streams. Further, these state permitting frameworks are newer and, due to geography, water resources are less likely to be overallocated. These factors may ease integration of the public trust principles as the existing regulatory frameworks do not create hurdles around established property rights, existing overallocation, and entrenched models for water management.

challenges to integrating these principles into existing legal frameworks.

For each state, the primary regulations governing water allocation are described. In addition, the overview highlights how each state has incorporated public interest standards, protection of environmental flows, and water resources planning requirements.

### **III. STATE OVERVIEWS**

The following provides an overview of the findings from the four surveyed states—Colorado, Nevada, Michigan, and Virginia. These findings focus on aspects of the state water codes that provide either examples of provisions that have increased sustainability and intergenerational equity or that elucidate

## A. COLORADO

### 1. Water Management Framework

Perhaps no state more than Colorado is as firmly rooted in the prior appropriations doctrine. The doctrine has been the law in Colorado since 1860 and its principles are enshrined in the constitution—“[p]riority of appropriation shall give the better right as between those using water for the same purpose.”<sup>11</sup> Colorado’s water laws—known as the Colorado Doctrine—seek to promote development of scarce water resources through a comprehensive system of regulated water rights. The doctrine emphasizes the maximum utilization of water for the greatest number of uses. It accomplishes this by requiring state authorization for water use, authorizing use only for state-identified beneficial uses, prohibiting waste, and protecting developed water rights from diminishment (the “no injury” standard). The inviolate nature of water rights is a touchpoint of Colorado water law.

Colorado water use is overseen by seven water courts each with a state water engineer’s office. Simplified, the system tasks water courts with adjudication (determining the scope and legitimacy of water rights) and the state engineers office with the administration of water rights. While beyond the scope of this report, a series of compacts, agreements, and treaties also constrain use in the state.<sup>12</sup>

#### Legal Frameworks

- Colorado Revised Statute Chapter 37
- 2 Colorado Code Rules 400
- Colorado Constitution Article XVI, Section 6
- 2015 Colorado Water Plan

#### a. Water use regulations

As noted above, subject to few exceptions all water use requires state authorization and is limited to state-recognized beneficial uses.<sup>13</sup> Colorado’s constitution declares all waters of natural streams available for appropriation limited only as needed to protect existing senior water rights. Therefore, the amount of natural stream flow available for diversion is limited only by other existing uses—historically, these uses were exclusively out-of-stream uses. Even in cases where water cannot be withdrawn without harming existing rights, a new water allocation may be allowed if the new user augments its use by providing substitute water to offset any out-of-priority uses.<sup>14</sup> This framework allows Colorado to accommodate continued growth and new uses in an overallocated system.

Designating all water as available for appropriations allows for unsustainable water use.

Water use is authorized only for beneficial uses (generally requiring diversion out-of-stream)<sup>15</sup> and is limited to the amount reasonably needed to accomplish the use.<sup>16</sup> A decreed water right

<sup>11</sup> COLO. CONST. art. XVI, § 6.

<sup>12</sup> *Citizens Guide to Denver Basin Groundwater*, COLO. FOUND. FOR WATER EDUCATION (Jan. 28, 2016), [https://issuu.com/cfwe/docs/cfwe\\_cc\\_ic\\_r6\\_we\\_b](https://issuu.com/cfwe/docs/cfwe_cc_ic_r6_we_b)  
[https://issuu.com/cfwe/docs/cfwe\\_cc\\_ic\\_r6\\_we\\_b](https://issuu.com/cfwe/docs/cfwe_cc_ic_r6_we_b)

<sup>13</sup> COLO. REV. STAT. § 37-92-103(3)(a).

<sup>14</sup> COLO. REV. STAT. § 37-92-103(9).

<sup>15</sup> See *Colo. River Water Conservation Dist. v. Rocky Mountain Power Co.*, 406 P.2d 798, 800 (Colo.

1965) [quoting *City & Cnty. of Denver v. N. Colo. Water Conservancy Dist.*, 276 P.2d 992, 998 (Colo. 1954)] (“the rule is elementary that the first essential of an appropriation is the actual diversion of the water with intent to apply to a beneficial use.”).

<sup>16</sup> COLO. REV. STAT. § 37-92-103(4) (“Beneficial use means the use of that amount of water that is reasonable and appropriate under reasonably efficient practices to accomplish without waste the

is granted in perpetuity and is protected from impairment by new uses. Further, water rights are generally protected from diminishment and cancellation except in limited circumstances. A water right may be wholly or partially canceled where the State Engineer determines the water user intends to permanently discontinue use of the water right.<sup>17</sup> The State Engineer publishes a list of abandoned water rights every ten years.<sup>18</sup>

The risk of abandonment can drive users to divert and apply water that is not needed.<sup>19</sup> While the doctrine of waste—limiting a water right to only the amount needed to fulfill the beneficial use—should prevent this type of excessive use, once a water is decreed reducing the quantity of the right can be difficult.<sup>20</sup> In addition, the risk of abandonment can also frustrate the implementation of conservation activities; the risk of losing a water right may discourage the implementation of conservation efforts. Colorado provides for exceptions to abandonment for nonuse due to participation in water conservation activities to overcome these regulatory barriers.<sup>21</sup>

Exceptions to abandonment presumptions when nonuse is due to conservation activities provide needed flexibility to promote more efficient water management.

purpose for which the appropriation is lawfully made.”).

<sup>17</sup> COLO. REV. STAT. § 37-92-103

<sup>18</sup> COLO. REV. STAT. § 37-92-401(1)(a)

<sup>19</sup> Abraham Lustgarten, *Use it or Lose it, Across the west, exercising one’s right to waste water*, PROPUBLICA, June 9, 2015, <https://projects.propublica.org/killing-the-colorado/story/wasting-water-out-west-use-it-or-lose-it> (last visited July 23, 2020).

<sup>20</sup> COLO. REV. STAT. § 37-92-103(4); *Santa Fe Trail Ranches v. Simpson*, 990 P.2d 46, 54–55 (Colo. 1999).

<sup>21</sup> COLO. REV. STAT. § 37-92-103(b)

<sup>22</sup> SB 113, 1957 Colo. Sess. Laws 863, enacted May 1, 1957 [formerly codified at §§ 147-19-1, *et*

## *b. Groundwater regulation*

As with many western states, surface water was the first resource developed and therefore, the first resource regulated. Groundwater development began in earnest in the state in the 1940s and the state adopted a comprehensive regulatory framework in 1957.<sup>22</sup> Among other additions, the 1957 Act required a permit for the development of groundwater and established the Groundwater Commission.<sup>23</sup> In 1969, the legislature sought to further address the integration of groundwater and surface water use. The 1969 Act directed that tributary groundwater and surface water be administered conjunctively: “it is the policy of this state to integrate the appropriation, use, and administration of underground water tributary to a stream with the use of surface water in such a way as to maximize the beneficial use of all of the waters of this state.”<sup>24</sup> It also authorized the use of augmentation plans as a means to allow out-of-priority development of groundwater resources.<sup>25</sup>

Colorado organizes its groundwater regulation based on the aquifer’s connection to natural surface streams. Tributary water—with a hydrologic connection to surface water—is regulated within the priority system and requires a state decree.<sup>26</sup> Small capacity wells used for domestic, stockwatering and small-scale commercial activity are generally exempt from applicable groundwater regulations.<sup>27</sup>

*seq.*, C.R.S. 1953 and §§ 147-18-1, *et seq.*, C.R.S. 1963).

<sup>23</sup> *Id.*

<sup>24</sup> COLO. REV. STAT. § 37-92-101; COLO. REV. STAT. § 37-82-101(1) [defining waters of the natural stream subject to appropriation under the prior appropriation system to include tributary groundwater]; *Safranek v. Town of Limon*, 228 P.2d 975, 977 (Colo. 1951) [stating Colorado’s presumption of that groundwater is tributary].

<sup>25</sup> COLO. REV. STAT. § 27-92-602(6).

<sup>26</sup> *Simpson v. Bijou Irrigation Co.*, 69 P.3d 50, 60 (Colo. 2003).

<sup>27</sup> COLO. REV. STAT. § 37-92-602; COLO. REV. STAT. § 37-90-105.

There are generally no limitations to appropriations based on the aquifer's capacity. Rather, limitations are imposed based on impacts to senior water users.<sup>28</sup> Augmentation plans that mitigate for water use are required for out-of-priority uses; however, those plans are tied to protecting senior water users and not at addressing environmental conditions.<sup>29</sup> While the injury standard is limited to the protection of other water users, it does constrain use and can prevent continued unsustainable use patterns. For example, the injury standard was used to support a basin-wide curtailment of groundwater users in the Rio Grande & Conejos River Basins.<sup>30</sup>

Nontributary groundwater is defined as groundwater outside of designated basins (described below) and located in deep confined aquifers.<sup>31</sup> Given its location, nontributary water is not considered a renewable resource and is managed for depletion within 100 years. Water rights are allocated based on overlying landownership through a permit system.<sup>32</sup>

Groundwater within the Denver metro area (the most densely populated area of the state) is regulated as a third category of groundwater. Driven by a period of drought in the 1950s, the Denver metro area became heavily reliant on groundwater. This reliance resulted in significant and, ultimately, unsustainable groundwater depletions. This pattern of unsustainable use coupled with the economic importance of the region led to the development of a separate regulatory system for managing these aquifers.<sup>33</sup> In general, the

state manages Denver basin water for depletion within a 100-year aquifer life.<sup>34</sup> Pumping data in the aquifers for municipal supply shows steady declines suggesting withdrawals exceeding recharge rates.<sup>35</sup>

A final category of groundwater occurs in Designated Basins. By the 1960s, a convergence of rapid increases in groundwater pumping and increasing surface water shortages prompted revisions to Colorado's Groundwater Management Act. Surface water users began to tie their water shortages to groundwater pumping, raising concerns that the senior surface water users, by claiming injury to their water rights, could curtail most groundwater pumping. In response, the legislature amended the existing groundwater management framework to allow for continued use of groundwater while still honoring the prior appropriations systems. The amendments particularly sought not to prevent unsustainable use but rather to authorize the "full economic development" of groundwater. To achieve this balancing, the legislature established Designated Basins as areas where there was little connectivity with surface water. In doing so, the legislature allowed for the regulation of these basins outside the prior appropriations system and associated risks of curtailments.<sup>36</sup>

Withdrawals in designated basins are managed by the Groundwater Commission and, where established, local groundwater

<sup>28</sup> COLO. REV. STAT. § 37-92-102(d)

<sup>29</sup> Community Planning, LA PLATA COUNTY COLO. [http://lpcds.org/UserFiles/Servers/Server\\_1323669/File/La%20Plata%20County%27s%20Community%20Development%20Services%20Department%20Migration/Planning/Historic%20Preservation/Research,%20Studies%20and%20Presentation/beginnersguidetoaugmentationplansforwells.pdf](http://lpcds.org/UserFiles/Servers/Server_1323669/File/La%20Plata%20County%27s%20Community%20Development%20Services%20Department%20Migration/Planning/Historic%20Preservation/Research,%20Studies%20and%20Presentation/beginnersguidetoaugmentationplansforwells.pdf) [last visited July 20, 2020].

<sup>30</sup> *Alamosa-La Jara Water Users Prot. Ass'n v. Gould*, 674 P.2d 914, 931 (Colo. 1983).

<sup>31</sup> COLO. REV. STAT. § 37-90-103(10.5) (defining nontributary water).

<sup>32</sup> COLO. REV. STAT. § 37-90-137.

<sup>33</sup> *Citizens Guide to Denver Basin Groundwater*, COLO. FOUND. FOR WATER EDUCATION, 15 (June 3, 2014), <https://issuu.com/cfwe/docs/cg-groundwater>. Original regulations were adopted in 1973 and were most recently revised in 1993. The Denver basin is subject to complex rules and terminology that are not addressed here.

<sup>34</sup> *Id.* at 26 (noting that groundwater use in the Denver Basin is not sustainable).

<sup>35</sup> *Id.* at 26.

<sup>36</sup> COLO. REV. STAT. § 37-90-106 (defined as where groundwater constituted the primary source of water for at least 15 years and had little connectivity with surface water).

management districts.<sup>37</sup> There are 8 designated basins and 13 local management districts.<sup>38</sup> Once the State Engineer designates a basin, it can impose additional regulatory requirements for groundwater withdrawals. Importantly, this authority includes the ability to consider aquifer levels in approving allocations. Withdrawals require an assessment of “the area and geologic conditions, the average annual yield and recharge rate of the appropriate water supply.”<sup>39</sup> However, regulations do not prohibit mining of aquifers and allow for “reasonable rates of depletion.”<sup>40</sup>

Requiring the consideration of aquifer capacity in allocation decisions is a critical component of providing for more sustainable use. However, the lack of any requirement to manage within a safe yield allows for continued unsustainable groundwater use.

In addition, all withdrawals within a designated basin—including domestic uses that are exempt in other management areas—require a state decree. Further, all wells require a permit prior to construction.

Comprehensive permit requirements provide important regulatory authority to ensure water use remains within sustainable levels.

### *c. Integrated water management*

Colorado’s regulatory framework does not integrate the management of water quality and quantity. While this decoupling is common in the west, Colorado goes one step further and

prohibits the imposition of flow requirements to address water quality issues.<sup>41</sup>

Water quality is a critical piece of a sustainable water supply to support both present and future generations and the environment. Colorado’s prohibition on considering impacts to water quality in water use decisions presents a barrier to achieving more sustainable and equitable water management.

However, Colorado’s recent state-wide water plan, recognizes the link between water quality and quantity—“Colorado’s water quantity and quality questions can no longer be thought of separately. Each impacts the other and our state water policy should address them conjunctively.”<sup>42</sup> However, regulatory change may be necessary to fully integrate the considerations of quantity and quality in the state.

While water plans do not modify existing regulatory frameworks, they can identify gaps in the state’s water management framework and spur legislative action to address identified gaps.

## **2. Public Interest**

### *a. Public resource*

Colorado, relatively uniquely, does not provide for the consideration of public interest in its administration of water resources. The lack of any enforceable public interest criteria is a result of constitutional provisions requiring that

<sup>37</sup> Designated Basins and Ground Water Management Districts, COLO. DIVISION OF WATER RESOURCES, <http://water.state.co.us/groundwater/CGWC/ManagementDistrict.aspx> (last visited July 27, 2020).

<sup>38</sup> *Id.*

<sup>39</sup> Upper Black Squirrel Creek Ground Water Management Dist. v. Goss, 993 P.2d 1177, 1185 (Colo. 2000) (internal citations omitted).

<sup>40</sup> *Id.* at 1189.

<sup>41</sup> See City of Thornton v. Bijou Irrigation Co., 926 P.2d 1, 91–92 (Colo.1996).

<sup>42</sup> Exec. Order No. D 2013-005 (2013), <https://drive.google.com/a/state.co.us/file/d/1p1Tnl7-NE94tRDyxROR3AKPN5esx9hAg/view?usp=sharing>.

all water be open for appropriation, judicial interpretation of those provisions, and the lack of any explicit public interest considerations in the water code.

Colorado's constitution recognizes water as a public resource—"the water of every natural stream . . . within the state . . . is hereby declared to be the property of the public."<sup>43</sup> However, the constitution clarifies this provision as providing only the right to appropriate water, a right that "shall never be denied."<sup>44</sup> As interpreted, this provision requires the "maximum utilization of water in the state"<sup>45</sup> and is "intended to make water available for as many decreed uses as there is available supply."<sup>46</sup> The legislature has codified the "maximum utilization doctrine" in the Water Code which identifies a policy of "maximiz[ing] the beneficial uses of all waters of this state."<sup>47</sup>

The maximum utilization doctrine has been identified as constraining the consideration of public interests in administering water resources.<sup>48</sup> As the Colorado Supreme Court has recognized, "[c]onceptually, a public interest theory is in conflict with the doctrine of prior appropriation."<sup>49</sup> Further, it has prevented the recognition of the common law public trust doctrine in Colorado—which has been described as incompatible and even antithetical

with the purely appropriative Colorado Doctrine.<sup>50</sup>

The lack of discretionary or enforceable public interest criteria has meant that these considerations do not constrain water use decisions.

While the "maximum use" doctrine has presented a barrier to the incorporation of public interest criteria, the Court has tempered its impact by holding the doctrine does not require "a single-minded endeavor to squeeze every drop of water" from the state's aquifers.<sup>51</sup> Citing the statutory language requiring the State Engineer manage water resources for "optimum use,"<sup>52</sup> the Court moderated the "maximum utilization" doctrine and provided for the possible consideration of broader public interest considerations, including "ensur[ing] that water resources are utilized in harmony with the protection of other valuable resources"<sup>53</sup> and with "proper regard for all significant factors, including environmental and economic concerns."<sup>54</sup>

Despite the Court's nod to public interest values, the only concrete opportunity for consideration of public interest impacts is through Colorado's instream flow program. As

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<sup>43</sup> COLO. CONST. art. XVI, § 5.

<sup>44</sup> COLO. CONST. art. XVI, § 6.

<sup>45</sup> *Fellhauer v. People*, 447 P.2d 986, 994 (Colo. 1968).

<sup>46</sup> *Pagosa Area Water & Sanitation Dist. v. Trout Unlimited*, 170 P.3d 307, 313 (Colo. 2007).

<sup>47</sup> *Alamosa-La Jara*, 674 P.2d at 934–35.

<sup>48</sup> *Bd. of County Comm'rs of the County of Arapahoe v. United States*, 891 P.2d 952, 971–72 (Colo. 1995) (rejecting argument that the limitation of water use for a beneficial use "inherently encompasses a broad public policy of protecting the natural and man-made environment" and requiring the State Engineer consider those reasons in approving a new water application); Justice Gregory J. Hobbs, Jr., *Colorado Water Law: An Historical Overview*, 1 U. DENV. WATER L. REV. 1 (1997). See also *St. Jude's Co. v. Roaring Fork Club, LLC* 351 P.3d 442, 448 (Colo. 2015) (establishing "the right to the maintenance of the flow of the stream is a

riparian right and is completely inconsistent with the doctrine of prior appropriation") (internal citations omitted).

<sup>49</sup> *Arapahoe County*, 891 P.2d at 972.

<sup>50</sup> *People v. Emmert*, 597 P.2d 1025 (Colo. 1979) (holding that the public trust doctrine is not applicable in Colorado); Bruce Walters, *A Comparative Discussion of the Public Trust Doctrine: Mono Lake and Groundwater In California, Citizen Initiative and Legal Adaptation In Colorado*, 18 U. DENV. WATER L. REV. 455 (2015) (discussing application of the public trust doctrine in the Colorado).

<sup>51</sup> *Alamosa-La Jara*, 674 P.2d at 935.

<sup>52</sup> COLO. REV. STAT. § 37-92-501(2)(e).

<sup>53</sup> *Alamosa-La Jara*, 674 P.2d at 935.

<sup>54</sup> *Pagosa Area Water and Sanitation Dist.*, 170 P.3d at 314.

described below, the Colorado Water Conservation Board (CWCB) acquires and holds instream water rights necessary for the “reasonable preservation of the environment.” Once acquired, the CWCB has standing to protect those water rights for the benefit of both present and future generations.<sup>55</sup> The Court has consistently “recognized that the CWCB acts to protect the environment on behalf of the public. Thus, to the extent that any water rights are at issue in the CWCB proceeding, it is the public’s interest in the preservation of the environment.”<sup>56</sup>

*b. Public participation*

Any interested person can file a statement of opposition challenging a water right application.<sup>57</sup> The statement of opposition holds an applicant to a standard of strict proof—challenging whether the applicant has met the statutory criteria for water allocation. As described above, apart from instream water rights, these criteria do not include public interest requirements. An owner of a water right may also challenge water rights applications based on injury to their water right.<sup>58</sup>

The CWCB’s acquisition process for instream water rights provides additional opportunities for public participation.<sup>59</sup> Any person can contest the CWCB’s recommended appropriations and further, any person can request “contested hearing participant status” which allows them to participate in the contested hearing. Conservation interests have used this authority to help defend CWCB instream flow recommendations.<sup>60</sup> The CWCB

program also provides for opportunity for the public to participate in the identification of instream water rights, including making recommendations and providing comment on proposed appropriations.<sup>61</sup>

### **3. Environmental Flows**

*a. Instream Flow Program*

Colorado’s instream flow program provides the primary mechanism through which the state accounts for environmental needs in its management of water resources. The program functions entirely within the state’s priority system and relies on the inviolable nature of water rights as the means of ensuring long-term protection of water needed to support ecosystem functions.

In 1973, the Colorado legislature amended the water code to allow for the appropriation of water for environmental flows. The program authorized the CWCB to appropriate water rights for the minimum quantity of water to support the “natural environment.”<sup>62</sup> Each year, the CWCB makes recommendations on water rights acquisitions based on recommendations from state and federal agencies and the public.<sup>63</sup> The CWCB assesses proposed acquisitions to ensure a natural environment exists, water is available for appropriation, and there will be no material injury to other water rights.<sup>64</sup> Following a decision to appropriate

<sup>55</sup> COLO. REV. STAT. § 37-92-103(4)(c).

<sup>56</sup> Concerning the Application for Water Rights of the Colorado Water Conservation Board in the San Miguel River v. Colorado Water Conservation Board, 346 P.3d 52, 58–59 (Colo. 2015).

<sup>57</sup> COLO. REV. STAT. § 37-92-302(1)(b).

<sup>58</sup> Turkey Canon Ranch Ltd., 937 P.2d 739, 747 (Colo. 1997).

<sup>59</sup> Colo. Rev. Stat. § 37-92-102(3)(c).

<sup>60</sup> See Notice of Party Status of Western Resources Advocates, Proposed Instream Flow Appropriation in Water Division: Disappointment Creek (Upper)

and Disappointment Creek (Lower), COLORADO WATER CONSERVATION BOARD (2019), <https://dnrweblink.state.co.us/cwcbsearch/ElectronicFile.aspx?docid=209105&dbid=0>.

<sup>61</sup> 2 COLO. CODE REGS. § 408-2(5)(a).

<sup>62</sup> Colo. Rev. Stat. § 37-92-102(3).

<sup>63</sup> See 2021 Instream Flow Recommendations, COLORADO WATER CONSERVATION BOARD, <https://cwcb.colorado.gov/2021-isf-recommendations> (last visited July 28, 2020).

<sup>64</sup> 2 COLO. CODE REGS. § 408-2(5)(i).



water CWCB files for a water decree with the water court.<sup>65</sup>

The first foundational piece of the program was the identification of environmental needs as a beneficial use. Specifically, the legislature amended the list of identified beneficial uses to include “minimum flows . . . to preserve the natural environment to a reasonable degree” for the benefit of present and future generations.<sup>66</sup> Water in Colorado may only be appropriated for beneficial uses; therefore, with this amendment, the legislature effectively authorized the appropriation of water for the environment. Prior to the 1973 amendments, instream uses were considered antithetical to the prior appropriations doctrine—which was thought to require diversion and application of water out-of-stream to perfect a water right.<sup>67</sup> In reviewing the legislature’s authority to authorize the appropriation of instream water rights, the Colorado Supreme Court found no statutory or constitutional requirement that required diversion from the natural stream and upheld the inclusion of instream water rights as a beneficial use.<sup>68</sup>

Identification of environmental needs as a beneficial use is a critical component of creating a more sustainable water management framework in prior appropriations systems.

A second foundational piece of the program was the creation of the CWCB, a state agency distinct from the State Engineer’s Office,

directed—and importantly funded—to acquire and hold instream water rights. As interpreted, the CWCB “acts to protect the environment on behalf of the public”<sup>69</sup> and further, “is burdened with a fiduciary duty arising out of its unique statutory responsibilities.”<sup>70</sup> While CWCB is the only entity authorized to hold instream water rights for environmental flows, any person or government entity can petition the CWCB to acquire water rights.<sup>71</sup>

A dedicated program and targeted funding to support instream flow acquisitions can help advance the reallocation of water.

A final foundational piece of the instream flow program is the protection of instream water rights within the state’s priority system. As confirmed by the Colorado Supreme Court, “the legislative intent is quite clear that these appropriations are to protect and preserve the natural habitat and that the decrees confirming them award priorities which are superior to the rights of those who may later appropriate.”<sup>72</sup> The status of instream rights as protectable interests within the priority system is a critical piece of the state’s program as it allows the CWCB to protect decreed instream rights from injury by any junior users.<sup>73</sup> As the Court recognized, “[o]therwise, upstream appropriations could later be made, the streams dried up, and the whole purpose of the legislation destroyed.”<sup>74</sup> Further, because Colorado limits standing to contest new water rights allocations, instream water rights confer important standing to CWCB to protect

<sup>65</sup> New Appropriation Process Timeline, COLORADO WATER CONSERVATION BOARD, <https://dnrweblink.state.co.us/cwcbsearch/ElectronicFile.aspx?docid=211050&dbid=0> (last visited July 28, 2020).

<sup>66</sup> COLO. REV. STAT. § 148-21-8(7).

<sup>67</sup> Hobbs, *supra* note 51.

<sup>68</sup> Colo. River Water Conservation Dist. v. Colo. Water Conservation Bd., 594 P.2d 570, 575 (Colo. 1979).

<sup>69</sup> Colo. Water Conservation Bd. v. Farmers Water Dev. Co., 346 P.3d 52, 58 (Colo. 2015)

<sup>70</sup> Aspen Wilderness Workshop, Inc. v. Colo. Water Conservation Bd., 901 P.2d 1251, 1259 (Colo. 1995).

<sup>71</sup> COLO. REV. STAT. § 37-92-102(3).

<sup>72</sup> *Id.*

<sup>73</sup> Colorado Water Conservation Bd. v. City of Central, 125 P.3d 424, 439 (Colo. 2005) (“We now further conclude that, to effectuate the General Assembly’s purpose of preserving the environment through minimum streamflows, the Board is entitled to necessary protective terms and conditions in a decree approving an augmentation plan.”)

<sup>74</sup> *Colo. River Water Conservation Dist.*, 594 P.2d at 575.

minimum flows in water rights changes and new appropriations.<sup>75</sup>

A limitation of the instream flow program's inclusion within the state's priority system is that instream rights are often junior in priority and located in already overallocated streams. These factors limit the impact of new instream rights as they may be subject to curtailment in dry years when environmental flows are particularly important.<sup>76</sup> To address this limitation, the legislature authorized the CWCB to acquire existing water rights and conduct temporary leases and loans for instream uses.<sup>77</sup> Authorizing the acquisition of existing water rights allows CWCB to acquire senior water rights that will be more secure in times of low flow.<sup>78</sup> In addition, temporary transfers allow CWCB to meet environmental needs in times of shortage and can allow for creative arraignments to protect instream uses where a water user does not wish to permanently relinquish its water right.<sup>79</sup> As of 2020, the legislature added additional flexibility to the program by increasing the term of instream loans from a maximum of 15 consecutive years to 35 years.<sup>80</sup>

Additional limitations with the program include restrictions on the quantity of water that the CWCB can appropriate. The CWCB is limited to the minimum quantity needed to "reasonably

Providing tools to transfer senior rights instream is critical in states adopting a prior appropriations approach to instream flow management. These tools allow for reallocation and protection of water in already overallocated systems.

protect" the natural environment.<sup>81</sup> This phrase is left undefined; however, the CWCB's practice is to preserve the quantity needed to support cold water fisheries.<sup>82</sup> In 2015, the Colorado Supreme Court affirmed that the protection of aesthetics, recreation, and fishing is not a beneficial use, noting "[t]he flow of water necessary to efficiently produce beauty, excitement, or fun cannot even conceptually be quantified."<sup>83</sup>

Limitations around conserving only minimum flows necessary to support environmental needs can unnecessarily constrain protection of water resources.

This limitation was recently mitigated when the Colorado legislature authorized the CWCB, in locations where CWCB holds existing instream rights, to accept temporary loans for flows above the amount "necessary" to preserve the environment to a reasonable degree.<sup>84</sup> This provision permits the CWCB to buffer its

<sup>75</sup> Application for Water Rights of Hines Highlands Ltd. P'ship, 929 P.2d 718, 722 [Colo. 1996].

<sup>76</sup> *City of Central*, 125 P.3d at 439

("Because instream flows are administered within the priority system, the instream flow cannot take water away from existing uses and the senior will always be able to make its diversion for its decreed beneficial uses. Since the prior appropriation system thus guarantees that pre-existing uses are unaffected by junior instream flow rights, the date of its priority may be of little value in protecting instream resources.").

<sup>77</sup> COLO. REV. STAT. § 37-83-105 (Allowing temporary loans/leases of water to CWCB); COLO. REV. STAT. § 37-92-102(3) [Allowing long term leases of water for instream flow use and establishing exclusive authority of CWCB to appropriate instream flow water rights]; COLO. REV. STAT. § 39-22-533

(Establishing an instream flow incentive tax credit [HB 09-1067]).

<sup>78</sup> COLO. REV. STAT. § 37-92-102(3).

<sup>79</sup> COLO. REV. STAT. § 37-80-104.5(1)(a)(III) (Transfers are further incentivized by excluding non-use of water due to loan or contract with CWCB as evidence of a water-users intent to abandon water); Colo. Rev. Stat. § 37-92-103.2.

<sup>80</sup> H.B. 20-1157, 72nd Gen. Assembly, 2nd Reg. Sess. [Colo. 2019].

<sup>81</sup> COLO. REV. STAT. § 37-92-102(3).

<sup>82</sup> *Colo. River Water Conservation Dist.*, 594 P.2d at 578.

<sup>83</sup> *St. Jude Co. v. Roaring Fork Club, LLC*, 351 P.3d 442, 451 [Colo. 2015].

<sup>84</sup> H.B. 20-1157, 80th Gen. Assembly, Reg. Sess. [Colo. 2020].

instream water rights to protect environmental flows in dry years, particularly where CWCB holds junior rights that may be subject to curtailment.

In addition, the CWCB is only authorized to appropriate water rights where there is a “natural environment.” Therefore, significantly degraded streams (both due to low flow or water quality) that cannot support fish populations may not qualify for protection under the instream flow program. The determination of what constitutes a natural environment is left to the CWCB’s discretion.<sup>85</sup>

Finally, the CWCB is only authorized to acquire surface water rights, limiting the program’s impact on groundwater. This limitation is tempered by Colorado’s conjunctive management of surface and tributary groundwater that should prevent new groundwater appropriations that would impact an instream water right. However, the act will not reach nontributary groundwater.

The program is largely touted as successful in protecting instream water rights. To date, the CWCB has acquired minimum flows to protect 9,700 miles of streams and 480 natural lakes. There are several components of Colorado’s program that appear to have contributed to its success: (1) the creation of a discrete entity charged with actively assessing the need for and acquiring instream flows; (2) the authorization of both individuals and government entities to recommend appropriations; (3) a source of funding for CWCB’s acquisitions—“up to a million dollars of funding may be used to acquire water, water rights, and interests in water for instream flow use”; and (4) allowing the public to intervene in protests to proposed instream flow acquisition.<sup>86</sup> The state has also incentivized the transfer of water rights to CWBC with a tax deduction of 50% of the value of the water

right donated.<sup>87</sup> Finally, as described above, Colorado’s instream program benefits from the security of state’s water right system that protects instream water rights from injury from more junior users.

#### *b. Recreational In-Channel Diversions*

A second mechanism for protecting instream flows are Recreational In-Channel Diversions (RICD). In 2001, the state recognized recreation as a beneficial use and authorized municipal entities to appropriate minimum stream flows necessary to provide a “reasonable recreation experience.”<sup>88</sup> However, these rights are subject to significant limitations (both in scope, purpose, and acquiring entity) that are intended to prevent their use as a mechanism to establish environmental flows.<sup>89</sup> Despite these limitations RICDs do provide a separate opportunity to keep water instream which can support ecological needs.

### **4. Planning**

Colorado’s water code does not require statewide water planning. However, in response to a recognized need to comprehensively assess the state’s water resources, the Governor directed the CWCB to complete a statewide water plan that would advance Colorado’s water values:

(1) productive economy that supports vibrant and sustainable cities, viable and productive agriculture, a robust skiing, recreation and tourism industry; (2) efficient and effective water infrastructure promoting smart land use; and

<sup>85</sup> *Colo. River Water Conservation Dist.*, 594 P2d at 575-76.

<sup>86</sup> COLO. REV. STAT. § 37-60-123.7(1).

<sup>87</sup> H.B. 09-1067, 67th Gen. Assembly, Reg. Sess. (Colo. 2009).

<sup>88</sup> COLO. REV. STAT. § 37-92-103.

<sup>89</sup> *Colo. Water Conservation Bd. v. Upper Gunnison River Water Conservancy Dist.*, 109 P.3d 585, 592-603 (Colo. 2005) (reviewing RICD appropriation procedures in detail).

(3) a strong environment that includes healthy watersheds, rivers and streams, and wildlife.

<sup>90</sup>

The plan identified goals and actions to meet measurable objectives for water use in the next 30 years. Conservation programs are envisioned as playing a key role in making necessary reallocations among water uses to meet future needs and support the environment. These recommended actions are intended to work within existing water regulations; however, it recognizes that some actions may require legislative action to add

Water planning provides a platform to redefine community priorities and drive legislative change.

flexibility to the water code.<sup>91</sup> In this way, the water plan highlights areas for amendment or repeal of existing laws that hamper water conservation measures, as well as a means to articulate new policy priorities that can help reframe resource management. In 2019, citizens approved a ballot measure that would provide up to 29 million to support the implementation of the state water plan.<sup>92</sup>






Colorado does not mandate the collection of water use data but does provide the State Engineer with the authority to require measuring at the point of diversion.<sup>93</sup> Comprehensive data on water use remains lacking due to unregulated exempt uses (e.g., domestic wells) and failure to require comprehensive water measuring.

<sup>90</sup> COLO. REV. STAT. § 37-60-126.5 (The CWCB was authorized by statute to conduct drought a planning and water efficiency program).

<sup>91</sup> Executive Order, D2013-005 III(H) (“The Colorado Water Plan will reaffirm the Colorado Constitution’s recognition of priority of appropriation while offering recommendations to the Governor for legislation that will improve coordination, streamline processes, and align state efforts.”).

<sup>92</sup> *Colorado’s Water Plan Keeps Rivers Flowing. But Not Without A Reliable Cash Flow. Here’s What You*

## 5. Public Trust Principles

-  **Constitutional and statutory frameworks that support maximum use of water resources contribute to unsustainable use.**
-  **A lack of public interest considerations in water allocation decisions prevents consideration of impacts beyond existing water users.**
-  **Creation of a robust and funded acquisition program for instream water assists in protecting environmental flows.**
-  **Flexibility to reallocate water both permanently and temporarily allows for protection of the environment within overallocated systems.**
-  **Consideration of the capacity of the resource is a critical component of ensuring sustainable water use**

*Need to Know About the Colorado Water Plan*, CONSERVATION COLORADO, <https://conservationco.org/2020/02/27/blog-what-you-need-to-know-about-the-colorado-water-plan/> (last visited July 22, 2020).

<sup>93</sup> Additional rules related to planning include rules require the measuring of water at the point of diversion and money allocated for the installation of stream gauges. *See* COLO. REV. STAT. § 37-84-120; COLO. REV. STAT. § 37-60-124.4.

Public Trust Elements	Principles in Colorado Water Code
Affirmation that water is a public good to be managed for the benefit of both present and future generations	✓ Colorado Constitution, Article XVI, Section 5.
Public interest as a criterion in management decisions	X
Opportunity for the public to participate in management decisions and to enforce public interest obligations.	✓ Colorado Revised Statute § 37-92-102(3)(C) [participation in the CWCB]  ✓ Colorado Revised Statute § 37-92-302(1)(b) [authorizing public participation in water rights applications]
Requirements for planning and data collection.	X [only through Executive Order]
Ability to adjust uses to address potential or actual overuse.	X
Identification of the needs of future generations and the environment as recognized beneficial uses	✓ Colorado Revised Statute § 37-92-102(3)
Mechanism to protect environmental flows.	✓ Colorado Revised Statute § 37-92-102-3(4)(c)
Requirement to manage within safe yields.	X

<sup>94</sup> *Nevada State Water Plan*, NEV. DIV. WATER PLANNING, *Executive Summary* at 4 (Mar. 1999), [http://water.nv.gov/programs/planning/stateplan/documents/NV\\_State\\_Water\\_Plan-complete.pdf](http://water.nv.gov/programs/planning/stateplan/documents/NV_State_Water_Plan-complete.pdf). [hereinafter *Water Plan*].

<sup>95</sup> Minutes of the Assembly Committee on Natural Resources, Agriculture, and Mining, 78th Session of the Nevada Legislature, at 21 (February 24, 2015) [Statement of Jason King, Nevada State Engineer].

<sup>96</sup> *Water Plan*, *supra* note 97, at *Summary: Section 7*, 7-10.

Flexibility to allow for the voluntary reallocation of water.	✓ Colorado Revised Statute § 37-92-302(1)(b) [authorizing public participation in water rights applications]]
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## B. NEVADA

### 1. Water Management Framework

As the driest state in the West, Nevada's already scarce water resources are being further stressed by rapid population growth, more frequent drought, and climate change. Surface water resources are already largely overallocated.<sup>94</sup> Further, as of 2015, over half of Nevada's groundwater basins were exceeding perennial yield (the quantity of water that can be recharged in a year) and 53 of those basins had appropriations that exceeded 200% of their perennial yield.<sup>95</sup> Groundwater provides 40% of the water used in Nevada.<sup>96</sup> Groundwater is being further stressed as the state explores the use of inter-basin transfers to support growing urban centers.<sup>97</sup> Inter-basin transfers can raise environmental concerns as it removes the full quantity of water from ecosystems.<sup>98</sup>

As with other western states, Nevada manages water through the prior appropriations system. Courts administered water use in the state until 1903 when the legislature established the State Engineer's office. Nevada adopted a comprehensive statutory scheme for managing surface water in 1913 and groundwater in 1939.<sup>99</sup>

<sup>97</sup> *Id.* at 93 at 1C-1.

<sup>98</sup> *Id.* at 1C-5.

<sup>99</sup> Hugh A. Shamberger, *Evolution of Nevada's Water Laws, as Related to the Development and Evaluation of the State's Water Resources From 1866 to 1960*, STATE OF NEVADA, DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES DIVISION OF WATER RESOURCES (1991). <http://images.water.nv.gov/images/publications/water%20resources%20bulletins/Bulletin46.pdf>.

### Legal Frameworks

- Nevada Revised Statutes Chapter 533 (Water Allocation)
- Nevada Revised Statute Chapter 534 (Groundwater)
- Nevada Revised Statute Chapter 540 (Planning)
- State Water Plan (1995)

#### *a. Water use regulations*

Subject to two exceptions—groundwater used for domestic purposes and water rights predating the 1913 water code—all water use in the state requires a permit.<sup>100</sup> The State Engineer permits and conditions water use based on statutory requirements. In order to approve an application, the State Engineer must find the water will be put to beneficial use and the applicant has demonstrated a good faith intent and financial ability to develop and use the water with reasonable diligence.<sup>101</sup> In approving water rights for new appropriations, the State Engineer must also affirm there is unappropriated water, the use will not impair existing rights or other protectable interests not required to obtain a water right (e.g., exempt wells), the development is feasible and not speculative, and the use will not “threaten[] to prove detrimental to the public interest.”<sup>102</sup> In assessing water use applications, the State Engineer may require an environmental study.<sup>103</sup> For surface water, water availability is limited only by other existing state-authorized water uses and public interest considerations.

<sup>100</sup> NEV. REV. STAT. § 534.180; NEV. REV. STAT. § 5330.085(1).

<sup>101</sup> NEV. REV. STAT. § 533.370(1).

<sup>102</sup> NEV. REV. STAT. § 533.370(2).

<sup>103</sup> Applications for interbasin transfers must comply with additional environmental hurdles. Unlike water use within a single basin (where water not consumptively used returns to the same system), interbasin transfers remove water from systems entirely, which can exacerbate environmental impacts. *See* NEV. REV. STAT. § 533.370(3)

The failure to place substantive limits on the quantity of surface water available for appropriation beyond amounts appropriated by other users allows for unsustainable use that may dewater streams, degrade the environment, and impair both the availability and quality of water for future generations.

#### *b. Integrated water management*

Despite Nevada's early adoption of a comprehensive framework for managing groundwater, the state did not require conjunctive management of water resources until 2017 when amendments to the water code directed the State Engineer to “manage conjunctively the appropriation, use and administration of all waters of this State, regardless of the source of the water.”<sup>104</sup>

Nevada does not integrate the consideration of water quality within its water use framework. The State Engineer is not authorized to consider impacts to quality in water use allocations and the agency responsible for water quality does not have authority to appropriate water to address water quality.<sup>105</sup> Nevada does provide for temporary permits to “avoid pollution”; however, these are limited in scope.<sup>106</sup> In addition, the state water code permits the transfer of agricultural use to improve water quality.<sup>107</sup> However, the state's water planning provisions recognize the “relationship between the quantity of water and quality of water” and further “the necessity to consider both factors simultaneously when planning the uses of water.”<sup>108</sup>

(requiring a determination of whether “the proposed action is environmentally sound”).

<sup>104</sup> NEV. REV. STAT. § 533.024(1)(e.)

<sup>105</sup> *Water for Wildlife & Environmental Purposes*, NEV. DIV. WATER PLANNING 8–9, <http://water.nv.gov/programs/planning/stateplan/documents/pt3-3b.pdf> (last visited July 22, 2020) (noting that water quality violations due to low flow are exempt).

<sup>106</sup> NEV. REV. STAT. § 533.437–.4377.

<sup>107</sup> NEV. REV. STAT. § 533.0243.

<sup>108</sup> NEV. REV. STAT. § 540.011(3).

Water plans can provide opportunity to integrate water quality and quantity where there is a lack of regulation.

*c. Groundwater regulation:*

Nevada requires state approval for all groundwater uses except for small quantity domestic wells. Outside of specially designated basins, groundwater management tracks the prior appropriations system for surface water—requiring a finding that there is unappropriated water, the use will not harm existing water rights or the public interest, and the use is not speculative.<sup>109</sup> While not codified in statute, the State Engineer’s longstanding policy is to limit the availability of groundwater to the aquifer’s perennial yield.<sup>110</sup> Therefore, for groundwater applications, the State Engineer considers the availability of water to be the perennial yield minus existing uses. As discussed further below, the state has also reserved from appropriation 10% of unappropriated water as of 2019.

While not defined in statute or regulation, the State Engineer adopts the definition of perennial yield as “the maximum amount of groundwater that can be salvaged each year over the long term without depleting the groundwater reservoir . . . The perennial yield cannot be more than the natural recharge to a groundwater basin and in some cases is less.”<sup>111</sup> By 1970, Nevada had calculated perennial yields for all river basins. The limitation of available water to a safe yield is a

critical component of maintaining a sustainable water supply. Without this approach, groundwater could be pumped at a rate which would eventually deplete the aquifer. Not only would that approach be detrimental to the environment but also inequitable to future generations as it denies them a right to use a critical resource.

Requirements that water withdrawals be limited to sustained yield provide an important limit to the quantity of withdrawals. Perennial yield limits should be incorporated into statute as a basis for water allocations.

Limiting water appropriations to the aquifer’s perennial yield protects against groundwater mining—or withdrawals that cause the water table to decline due to pumping from “the storage rather than the recharge.”<sup>112</sup> In a recent case, the Nevada Court reversed the State Engineer’s approval of an interbasin transfer when the withdrawals would result in groundwater mining. The court found that allowing the allocation would “prove detrimental to the public interest because the awards . . . result in water mining” and would be inconsistent with the State Engineer’s rules restricting groundwater withdrawals to perennial yield.<sup>113</sup>

Despite these limitations, the combined allocated groundwater—which includes both consumptive and non-consumptive quantities—in the 13 “hydrographic regions” of the state still exceeds the combined perennial yield of the

of perennial yield incorporating considerations of economic viability of development: “the amount of usable water from a ground-water aquifer which can be economically withdrawn and consumed each year for an indefinite period without depleting the source.” *See also Nevada State Water Plan Summary*, NEV. DIV. WATER PLANNING 3-11 (Mar. 1999), [http://water.nv.gov/programs/planning/stateplan/documents/NV\\_State\\_Water\\_Plan-complete.pdf](http://water.nv.gov/programs/planning/stateplan/documents/NV_State_Water_Plan-complete.pdf).

<sup>112</sup> *White Pine County*, *supra* note 118, at 8-9.

<sup>113</sup> *Id.* at 33.

<sup>109</sup> NEV. REV. STAT. § 533.370. f

<sup>110</sup> *White Pine County, et al v. Tim Wilson*, No. CV-1204049, 7 (March 9, 2020) (discussing the State Engineers longstanding policy).

<sup>111</sup> *Id.* at 7 (citing Water for Nevada, Nevada Resources Report No. 3, 13, State Engineer’s Office, October 1971); *Groundwater Management in Nevada: The Good, The Bad & The Ugly*, WATERWIRED (June 19, 2019), <https://www.waterwired.org/2019/06/jason-king-awra-presentation-groundwater-management-in-nevada-the-good-the-bad-and-the-ugly-1.html>. The state water plan adopts a slightly different definition



basins by almost 1 million-acre feet.<sup>114</sup> This is in part due to the early overallocation of water prior to restrictions around perennial yield and difficulty curtailing water use once water rights are acknowledged.

The water code creates two special area designations for groundwater to address overallocation: Designated Basins and Critical Groundwater Management Areas. “Designated Groundwater Basins” are areas experiencing increased water demand. The State Engineer has discretion to designate basins either on its own initiative or on petition of water users. One hundred and twenty of Nevada’s 256 basins are designated management areas.<sup>115</sup> Once designated, the State Engineer has authority to adopt rules, regulations and orders that are “essential for the general welfare,” including the ability to set preferred uses, issue temporary permits, and impose metering obligations.<sup>116</sup>

Preferred uses are designated by the State Engineer and may be used to prioritize or even deny new water permits for certain types of uses.<sup>117</sup> For example, in some basins the State Engineer has identified irrigation as not a preferred use thereby prohibiting new allocations. A second important management tool is the use of temporary permits. Temporary permits allow the State Engineer to permit water use while retaining authority to restrict or revoke use rights when necessary to protect the aquifer. Finally, designation

provides authority to require measurement and reporting of withdrawals. For instance, in 2015, the State Engineer issued 28 orders requiring the installation of meters, monthly record keeping, and submission to the State Engineer.<sup>118</sup> Finally, the designation also authorizes the State Engineer to close the basin to new uses.<sup>119</sup>

The authority to issue temporary permits and set preferred uses allows for continued growth in basins while retaining the authority to protect aquifer levels.

The Las Vegas groundwater basin illustrates how the State Engineer can leverage this additional management authority in designated basins.<sup>120</sup> The State Engineer first designated the basin in 1941 and expanded the designated area between 1941 and 1944. In 1949, the State Engineer closed a portion of the basin to new irrigation water withdrawals. Subsequently, in 1955, the legislature authorized the issuance of temporary permits in designated basins to allow for continued growth in the basin without creating permanent property rights in water use. After 1955, all issued groundwater rights were temporary and subject to revocation when a municipal source of water becomes available.<sup>121</sup> In 1997, a groundwater management plan was adopted to increase conservation efforts and assist residents in shifting to municipal water supplies which utilize surface water.

<sup>114</sup> *Water Plan*, *supra* note 97, at *Summary*, 3-12.

<sup>115</sup> Hydrographic Regions and Basins, STATE OF NEVADA, DIVISION OF WATER RESOURCES, <http://water.nv.gov/hydrographicregions.aspx> (last visited July 27, 2020) (providing a list of designated basins).

<sup>116</sup> NEV. REV. STAT. § 534.030; NEV. REV. STAT. § 534.120.

<sup>117</sup> NEV. REV. STAT. § 534.120(2). The last time a State Engineer issued a “Preferred Use” order declaring types of preferred uses of limited groundwater resources was in 1991. *See* OFFICE OF THE STATE ENGINEER OF THE STATE OF NEVADA, Orders List, <http://water.nv.gov/StateEngineersOrdersList.aspx> (filtered by Type: Preferred Uses).

<sup>118</sup> OFFICE OF THE STATE ENGINEER OF THE STATE OF NEVADA, Orders List, <http://water.nv.gov/StateEngineersOrdersList.aspx> (filtered by Type: Meter).

<sup>119</sup> *See e.g.*, Order 1310, OFFICE OF THE STATE ENGINEER OF THE STATE OF NEVADA (June 26, 2020).

<sup>120</sup> *Protecting Groundwater Through Legislation*, LAS VEGAS VALLEY GROUNDWATER MANAGEMENT PROGRAM, <https://www.lasvegasgmp.com/program/laws-legislation/index.html> (last visited July 25, 2020).

<sup>121</sup> A 1997 bill authorized the Southern Nevada Water Authority to assist property owners in plugging wells and connected to municipal water systems. *See* A.B. 09-1067, 70th Leg., Reg. Sess. (Nev. 1999).



These efforts supplemented existing regulatory requirements that domestic wells be closed when a municipal supply is available.<sup>122</sup> Interestingly, between 1999 and 2012 only ten of the 504 wells shifting from groundwater to municipal water sources were mandatory under state law, highlighting the importance of voluntary conservation efforts.<sup>123</sup>

For areas consistently exceeding safe yield, the State Engineer may designate critical groundwater management areas. Designation is discretionary until petitioned by the majority of water rights holders in the basin.<sup>124</sup> Upon designation, water users have 10 years to develop a groundwater management plan to address overdraft and remove the designation. If withdrawals continue to exceed safe yield, the State Engineer must restrict use in the order of priority, with withdrawals capped to stabilize the aquifer. There is currently only one critical management area designated in the state. In 2015, on petition of the majority of groundwater users in the basin, the State Engineer designated Diamond Valley as a critical groundwater management area due to groundwater pumping exceeding perennial yield for over 40 years. Following designation, groundwater users developed a groundwater management plan that will govern water use going forward. The plan created a market system that would allow users to trade water allocations to meet the State Engineer's reduction targets.<sup>125</sup> The plan was appealed to the district court which found the proposed plan violated Nevada's water rights framework requiring curtailment within 10 years of designation.<sup>126</sup>

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<sup>122</sup> NEV. REV. STAT. § 543.120 [authorizing the mandatory conversion of wells to municipal supplies]; Miranda Willson, *Las Vegas Groundwater Management a Success, But Overpumping Issues Loom*, LAS VEGAS SUN (Dec. 8, 2019), <https://lasvegassun.com/news/2019/dec/08/las-vegas-groundwater-management-success-overpump/>.

<sup>123</sup> *Las Vegas Valley Groundwater Management: Report to the Nevada Legislature*, S. NEVADA WATER AUTHORITY 7 (Dec. 2012), <https://www.leg.state.nv.us/Division/Research/Li>

The critical management area designation provides a unique regulatory lever to drive voluntary action to reduce groundwater consumption. Specifically, the designation triggers a countdown to the mandatory curtailment of water rights based on priority to meet perennial yield which has the potential to completely eliminate water rights for many water users. This potentially harsh outcome can spur compromise among water users and conservation.

Mandatory requirements to curtail uses to bring basins back into sustainable yields and can provide incentives to increase conservation.

The voluntary reduction of water use—both in the groundwater and surface water context—is challenged by the possibility of abandonment and forfeiture. Failure to use the full quantity of the water right for the statutory period of years can result in a determination that the right has been abandoned or forfeited (for unperfected rights).<sup>127</sup> This can incentivize the continued use of water beyond the quantity actually needed. For example, in assessing whether to approve the Diamond Valley Groundwater Management plan, objections were made based on the State Engineer's failure to take steps to initiate abatement proceedings against the water rights holders. As the State Engineer noted, such action could "exacerbate conditions in the

brary/Documents/ReportsToLeg/2011-2013/243-13.pdf.

<sup>124</sup> NEV. REV. STAT. § 534.110.

<sup>125</sup> Order No. 1302, OFFICE OF THE STATE ENGINEER OF THE STATE OF NEVADA (Jan. 11, 2019).

<sup>126</sup> See Diamond Valley Groundwater Management Plan Frequently Asked Questions, OFFICE OF THE STATE ENGINEER OF THE STATE OF NEVADA, <http://water.nv.gov/Diamond%20Valley%20GMP/FAQs.pdf>.

<sup>127</sup> NEV. REV. STAT. § 534.090 [groundwater with a statutory period of 5 years]; NEV. REV. STAT. § 533.060 [with a statutory period of 10 years].

basin by increasing pumping.”<sup>128</sup> To address this concern, the legislature authorized the State Engineer, to extend the time for a groundwater user to overcome a claim of forfeiture or abandonment, where the nonuse was due to the designation of a critical groundwater management area, conservation efforts, or the availability of water was limited due to the basin’s withdrawals exceeding perennial yield.<sup>129</sup>

## 2. Public interest

### a. Public resource

The Nevada water code recognizes that both groundwater and surface water belong to the public and cannot be privately owned—“the water of all sources of water supply within the boundaries of the State whether above or beneath the surface of the ground, belongs to the public.”<sup>130</sup> However, as in Colorado, the state water code further recognizes that water not already appropriated is available for appropriation unless otherwise prohibited by the water code.<sup>131</sup> Further, the state water code emphasizes the priority of protecting existing water rights.<sup>132</sup>

Mandatory consideration of public interest criteria is an important component of ensuring water uses are balanced with other societal values.

In 1903, Nevada codified a public interest test as a required component of the State Engineer’s water allocation determinations. For new allocations, the State Engineer must deny an application if it “threatens to be detrimental

to the public interest.”<sup>133</sup> Further, the State Engineer may approve temporary changes only where they are in the public interest.<sup>134</sup>

While the water code requires the protection of the public interest, it leaves the contours of the interest undefined. Therefore, the State Engineer has discretion to determine how the “public interest” standard is applied.<sup>135</sup> To date, the State Engineer has limited the public interest considerations to principles identified in Nevada’s water code.<sup>136</sup> These criteria essentially restate existing requirements for appropriation identified in the water code. For example, identified criteria include that water must be appropriated for a beneficial use and the need to demonstrate the amount, source and purpose of appropriation.<sup>137</sup> However, some criteria are drawn from policy principles that would otherwise not be incorporated expressly into a water use decision. For example, the State Engineer has identified water planning policies as a public interest criterion.<sup>138</sup> While the Nevada Supreme Court has upheld the State Engineer’s use of statutory principles, a critical view would note that this approach merely results in “a useless summary of readily accessible statutory water law.”<sup>139</sup>

The State Engineer has noted that applicable public interest criteria may vary depending on the type of application and, further, do not remain static and must evolve with changing societal values.<sup>140</sup> However, under the current approach that is limited to principles identified in statute and any new criteria would need to be incorporated by the legislature.

<sup>128</sup> Order No. 1302 9-10.

<sup>129</sup> NEV. REV. STAT. § 534.090(3).

<sup>130</sup> NEV. REV. STAT. § 533.025.

<sup>131</sup> NEV. REV. STAT. § 533.030(1) [“Subject to existing rights, and except as otherwise provided in this section, all water may be appropriated for beneficial use as provided in this chapter and not otherwise.”]; NEV. REV. STAT. § 534.020(1).

<sup>132</sup> NEV. REV. STAT. § 540.011.

<sup>133</sup> NEV. REV. STAT. § 533.370.

<sup>134</sup> NEV. REV. STAT. § 533.345.

<sup>135</sup> Ruling 6146, OFFICE OF THE STATE ENGINEER OF THE STATE OF NEVADA 152 [March 22, 2012].

<sup>136</sup> *Id.*

<sup>137</sup> *Id.* at 155.

<sup>138</sup> *Id.* at 157.

<sup>139</sup> Pyramid Lake Paiute Tribe of Indians v. Washoe County, 918 P.2d 697, 705 (Nev. June 14, 1996) (Justice Springer and Chief Justice Stefen, dissenting).

<sup>140</sup> Ruling 6146 at 150.

Nevada's public interest criteria provides a potentially powerful means of advancing public trust principles. First, the public trust criteria provide a mandatory and enforceable backstop to water appropriation; a finding of adverse impacts to the "public interest" alone requires denial of an application. However, the potential impact of the provision has been tempered by the lack of a statutory definition and the State Engineer's narrow reading of what constitutes public interest.

Failure to define the public interest may result in criteria that ignores considerations of the environment and intergenerational equity.

Nevada has long recognized the public trust as applicable to navigable waters; however, as of the date of this report, the state has not clearly stated whether the doctrine constrains the state's management of water resources.<sup>141</sup> A current case before the Nevada Supreme Court poses this question—whether appropriative rights are subject to ongoing state authority to manage water resources for the public benefit—and a decision is expected this year.<sup>142</sup>

*b. Public participation:*

Nevada's water rights framework provides opportunity for public involvement in the State Engineer's water management decisions.

<sup>141</sup> *Lawrence v. Clark County*, 254 P.3d 606 (Nev. 2011) (describing the history of the public trust doctrine in Nevada).

<sup>142</sup> *Mineral County, et al. v. Lyon County, et al.*, Case No. 75917 (Nev. July 18, 2018) (accepting certified question and directing briefing).

<sup>143</sup> NEV. REV. STAT. § 533.145(1)(for surface water); NEV. REV. STAT. § 534.270(2)(for groundwater).

<sup>144</sup> NEV. REV. STAT. § 533.450(1); NEV. REV. STAT. § 534.037(4).

<sup>145</sup> One example does exist for spring flows which the State Engineer must protect for wildlife populations. *See* NEV. REV. STAT. § 533.367 ("Before a person may obtain a right to the use of water from a spring or water which has seeped to the surface of the

Nevada permits "any person" to challenge a water use decision by the State Engineer.<sup>143</sup> The term "any person" includes both impacted water users and those asserting broader public interests. Parties who protest administrative decisions may seek judicial review of those decisions.<sup>144</sup>

### 3. Environmental Flows

As noted above, the Nevada water code does not provide express authorization for instream water rights<sup>145</sup> and there is no codified program to protect instream flows.<sup>146</sup> Consistent with prior appropriations doctrine, beneficial uses were typically tied to out-of-stream consumptive uses. However, Nevada did recognize one instream exception to this framework to support recreation.<sup>147</sup> In *State v. Morros*, the Nevada Supreme Court held that water to support fish was included within the state-recognized beneficial use for "recreational purposes," which the water code defined to include "wildlife watering."<sup>148</sup> Further, the court rejected the argument that a water right required a diversion of water. In doing so, the court found that Nevada law only required the water be used for a beneficial purpose, which could include in situ use where physical diversion is not required to achieve the use.

Nevada does not distinguish between the acquisition and management of instream water rights and other consumptive water uses. As such, any entity or individual that is

ground, the person must ensure that wildlife which customarily uses the water will have access to it.").

<sup>146</sup> Interestingly, Nevada does contain one example of protecting instream uses in the water code. In the use of any spring or seep the water code requires the preservation of water flows sufficient to support the wildlife that "customarily uses the water." NEV. REV. STAT. § 533.367.

<sup>147</sup> NEV. REV. STAT. § 533.030(2).

<sup>148</sup> *State v. Morros*, 766 P.2d 263, 265 (Nev. 1988). This case involved the State Engineer's issuance of a water right to the Bureau of Land Management to support water levels in a natural lake. Challengers of the water right asserted that Nevada state law required a diversion from the stream for the appropriation of water.

otherwise able to acquire water rights is authorized to obtain instream water rights—this means both private individuals and public entities can acquire and hold instream rights. Nevada law allows for both the permanent and temporary change in water rights—for a period of 1 year—which includes change from out-of-stream to instream uses.<sup>149</sup> More recently, Nevada has authorized the temporary transfer of agricultural water for “wildlife purposes or to improve the quality or flow of water.”<sup>150</sup> These types of transfers must be approved by the State Engineer and are limited to 3 years, though may be extended.<sup>151</sup>

The ability of both public and private parties to hold instream water rights provides flexibility in how environmental flows are protected.

The lack of any specific statutory program has both supported and hindered the reallocation of water for environmental purposes. The broad eligibility of individuals and entities that can hold instream rights and clear statutory processes for acquiring and transferring water rights has facilitated numerous transfers. A 2015 report, identified 57 instream transfers approved in Nevada—39 of which are permanent.<sup>152</sup> However, the lack of a state-mandated program, including targeted funding, to affirmatively protect instream flows likely inhibits a comprehensive plan to address environmental needs. Indeed, the state’s 1999 water plan recommended both of these components as a means to help advance the acquisition of instream water rights in the state.<sup>153</sup>

<sup>149</sup> See NEV. REV. STAT. § 533.340.

<sup>150</sup> NEV. REV. STAT. § 533.0243(1).

<sup>151</sup> NEV. REV. STAT. § 533.0243.

<sup>152</sup> Leon F. Szeptycki, Julia Forgie, Elizabeth Hook, Kori Lorick, and Phil Womble, *Environmental Water Rights Transfers: A Review of State Laws*, WATER IN THE WEST FOR THE NATIONAL FISH AND WILDLIFE FOUNDATION [August 31, 2015], <https://waterinthewest.stanford.edu/sites/default/files/WITW-WaterRightsLawReview-2015-FINAL.pdf> [last visited July 27, 2020].

Another important advancement in the protection of flows occurred in 2019 when the Nevada legislature directed the State Engineer to reserve from any further appropriation “10 percent of the total remaining groundwater” not already “committed for use in the basin” as of June 5, 2019.<sup>154</sup> The bill, referred to as the “reserved water bill,” protects groundwater basins that are not already over appropriated and “ensures that water is available both to support the environment and future generations.”<sup>155</sup> In response, the State Engineer entered 89 interim orders implementing the bill.<sup>156</sup> The orders calculated the new quantities of water available for appropriation by subtracting the reserved 10% plus current commitments from the basin’s perennial yield. The reservation of water presents a critical development in the state’s ability to ensure sustainable use of water resources as it allows the state to proactively protect quantities of groundwater.

The reservation of base amounts of groundwater provides an important opportunity to protect groundwater in situ.

#### 4. Planning

Nevada incorporates requirements for water planning and recognizes planning as a critical piece for understanding the status of the state’s water resources.<sup>157</sup> The policy for water planning recognizes “the critical nature of the State’s limited water resources” and importance of planning to provide for current and future water needs in the state. The goals of the plan include securing “enough water of

<sup>153</sup> *Water for Wildlife & Environmental Purposes*, *supra* note 84.

<sup>154</sup> NEV. REV. STAT. § 533.0241 [proposed amendments to the bill would have allowed reserved water to be used during drought. The amendments were not approved].

<sup>155</sup> S.B. 140, 80th Leg., Reg. Sess. (Nev. 2019).

<sup>156</sup> Order No. 1308, OFFICE OF THE STATE ENGINEER OF THE STATE OF NEVADA (March 3, 2020).

<sup>157</sup> NEV. REV. STAT. § 540 [providing for the planning and development of water resources].

sufficient quality for future generations,” achieving “more conservation and less waste of water,” “protection and enhancement of the environment,” and “a better educated citizenry and more public participation.” Water planning advances these goals while recognizing the need to protect “existing water rights.”<sup>158</sup>

Comprehensive planning provides critical information in understanding current resources and how those resources can be managed meet existing and future needs.





The State Engineer has also cited these legislative goals as guiding frameworks for its water management decisions and incorporated them into its public interest review.<sup>159</sup>

Identifying clear goals for water planning that incorporate intergenerational equity and protection of the environment provide authorization for state agencies to implement water management frameworks to achieve these goals.

The first Nevada Water Plan was completed in 1974 and the most recent plan completed in 1999. The plan provides an overview of existing uses, future needs, and how existing water resources and management tools can help meet those needs.

In 2017, the legislature amended the water code to require the State Engineer to “prepare and maintain water budgets and calculate[] and maintain[] an inventory of water” including the amount of appropriated groundwater, amount allocated for domestic wells and the amount available for appropriation.<sup>160</sup> Prior to this legislative requirement, Nevada had estimated that only 50% to 75% of water use was measured and reported.<sup>161</sup>

## 5. Public Trust Principles

-  **Inclusion of public interest criteria allow for consideration of public values in water allocation decisions.**
-  **Limiting groundwater withdrawals to sustainable yield and prohibiting groundwater mining help protects against unsustainable water use.**
-  **Authorizing the designation of critical groundwater areas and mandating curtailment of water uses to bring aquifers back to sustainable water levels helps correct over allocations.**
-  **Allowing private individuals to acquire and hold water rights can help advance the protection of instream flows by leveraging the power of NGOs and private markets**

<sup>158</sup> *Water Plan, supra* note 97, at *Summary*, 1-4.

<sup>159</sup> Ruling 6146, *supra* note 89 157-58.

<sup>160</sup> NEV. REV. STAT. § 532.167

<sup>161</sup> *Water Plan, supra* note 89, at *Summary*, 3-16.

Public Trust Elements	Principles in Nevada Water Code
Affirmation that water is a public resource	✓ NEV. REV. STAT. § 533.025 (water is a public good) ✓ NEV. REV. STAT. § 534.020 (water is a public good)
Public interest as a criterion in management decisions	✓ NEV. REV. STAT. § 534.370 (water is a public good)
Opportunity for public participation in management decisions and to enforce public interest values.	✓ NEV. REV. STAT. § 533.145(1) (surface water proceedings) ✓ NEV. REV. STAT. § 534.270(2) (groundwater proceedings)
Requirements for planning and data collection.	✓ NEV. REV. STAT. § 540 (providing for the planning and development of water resources).
Ability to adjust uses to address potential or actual overuse.	✓ NEV. REV. STAT. § 534.120 (ability to issue temporary permits in designated basins) ✓ NEV. REV. STAT. § 534.120 (curtailment in critical management areas)
Identification of the needs of future generations and the environment as recognized beneficial uses	✓ NEV. REV. STAT. § 533.030(2) (*beneficial uses include water to preserve wildlife needs)
Mechanism to protect environmental flows.	✓ NEV. REV. STAT. § 533.030(2) ✓ NEV. REV. STAT. § 533.0241 (reserving 10% of unallocated groundwater)

Requirement to manage within safe yields.	✓ NEV. REV. STAT. § 533.370(2) (limiting water appropriations to available unappropriated water coupled with State Engineer defining available water to be the perennial yield of an aquifer).
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## C. MICHIGAN

### 1. Water Management Framework

Water use in Michigan is governed by the common law riparian doctrine, public trust principles, international charters and treaties, interstate compacts, and statutory frameworks. The common law riparian doctrine recognizes a riparian landowner's right to the natural flow of water subject to the rights of other riparian landowners.<sup>162</sup> At common law, groundwater use is still governed by the reasonable use doctrine that permits the surface landowner to make reasonable use of the water subject to the limitation that the use cannot unreasonably harm other landowners.<sup>163</sup> In addition, Michigan recognizes the public trust doctrine as applicable to navigable waters.<sup>164</sup> As a Great Lakes Basin State, water use in the state is also constrained by international charters and interstate compacts.

Michigan is characterized by plentiful water resources—the Great Lakes have 6 quadrillion gallons of water. However, plentiful water has not insulated the state from concerns around both the quality and quantity of water. Prompted by these concerns, the Great Basin States ratified the Great Lakes–St. Lawrence River Basin Water Resources Compact (“Compact”)—committed to in 2001 and ratified in 2008—a legally binding interstate

<sup>162</sup> *Michigan Citizens for Water Conservation v. Nestlé Waters North America, Inc.*, 709 N.W.2d 174, (Mich. 2005); *Glass v. Goeckel*, 703 N.W.2d 58, (Mich. 2005).

<sup>163</sup> *Dumont v. Kellogg*, 29 Mich. 420, 424 (Mich. 1874) [the overlying landowner's right to use groundwater is constrained by “whether under all

the circumstances of the case the use of the water by one is reasonable and consistent with a correspondent enjoyment of right by the other.”].

<sup>164</sup> *Bott v. Comm'n of Natural Res.*, 327 N.W.2d 838, (1982). See also *Nestlé Waters*, 709 N.W.2d at 174; *Glass*, 703 N.W.2d at 58.



agreement setting minimum standards for signatory states in managing water withdrawals.<sup>165</sup> Minimum standards for water use management include mandatory reporting of water uses; development of a water inventory; regulation of new withdrawals; prohibition on water withdrawals; and conservation and efficiency programs.<sup>166</sup>

#### Legal Frameworks

- Natural Resources and Environmental Protection Act (NREPA), Part 37, Great Lakes Preservation
- Natural Resources and Environmental Protection Act (NREPA), Part 31, Michigan Environmental Protection
- Great Lakes–St. Lawrence River Basin Water Resources Compact (adopted MCL § 324.34201)
- Michigan Constitution 1963, Article 4, Section 52

#### a. *Water use regulations*

In response to Compact obligations, Michigan adopted a comprehensive regulatory program for large quantity water users in 2006, as amended in 2008. Michigan's water use regulations are codified in the Natural Resources and Environmental Protection Act and are administered by the Michigan Department of Environment, Great Lakes, and Energy (EGLE).<sup>167</sup>

Water withdrawal regulations impose registration and permitting requirements on certain large quantity surface water and

groundwater withdrawals (in-basin uses)<sup>168</sup> and diversions (out-of-basin uses):

- Registration and review for all new or increased large quantity withdrawals.<sup>169</sup> Large quantity withdrawals are defined as withdrawals over 100,000 gallons per day.<sup>170</sup>
- Permits for (1) new or increased withdrawals over 2 million gallons per day in the Great Lakes; (2) diversions of water over 100,000 gallons per day; and (3) large quantity withdrawals that will likely cause adverse resource impacts.<sup>171</sup>
- Registration for all large quantity withdrawals, defined as withdrawals over 100,000 gallons or more per day averaged over a 30-day period. All diversions are required to register.<sup>172</sup>

Water uses that are not subject to the water withdrawal regulations are governed through common law riparian principles and subject to enforcement by other water users under the reasonable use doctrine but otherwise unregulated and untracked.<sup>173</sup> These water withdrawals are not insubstantial. For example, a 2005 USGS report noted that private wells were used to provide 2.9 million people with drinking water.<sup>174</sup>

As in other states, unregulated small-quantity users may cumulatively contribute to unsustainable water use in the state.

The touch point of Michigan's water registration and permitting system is a prohibition on any withdrawal or diversion that

<sup>165</sup> Codified at MICH. COMP. LAWS § 324.32701.

<sup>166</sup> The Great Lakes–St. Lawrence River Basin Water Resources Compact, art. 4, § 3.

<sup>167</sup> The agency was previously known as the Michigan Department of Environmental Quality until 2019.

<sup>168</sup> See MICH. COMP. LAWS § 324.32701(1)(cc).

<sup>169</sup> See MICH. COMP. LAWS § 324.32701(1)(a)(ii)(A).

<sup>170</sup> MICH. COMP. LAWS § 324.32701(1)(cc).

<sup>171</sup> MICH. COMP. LAWS § 324.32723(1).

<sup>172</sup> MICH. COMP. LAWS § 324.34201.

<sup>173</sup> MICH. COMP. LAWS § 324.3278.

<sup>174</sup> Saichon Seedang & Patricia E. Norris, *Water Withdrawals & Water Use in Michigan*, MICH. STATE UNIV. EXTENSION BULLETIN 4 (Feb. 2011), [https://www.canr.msu.edu/uploads/resources/pdfs/water\\_withdrawals\\_and\\_water\\_use\\_in\\_michigan\\_wq62.pdf](https://www.canr.msu.edu/uploads/resources/pdfs/water_withdrawals_and_water_use_in_michigan_wq62.pdf).

would cause an Adverse Resource Impact (“ARI”). The ARI standard is intended to ensure that water use does not have significant adverse impacts on the quality and quantity of Michigan’s waters or water-dependent ecosystems.<sup>175</sup> The potential for an ARI is determined by assessing the withdrawal’s impacts on characteristic fish populations that are used as indicator species for the ecological health of the waterbody.<sup>176</sup> Fish populations are protected to ensure “thriving fish populations” which are protectively defined as “fish species that are expected to flourish at very high densities . . . .”<sup>177</sup>

The ARI considers the amount of flow needed to support fish populations based on the size and temperature of the stream (e.g., cold and small). Michigan has classified all streams in the state into eleven habitat types based on temperature and size.<sup>178</sup> The proposed withdrawal is then assessed to determine whether it would reduce the “index” flow of the stream below the quantity necessary to support ecological functions. For example, an ARI occurs in small cold-water streams when the withdrawal would result in a 3% reduction in fish populations.<sup>179</sup>

Through modeling, the EGLE has then determined the maximum reduction of the index flow that would be protective of 94% of the fish population.

The index flow is defined as the flow equal to the 50% “exceedance flow” for rivers and streams during its low flow month (typically the summer). Distilled, this is the quantity of water that a stream has at least half of the time during the summer.<sup>180</sup> The use of the lowest yearly flow period is an important characteristic of Michigan’s water withdrawal system. Low flow periods are generally the most ecologically stressful. In addition, in summer months—typically characterized by low

precipitation—groundwater makes up a substantial part of streamflow (termed its base flows). The use of this period can make it easier to assess groundwater pumping impacts to streamflow.

The use of lowest yearly flow period helps ensure that sufficient quantities of water remain instream during all seasons to safeguard ecological functions.

Michigan has identified index flows for 7,000 surface waters including both natural and manmade waters (recognizing that manmade ditches and other waterbodies support important fish populations). However, gauges are located on only a small number of streams and statistical modeling is used to set index flows. In addition, exempt uses are not quantified. These data gaps may result in the WWAT using higher than actual streamflow levels to assess the potential for ARI and, as a result, fail to accurately assess resource impacts.

Withdrawals are assessed from its baseline capacity, defined, subject to certain exceptions, as the capacity of a system reported as of April 1, 2009.<sup>181</sup> Therefore, only the increased portion of the withdrawal is assessed for an ARI. As a practical matter, this may result in findings that ignore the actual impact of a withdrawal. For example, in a recent opinion related to Nestle’s proposed expansion of its water bottling facility, the administrative law judge affirmed EGLE’s assessment of impacts based only on the well’s increased capacity of

<sup>175</sup> Davide A. Hamilton & Paul W. Seelbach, *Michigan’s Water Withdrawal Assessment Process and Screening Tool*, MICH. DEP’T OF NATURAL RES. 2 (May 2011), [https://www.michigan.gov/documents/dnr/sr55\\_540475\\_7.pdf](https://www.michigan.gov/documents/dnr/sr55_540475_7.pdf).

<sup>176</sup> *Id.* at 4.

<sup>177</sup> MICH. COMP. LAWS § 324.32701(1)(oo).

<sup>178</sup> Hamilton & Seelbach, *supra* note 197, at 1.

<sup>179</sup> MICH. COMP. LAWS § 324.32701(1)(A).

<sup>180</sup> Hamilton & Seelbach, *supra* note 197, at 2.

<sup>181</sup> MICH. COMP. LAWS § 324.32701(1)(d).



250 gallons per minute versus the well's total capacity of 400 gallons per minute.<sup>182</sup>

Failure to assess the impacts from the full quantity of a withdrawal can disregard actual impacts.

The potential for an ARI is described as a “zone.” Four management zones—A through D—are designated by statute. Withdrawals in Zone D have the highest risk of ARI and withdrawals in Zone A have no or a small risk of ARI. Withdrawals in Zone A are authorized without further action, withdrawals in Zone B are authorized with notice to interested

Management zone	Determination and requirement
Zone A—little risk	<ul style="list-style-type: none"> <li>• Register and proceed with proposed withdrawal.</li> </ul>
Zone B—alert and attention	<ul style="list-style-type: none"> <li>• Register and proceed with proposed withdrawal.</li> <li>• Cold Transition systems are automatically placed in Zone B and a site-specific review is required.</li> <li>• DEQ notifies: groups that have requested notification, such as: conservation district, regional planning agency.</li> </ul>
Zone C—concern and prevention	<ul style="list-style-type: none"> <li>• Site-specific review required.</li> <li>• Certify use of environmentally sound and economically feasible conservation measures.</li> <li>• DEQ notifies: large quantity users (of the same water source); and local governments and groups that have requested notification.</li> </ul>
Zone D—Adverse Resource Impact	<ul style="list-style-type: none"> <li>• Site-specific review required.</li> <li>• Cannot proceed if confirmed in Zone D.</li> <li>• Potential for “preventative measures”.</li> </ul>

An innovative online assessment tool—the Water Withdrawal Assessment Process—is used to assess proposed withdrawal’s impact to the state’s resources. The goal of the assessment process is to “link[] ecological and hydrologic principles and appl[y] them to water management decisions.”<sup>183</sup> The water user inputs the quantity and location of the withdrawal. The WWAT then calculates the likelihood of an ARI using the index flow and stream type. The screening tool is adjusted with every new regulated withdrawal, so the available capacity reflects existing uses.

parties, withdrawals in Zone C require site-specific review by the EGLE, and withdrawals in Zone D require site specific review and are not permitted without mitigation.<sup>184</sup>

For withdrawals in Zone C, the user must incorporate “environmentally sound” and “economically feasible” conservation measures. Notably, the EGLE does not determine the efficacy of these measures or whether other measures would be more effective.<sup>185</sup> Withdrawals of more than 1 million gallons a day in Zone C require a permit.<sup>186</sup>

<sup>182</sup> *Petitions for Michigan Citizens for Water Conservation, and the Ottawa Traverse Band of Ottawa and Chippewa Indians on the permit issued to Nestlé Waters North America, Inc.*, Case No. 18-011549 (April 24, 2020).

<sup>183</sup> Hamilton & Seelbach, *supra* note 197, at 2.

<sup>184</sup> MICH. COMP. LAWS § 324.32701(1)(tt).

<sup>185</sup> MICH. COMP. LAWS § 324.32723(6)(e).

<sup>186</sup> MICH. COMP. LAWS § 324.32723(1)(c).

Withdrawals in Zone D are generally not permitted. However, regulations provide that a Zone D withdrawal may be authorized under a permit but would need to incorporate preventative measures.<sup>187</sup>

The following summarizes Michigan's assessment approach:<sup>188</sup>

Permit applications must also comply with four decision-making criteria: any non-consumptive part of the water withdrawn is returned to the source watershed, there will be no ARI, the withdrawal complies with local laws, and is reasonable under common law and consistent with public rights.<sup>189</sup>

The EGLE has ongoing authority to revoke a permit if the withdrawal is causing an ARI.<sup>190</sup> Continuing a regulated withdrawal causing an ARI is subject to a civil penalty.<sup>191</sup>

Building in authority to adjust permits to address unanticipated adverse impacts allows for responsiveness to changing conditions and societal values.

In the first year of regulatory program, 216 withdrawals were proposed. Of the 216, the assessment tool flagged 44 withdrawals for site-specific review. Of those, the state only rejected four proposed withdrawals, three of which due to an unacceptable ARI.<sup>192</sup>

#### *b. Groundwater regulation:*

Michigan's regulatory approach is built on a recognition of the interconnection between groundwater and surface water. Both groundwater and surface water are managed within the same registration and permitting system, and subject to the same ARI assessment standard. Michigan uses analytical modeling to determine the impact of groundwater pumping on surface streams.<sup>193</sup> All groundwater withdrawals are assessed within the system regardless of distance from a stream or well depth.<sup>194</sup> The use of the same modeling parameters for the whole state has been a subject of criticism for failing to account for regional variances resulting in the authorization of withdrawals that would cause ARI in some areas while being too conservative in other areas.<sup>195</sup>

The online tool has been lauded for its integrated approach to assessment of water impacts that desegregates impacts of groundwater pumping, streamflow diminishment, and habitat impacts.

#### *c. Challenges*

##### *i. Legislative rollbacks:*

The WWAT and permitting system were arguably weakened in 2018 when the Michigan legislature amended water withdrawal requirements to provide an

<sup>187</sup> MICH. COMP. LAWS § 324.32706(c).

<sup>188</sup> Hamilton & Seelbach, *supra* note 197, at 19.

<sup>189</sup> MICH. COMP. LAWS § 24.32723(6).

<sup>190</sup> MICH. COMP. LAWS § 324.32723(11).

<sup>191</sup> MICH. COMP. LAWS § 324.32713.

<sup>192</sup> Sara R. Gosman, *Water Withdrawals in Michigan Implementing the Great Lakes Compact*, 90 MICH. B.J. 20, 23 (2011).

<sup>193</sup> Ivan Steven Jayawan, *Evaluation of Modeling Framework and Social Perspectives Regarding Sustainable Groundwater Management in Michigan*, UNIV. MICH. DEP'T OF ENVTL. ENG'G 9 (2019),

[https://deepblue.lib.umich.edu/bitstream/handle/2027.42/149860/ijayawan\\_1.pdf?sequence=1](https://deepblue.lib.umich.edu/bitstream/handle/2027.42/149860/ijayawan_1.pdf?sequence=1).

<sup>194</sup> *Ground-Water-Withdrawal Component of the Michigan Water-Withdrawal Screening Tool*, U.S. GEOLOGICAL SURVEY, 1 (2009), [https://pubs.usgs.gov/sir/2009/5003/pdf/sir2009-5003\\_web.pdf](https://pubs.usgs.gov/sir/2009/5003/pdf/sir2009-5003_web.pdf) (Under the 2006 legislation, groundwater use was presumed to not cause an ARI when the well was over ¼ mile from a stream and deeper than 150 feet. Wells that did not meet the criteria were designated as having potential to cause an ARI.)

<sup>195</sup> Ivan Steven Jayawan at 8.

alternative process to register a water withdrawal.<sup>196</sup> This process allows the user to submit a report from a hydrologist with analysis on the impact of the withdrawal. The hydrologist's report creates a presumption that the withdrawal will not result in an ARI. The ELGE only has 20 days to review the finding. If the ELGE does not complete its review in 20 days, the user may register the withdrawal. The 2018 amendment was spurred by concerns that the existing water withdrawal system was burdening water users. As the author of the bill described, "[u]nder the old, broken system, some farm families reported waiting as long as two years before finally getting the go-ahead to drill a well and water their crops - even though all of the data showed no risk to the environment. It's time for the government to get out of the way so our farm families and other businesses can get back to work."<sup>197</sup> However, opponents of the bill note that it provides an avenue to avoid scientific review through the state's WWAT thereby weakening the state's permitting system.

Authorizing opportunities to avoid review under the WWAT and reducing the ability for state review weakens Michigan's ability to review water uses for environmental impacts.

## ii. *Out-of-basin uses and bottled water*

The transfer of water from the basin was a significant concern for the Great Basin States in crafting the Compact. Despite this concern, the Compact excepted water exported in 5.7-gallon containers or smaller from the general prohibition on the diversion of water from the basin. Known as the "bottled water exception", there is no limit on the amount of water that can be exported under this provision. Michigan incorporated

the exception within its regulatory approach. Bottled water operations are exempted from permitting requirements through the Michigan's water use regulations; however, the same standards are incorporated as part of the state's safe drinking water act review.

The efficacy of the state's water withdrawals system was tested in 2016 when the ELGE granted a request by Nestlé to increase groundwater withdrawals at its water bottling facility by 250 gpm. The WWAT determined the increased withdrawal would cause an ARI. However, the ARI finding was reversed during agency review. The decision prompted significant public opposition with 80,945 comment filed against the project and just 75 for the project. Despite these protests and evidence that the increased pumping will harm the state's groundwater resources, the ELGE has continued to affirm its original authorization. The permit decision was recently affirmed by an administrative law judge. *Petitions for Michigan Citizens for Water Conservation, and the Ottawa Traverse Band of Ottawa and Chippewa Indians on the permit issued to Nestlé Waters North America, Inc.*, 18-011549 (April 24, 2020).

Recognizing the exception's potential resource impacts, Michigan regulators have sought to remove the loophole. Most recently, a 2019 bill would have removed the bottled water exception from the general prohibition on diversions.<sup>198</sup>

## 2. Public Interest

### a. *Public Resource*

Both Michigan's constitution and statutory frameworks incorporate and affirm obligations

<sup>196</sup> H.B. 5638, 99th Leg., Reg. Sess. (Mich. 2018).

<sup>197</sup> Brad Devereaux, *Governor Signs Bill to Streamline Groundwater Withdrawal Process*, MICH. LIVE (Jan. 30, 2019),

[https://www.mlive.com/news/grand-rapids/2018/06/governor\\_signs\\_bill\\_to\\_streaml.html](https://www.mlive.com/news/grand-rapids/2018/06/governor_signs_bill_to_streaml.html).

<sup>198</sup> H.B. 5291, 100th Leg., Reg. Sess. (Mich. 2019).

to protect natural resources for the benefit of the public. Michigan's constitution provides a clear statement related to the authority of the state to regulate the development of natural resources: "[t]he conservation and development of the natural resources of the state are hereby declared to be of paramount public concern in the interest of the health, safety and general welfare of the people. The legislature shall provide for the protection of the air, water and other natural resources of the state from pollution, impairment and destruction."<sup>199</sup> The provision has been interpreted to impose a mandatory duty on the state legislature to protect the public's natural resources from impairment.<sup>200</sup>

The legislature further affirmed the public's interest in a healthy environment in Michigan's Environmental Protection Act (MEPA) which authorizes "[a]ny person [or the attorney general] [to] bring an action for declaratory or injunctive relief against any person for the protection of the air, water, and other natural resources and the public trust from pollution, impairment or destruction."<sup>201</sup> This provision provides citizen authority<sup>202</sup> to enforce trust obligations of the state.<sup>203</sup> As Joseph Sax, scholar of the public trust doctrine, noted—"you must not only recognize the right . . . but you must recognize that the right is enforceable by the public."<sup>204</sup> The citizen suit provision creates a citizen-enforced backstop on administrative actions and integrates a key

underpinning of the public trust doctrine—the ability to enforce the state's obligation—into the state's environmental laws. The Michigan Supreme Court has recognized that "[t]he Act provides private individuals and other legal entities with standing to maintain actions ... against anyone 'for the protection of the air, water and other natural resources and the public trust therein from pollution, impairment or destruction.'"<sup>205</sup>

Finally, within its water use regulations, Michigan recognizes that "[t]he waters of the state are valuable public natural resources held in trust by the state, and the state has a duty as trustee to manage its waters effectively for the use and enjoyment of present and future residents and for the protection of the environment."<sup>206</sup>

In addition to these statutory obligations, Michigan recognizes the common law public trust doctrine as applicable to navigable waters. Importantly, however, Michigan does not apply the public trust to groundwater. The use of groundwater for commercial bottled water operations has highlighted concerns around adverse impacts to the resource and gaps in both common law and statutory protections. The state legislature has attempted to close the bottled water loophole at least three times—in 2006, and 2009, and 2019. In 2009, a bill was introduced to provide that "[t]he waters of the state, including

<sup>199</sup> MICH. CONST., art. IV, § 52.

<sup>200</sup> Mich. Att'y Gen. Op. No 4590, (Jan. 27, 1969), <https://www.ag.state.mi.us/opinion/datafiles/1990s/op06818.htm>.

<sup>201</sup> MICH. COMP. LAWS § 324.1701(1).

<sup>202</sup> In *Michigan Citizens for Water Conservation v. Nestle Waters North America, Inc.*, the court imposed federal standing requirements (e.g., showing the plaintiff personally suffered injury) on citizens suing under the MEPA. The opinion severely curtailed the public's ability to enforce the private right of action conferred under the MEPA. In 2010, the Michigan Supreme Court overruled its prior opinion in *Nestle Waters North America, Inc.* and reaffirmed that where the Michigan legislature has provided a cause of action—such as in the MEPA—

Michigan imposes no further standing requirements.<sup>202</sup>

<sup>203</sup> JOSEPH L. SAX, *DEFENDING THE ENVIRONMENT* (1971).

<sup>204</sup> See *Give Earth A Chance: Environmental Activism in Michigan*, MICH. IN THE WORLD & THE ENVIRONMENTAL JUSTICE HISTORY LAB, [http://michiganintheworld.history.lsa.umich.edu/environmentalism/exhibits/show/main\\_exhibit/1970s\\_activism/mepa](http://michiganintheworld.history.lsa.umich.edu/environmentalism/exhibits/show/main_exhibit/1970s_activism/mepa) (last visited July 24, 2020); Joan Wolfe, *A 'History' of the Michigan Environmental Protection Act of 1970*, <https://dspace.nmc.edu/bitstream/handle/11045/10580/wolfe-history-of-mepa.pdf?sequence=6> (last visited July 24, 2020).

<sup>205</sup> Ray et al. v. Mason County Drain Commissioner, 224 N.W.2d 883, 888 (Mich. 1975).

<sup>206</sup> MICH. COMP. LAWS § 324.32702(i)(c).

groundwater, are held in trust by the state” and require the state to manage water resources under the public trust “for the benefit of present and future generations.”<sup>207</sup> In 2019, two bills were introduced to establish that groundwater is a “public trust resource” and integrate those obligations with respect to Great Lakes waters.<sup>208</sup>

Clear statements on the duty to protect natural resources can help direct management of the resource to protect public benefits.

#### *b. Public participation*

Michigan provides several opportunities for the public to participate in water allocation decisions. With respect to registrations, public opportunities for participation increase relative to the likelihood of an ARI. For withdrawals in Zone A (with little likelihood of ARIs), there is no opportunity for public participation.<sup>209</sup> For registrations in Zone B or Zone C, the state must provide public notice on its website and direct notice to “interested parties” which include municipal entities and water user committees.<sup>210</sup> Water user committees consist of local governments and water users; however, they allow for the creation of subcommittees comprised of residents that may provide opportunities for the general public to participate in the water resources planning in its region. For permits, Michigan requires a 45-day public comment period.<sup>211</sup> The statute also provides the right to contest EGLE administrative decisions.<sup>212</sup>

### **3. Environmental Flows**

The protection of sufficient instream flows to support ecological functions is the foundation for Michigan’s water withdrawal system. As described above, the withdrawal regulations are constructed to prevent water use from

adversely impacting the ecological health of the environment which requires the protection of base streamflow. Therefore, Michigan’s regulatory system caps withdrawals to maintain the required flow.

The ARI standard represents an important reframing of how to evaluate water availability and uses. Unlike states adopting a prior appropriations approach, Michigan sets water availability not based on whether water is available to meet other water users needs but rather based on the protecting ecosystem functions.

In theory, Michigan’s approach should protect instream flows to support ecological function. By setting index flows based on low flow amounts, the state’s regulatory approach reduces risks that flows will be reduced below threshold levels. Further, the integration of the assessment of groundwater impacts recognizes the important hydrologic function groundwater plays in maintaining base flows. However, Michigan’s approach does not incorporate all water uses in its assessment; therefore, cumulative effects of unregulated uses may result in reductions below the minimum streamflow thresholds.

### **4. Planning**

Michigan participates in regional water planning efforts through the Compact, but does not otherwise require comprehensive state-wide water resources planning.<sup>213</sup> However, water planning at a local level is promoted through water committees formed by large quantity water users: “[a]ll persons making large quantity withdrawals within a watershed are encouraged to establish a water users committee to evaluate the status of current water resources, water use, and trends in

<sup>207</sup> H.B. 5139, 100th Leg., Reg. Sess. (Mich. 2019).

<sup>208</sup> H.B. 5292, 100th Leg., Reg. Sess. (Mich. 2019); H.B. 5290, 100th Leg., Reg. Sess. (Mich. 2019).

<sup>209</sup> MICH. COMP. LAWS §324.32706b(3).

<sup>210</sup> MICH. COMP. LAWS § 324.32725(2).

<sup>211</sup> MICH. COMP. LAWS § 324.3273(4).

<sup>212</sup> MICH. COMP. LAWS § 324.32725(5).





<sup>213</sup> MICH. COMP. LAWS § 324.32710.

water use within the watershed and to assist in long-term water resources planning.”<sup>214</sup> It is unclear the extent to which these committees have been utilized.

Water use reporting is required for all registered users in the water withdrawal system. This excludes all users not required to register and registrants using under 1.5 million gallons per year.<sup>215</sup> In accordance with Compact requirements, Michigan collects data on water use for all large quantity withdrawals.<sup>216</sup>

Water users that are not required to report are not an insignificant portion of Michigan’s water use. For instance, a 2014 report found estimated that 29% of Michigan’s population (or 2.9 million people) relied on private domestic wells.<sup>1</sup> The failure to account for these uses creates data gaps that may misrepresent actual water use impacts and create roadblocks to managing water sustainably.

## 5. Public Trust Principles

-  **Limiting water withdrawals to protect ecological conditions assists in protecting instream uses.**
-  **Innovative, science-based system to assess impacts supports sustainable water management.**
-  **Policy statements incorporating public trust principles provide a guiding framework for water management.**
-  **Authority to modify permits allows regulators to adjust water use to respond to changing conditions.**

<sup>214</sup> MICH. COMP. LAWS § 324.32725.

<sup>215</sup> MICH. COMP. LAWS § 324.32707.

<sup>216</sup> *2019 Five-Year Program Review*, DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY 5-6 (Dec. 6,

2019), <https://www.glscompactcouncil.org/media/2wcjr-e4s/mi-water-management-program-report-2019.pdf>.

<b>Public Trust Elements</b>	granted rights to the groundwater beneath their property. Virginia adopted its first surface water management framework in 1989 and first groundwater code in 1973. The state's current water management framework addresses both surface and groundwater. The State Water Resources Board (Board) oversees the management of water resources and the Department of Environmental Quality (DEQ) administers regulations. <sup>219</sup> Water use in the state is now managed through a combination of both riparian rights and statutory withdrawal permits. <sup>218</sup>
Affirmation that water is a public resource	✓ Mich. Const., art. IV, § 52 ✓ Mich. Comp. Laws § 324.170 (1)
Public interest as a criterion in management decisions	✓ Mich. Const., art. IV, § 52 ✓ Mich. Comp. Laws § 324.32707 (reporting)
Opportunity for public participation in management decisions and to enforce public interest values.	✓ Mich. Comp. Laws § 324.32707 (reporting)
Requirements for planning and data collection.	
Ability to adjust uses to address potential or actual overuse.	
Identification of the needs of future generations and the environment as recognized beneficial uses	
Mechanism to protect environmental flows.	
Requirement to manage within safe yields.	
Flexibility to allow for the voluntary reallocation of water.	

Legal Frameworks

- Virginia Constitution, Article XI, Section 1
- Virginia Code Annotated Chapter 62
- Virginia Administrative Code Chapter 25
- State Water Resources Plan (2015)

## D. VIRGINIA

### 1. Water Management Framework

Virginia, characterized by plentiful water, historically managed its water resources through a pure riparian system—recognizing a riparian landowner's right to the reasonable use of water limited by other landowner's right to make reasonable use of water.<sup>217</sup> With respect to groundwater, landowners were

“protect[ing] existing high quality state waters and restor[ing] all other state waters to such condition of quality that . . . will permit all reasonable public uses and . . . support the propagation and growth of all aquatic life . . . reasonably be expected to inhabit them” and “protecting water from pollution and promoting the conservation of water.”<sup>220</sup>

Surface water withdrawals are primarily regulated under the Virginia Wetlands Protection Permit Program (VWPPP).<sup>221</sup> The VWPPP provides a comprehensive permitting

<sup>217</sup> Scott v. Burwell's Bay Improvement Ass'n, 709 S.E.2d 858, 861–62 (2011).

<sup>218</sup> VA. CODE ANN. § 62.1-44.15:22.

<sup>219</sup> CITIZEN BOARDS, VA. DEP'T OF ENVTL. QUALITY, <https://www.deq.virginia.gov/LawsRegulations/CitizenBoards.aspx> (last visited July 24, 2020).

<sup>220</sup> VA. CODE ANN. § 62.1-44.2.

<sup>221</sup> VA. CODE ANN. § 62.1-44.15:20.



program for activities impacting surface water, including all surface water withdrawals.<sup>222</sup> A “permit is required for any activity that will permanently or temporarily impact surface waters” including withdrawals.<sup>223</sup> The VWPPP exempts several uses from permitting requirements. Examples include withdrawals of nontidal water of less than 10,000 gallons per day and less than 1 million gallons per month for agricultural uses.<sup>224</sup> Notably, however, DEQ may require a water use that is otherwise exempt to cease withdrawals and apply for a permit where such use is or “may reasonably be expected” to “cause or contribute to [] a significant impairment of state waters or fish and wildlife resources,” cause or contribute to a violation of water quality standards, or impair other beneficial use.<sup>225</sup>

The authority to regulate otherwise exempt uses where the withdrawal could cause an adverse environmental impact codifies an important mechanism to address resource use without requiring the state to regulate all uses.

The permit process incorporates consideration of instream uses—defined to include “the protection of fish and wildlife habitat, maintenance of waste assimilation, recreation, navigation, and cultural and aesthetic values.”<sup>226</sup> An applicant for a permit must provide information on the current instream conditions and an analysis of the withdrawal’s impacts to those flows. In addition, the applicant must identify an alternative source of water for times of low flow.<sup>227</sup>

<sup>222</sup> *Id.* Under the VWPPP, it is unlawful to “[e]xcavate in a wetland,” or “[a]lter the physical, chemical, or biological properties of state waters and make them detrimental to the public health, animal or aquatic life” without a permit from SWCB. *See also* 9 VA. ADMIN. CODE § 25-210-10.

<sup>223</sup> *Virginia Water Protection Permit Program*, VA. DEP’T OF ENVTL. QUALITY, [https://www.deq.virginia.gov/Portals/0/DEQ/Water/OWS-WWPandC/VWP\\_W](https://www.deq.virginia.gov/Portals/0/DEQ/Water/OWS-WWPandC/VWP_W)

Criteria for reviewing a new withdrawal includes limiting the authorized withdrawal to the amount that can be put to beneficial use; a finding that the withdrawal will not have a “detrimental impact on existing instream or off stream uses;” and a determination that the project (including consideration of impacts from existing withdrawals) will not cause a “significant impairment of the state waters or fish and wildlife resources,” have an adverse impact to existing beneficial uses (which is defined to include instream uses), or cause a violation of water quality standards.<sup>228</sup> If these criteria are not met, the Board must condition permits to meet the criteria.<sup>229</sup> In addition, the Board must condition permits to protect instream flows which may include limiting the amount and timing of the withdrawal to protect instream and public needs.<sup>230</sup> In developing the conditions, the Board is instructed to balance the needs of other water users as well as environmental needs.<sup>231</sup>

The Board retains the authority to modify surface water permits under specific conditions. Triggers for modification include failure of minimum instream flow levels to protect instream beneficial uses that existed at the time of issuance.<sup>232</sup>

Continued authority to adjust water use permits to the state to address impacts to instream uses creates regulatory flexibility to protect instream needs even after water permits are issued.

In addition to permitting requirements under the VWPPP, the water code authorizes the

WRhandout\_2019-01-15b.pdf?ver=2019-01-15-132751-673 (last visited July 26, 2020).

<sup>224</sup> 9 VA. ADMIN. CODE § 25-210-6.)

<sup>225</sup> 9 VA. ADMIN. CODE § 25-210-310(B).

<sup>226</sup> 9 VA. ADMIN. CODE § 25-210-340(5)(a).

<sup>227</sup> 9 VA. ADMIN. CODE § 25-210-340.

<sup>228</sup> 9 VA. ADMIN. CODE § 25-210-370.

<sup>229</sup> *Id.*

<sup>230</sup> VA. CODE ANN. § 62.1-44.15:22; *Id.*

<sup>231</sup> *Id.*

<sup>232</sup> 9 VA. ADMIN. CODE § 25-210-380(A)(1).



designation of Surface Water Management Areas [SWMA].<sup>233</sup> The Board may designate an SWMA where there are “substantial instream values;” the area has either historically experienced or *could experience* “low flow conditions” that would “threaten important instream uses;” or “current or potential off stream uses contribute to or . . . exacerbate natural low flow conditions to the detriment of instream values.”<sup>234</sup> The SWMA legislation uniquely provides for the ability to designate an area based on the possibility of impairment in contrast to requiring existing impairment or overallocation. The designation of an SWMA also provides a basis to modify existing VWPPP permits.<sup>235</sup> The Board is given discretion to designate SWMA’s; however, local municipal entities and state agencies may petition for designation. The Board has not yet formally designated any SWMAs within the State.<sup>236</sup>

Where designation is purely discretionary, the state agency may choose not to designate areas that otherwise qualify for increased protection based for reasons unrelated to the resource needs. States may consider making designation mandatory where certain conditions are met.

Once designated, “no person shall withdraw or attempt to withdraw any surface water” from the SWMA.<sup>237</sup> Exemptions exist for withdrawals of less than 300,000 gallons per month and withdrawals for non-consumptive uses.<sup>238</sup>

Permits issued within an SWMA must include flow restrictions to protect instream uses.<sup>239</sup> Further, water permits should include water conservation plans and monitoring procedures.<sup>240</sup> Permits are subject to modification to address changing conditions including failure to protect instream uses.<sup>241</sup>

Providing for increased management authority in areas where instream uses are at risk of degradation can provide an important regulatory backstop to protect the ecological health of an area.

As of 2019, the DEQ administered 104 permits for 172 billion gallons per year. However, 76% of all surface water withdrawals had no permitting requirements.<sup>242</sup>

#### *b. Integrated Management*

Unique from the other surveyed states, Virginia does not integrate the management of groundwater and surface water. This is despite the hydrological reality of the state, as the State’s Water Plan recognizes, “the degree of interconnectedness of fractured rock groundwater systems and surface water features in western Virginia is significant, resulting in unique challenges to assessing water supply risk . . . In most watersheds, groundwater discharge to streams constitutes a significant portion of the water in the stream.”<sup>243</sup>

<sup>233</sup> VA. CODE ANN. § 62.1-246.

<sup>234</sup> VA. CODE ANN. § 62.1-246.

<sup>235</sup> 9 VA. ADMIN. CODE 25-210-380(A)(4).

<sup>236</sup> *Water Withdrawal Permitting and Compliance Program*, VA. DEP’T OF ENVTL. QUALITY, <https://www.deq.virginia.gov/Programs/Water/WaterSupplyWaterQuantity/WaterWithdrawalPermittingandCompliance.aspx> (last visited July 26, 2020).

<sup>237</sup> VA. CODE ANN. § 62.1-247.

<sup>238</sup> VA. CODE ANN. § 62.1-243.

<sup>239</sup> VA. CODE ANN. § 62.1-248.

<sup>240</sup> 9 VA. ADMIN. CODE 25-220-80(B)(F).

<sup>241</sup> 9 VA. ADMIN. CODE 25-220-210 (describing circumstances allowing for modification of an SWMA permit).

<sup>242</sup> *Status of Virginia’s Water Resources: A Report on Virginia’s Water Resources Management Activities*, VA. DEP’T OF ENVTL. QUALITY 22 (Oct. 2019) [hereinafter 2019 STATUS REPORT], [https://www.deq.virginia.gov/Portals/0/DEQ/Water/WaterSupplyPlanning/AWWWR\\_webcompliant2019-10-01.pdf?ver=2019-10-08-155708-377](https://www.deq.virginia.gov/Portals/0/DEQ/Water/WaterSupplyPlanning/AWWWR_webcompliant2019-10-01.pdf?ver=2019-10-08-155708-377) (last visited July 17, 2020).

<sup>243</sup> *Virginia Water Resources Plan*, VA. DEP’T OF ENVTL. QUALITY 102 (Oct. 2015) [hereinafter 2015 STATUS REPORT],

The failure to integrate management of groundwater and surface water creates a gap in the state's authority to sustainably manage water resources.

Virginia does integrate the regulation of water quantity and quality. The state recognizes that water quantity and quality are linked and impacts to water quality are expressly considered as part of permitting water withdrawals.<sup>244</sup> For surface water withdrawals, new water permits must not "cause or contribute to . . . a violation of water quality standards."<sup>245</sup> While water quality is not a permitting consideration for groundwater permits, it does act as an independent basis to designate a Groundwater Management Area.<sup>246</sup>

Water use and water quality are closely linked and the failure to incorporate impacts to water quality in water use management creates an artificial distinction that can result in resource degradation. Virginia's criteria that water withdrawals not lower water quality beyond regulatory standards recognizes the relationship between quantity and quality and provides an important layer of protection for water resources.

### c. Groundwater

Groundwater withdrawals are regulated separately under the Groundwater Management Act. Passed in 1992, the Act

<https://www.deq.virginia.gov/Portals/0/DEQ/Water/WaterSupplyPlanning/SWRP%20Final/Ch%206%20Water%20Supply%20Challenges%20and%20Recommendations.pdf> (last visited July 29, 2020).

<sup>244</sup> 9 VA. ADMIN. CODE § 25-210-370.

<sup>245</sup> 9 VA. ADMIN. CODE § 25-210-370(3)(c).

<sup>246</sup> VA. CODE ANN. § 62.1-257(A)(4) (identifying water quality as a basis for designation).

<sup>247</sup> VA. CODE ANN. § 62.1-254.

<sup>248</sup> VA. CODE ANN. § 62.1-257.

was intended to correct excessive withdrawals that were found to be "contributing . . . to pollution and shortage of ground water, thereby jeopardizing the public welfare, safety and health."<sup>247</sup>

To address these concerns, the Act authorized the creation of Groundwater Management Areas (GWMA) and established a permitting system for withdrawals within those areas.<sup>248</sup> Withdrawals outside of the GWMA are exempt from regulatory requirements.<sup>249</sup>

The Board may designate a GWMA when there is evidence of existing or potential overdraft, excessive declines in groundwater levels, signs of well interference, or risk of pollution.<sup>250</sup>

The ability to proactively designate a GWMA prior to overdraft provides important regulatory authority to prevent overdraft rather than correct unsustainable water use. This approach may be especially important where the state has not adopted a comprehensive water regulatory program.

Upon Board designation, a permit is required for all new or increased withdrawals in a GWMA over 300,000 gallons per month.<sup>251</sup> The permit requirement includes withdrawals existing at the time of designation.<sup>252</sup> Private wells for domestic use are generally exempt from permit requirements but are required to register with both the Board and the Department of Health (which regulates drinking water standards).<sup>253</sup> The registration requirement has helped quantify the impact of

<sup>249</sup> VA. CODE ANN. § 62.1-259(ix).

<sup>250</sup> VA. CODE ANN. § 62.1-257.

<sup>251</sup> VA. CODE ANN. § 62.1-258 (making it unlawful "for any person to withdraw, attempt to withdraw, or allow the withdrawal of any ground water, other than in accordance with a ground water withdrawal permit"); *see also* VA. CODE ANN. § 62.1-259 (providing exceptions to permit requirements).

<sup>252</sup> VA. CODE ANN. § 62.1-261.

<sup>253</sup> VA. CODE ANN. § 62.1-258.

private wells in the state. For example, in 2017, DEQ estimated that if private well use continues to increase at current rates, the quantity of water drawn from private wells would offset all the reductions that DEQ has been able to achieve through its permitting program.<sup>254</sup>

The GWMA legislation identifies specific criteria for the evaluation of groundwater permits. These include criteria intended to protect the water resource including evaluating the area of impact and potential for drawdown, as well as impacts to other public interests including environmental conditions, economic, and population growth.<sup>255</sup>

The Board may only issue permits for a maximum of fifteen years, though applicants may request renewal.<sup>256</sup> Further, the Board retains authority, either through its own initiative or in response to a public petition, to modify or revoke the permit.<sup>257</sup> Among the basis to revoke or modify a permit is “[a] determination that the withdrawal authorized by the permit or special exception endangers human health or the environment and cannot be regulated to acceptable levels by permit or special exception modification.”<sup>258</sup>

Limiting water permits to a specified term of years allows the state to reassess whether the water use still aligns with societal priorities and allows the state to adjust water use requirements to adapt to changing conditions. Authority to revoke permits in certain circumstances provides flexibility to manage water use to prevent public harm.

There are currently two management areas that cover the eastern portion of the state—the Eastern Shore and Eastern Virginia GWMA.<sup>259</sup> These areas were designated as part of the 1992 Act; however, the Eastern Shore GWMA was expanded in 2014. As of 2019, DEQ administers 333 groundwater permits for 46.5 billion gallons per year.<sup>260</sup>

DEQ has used its permitting authority to reduce the quantity of withdrawals by regulated users. For example, the Board negotiated reductions in withdrawals with 14 users whose withdrawals accounted for 80% of permitted groundwater withdrawals in the Eastern Virginia GWMA. Under the new 10-year permits, the users agreed to reduce withdrawals by 52% the equivalent of 69 million gallons.<sup>261</sup>

Despite the increased regulatory authority provided by designation, these areas continue to experience declining groundwater levels. In 2014, DEQ noted concern around declining aquifer levels.<sup>262</sup> In 2017, DEQ identified four

<sup>254</sup> *Report to the Virginia Department of Environmental Quality and Virginia General Assembly*, EASTERN VIRGINIA GROUNDWATER MANAGEMENT ADVISORY COMMITTEE 28 (July 2017) [hereinafter 2017 STATUS REPORT], [http://leg5.state.va.us/User\\_db/frmView.aspx?Vid=5053&s=14](http://leg5.state.va.us/User_db/frmView.aspx?Vid=5053&s=14) [last visited, July 27, 2020].

<sup>255</sup> VA. CODE ANN. § 62.1-263.

<sup>256</sup> VA. CODE ANN. § 62.1-266.

<sup>257</sup> VA. CODE ANN. § 62.1-266(E).

<sup>258</sup> *Id.* at (E)(3); 9 VA. ADMIN. CODE 25-610-300(A)(4); 9 VA. ADMIN. CODE 25-610-310(A); 9 VA. ADMIN. CODE 25-610-290 (initiation of revocation).

<sup>259</sup> VA. CODE ANN. § 62.1-260.

<sup>260</sup> 2019 STATUS REPORT, *supra* note 270, at 6.

<sup>261</sup> *Id.*; Robert Zullo, *State Reaches Deals with Large Water Users to Preserve Aquifers*, RICHMOND TIMES-DISPATCH (Dec. 15, 2017), [https://richmond.com/news/virginia/state-reaches-deals-with-large-water-users-to-preserve-aquifers/article\\_c607fb2e-c757-5017-8e6f-de923a456ac4.html](https://richmond.com/news/virginia/state-reaches-deals-with-large-water-users-to-preserve-aquifers/article_c607fb2e-c757-5017-8e6f-de923a456ac4.html).

<sup>262</sup> *Status Report to the Virginia Department of Environmental Quality and Virginia General Assembly*, EASTERN VIRGINIA GROUNDWATER MANAGEMENT ADVISORY COMMITTEE 14 (October

management concerns with groundwater: declining groundwater levels, “increased potential for saltwater intrusion,” “accelerated rates of land subsidence,” and “irreversible loss of long-term aquifer storage.”<sup>263</sup> In 2019, DEQ again noted continuing concerns around declining groundwater levels.<sup>264</sup> Importantly, DEQ has emphasized that these declines have “transpired under the current water withdrawal permitting and water supply statutory and regulatory framework.”<sup>265</sup>

Unregulated groundwater withdrawals present a growing management challenge. The 2015 State Water Resources Plan noted in 2010 “it was estimated that 137.81 MGD of water was used by small self-supplied users of private residences.”<sup>266</sup> These uses are typically exempt from groundwater regulations as they fall below the 300,000 gallon per month permitting trigger.<sup>267</sup> Further, a 2008 USGS study found that unpermitted uses accounted for the use 29 million gallons per day in the Eastern Virginia GWMA and that domestic wells accounted for 67% of the water use. A 2017 report from the Eastern Virginia GWMA Advisory Committee<sup>268</sup> recognized that “[e]fforts by permitted users to reduce consumption are not enough to restore the aquifer for the long term in the absence of a way to address the concurrent impact that unpermitted users have on groundwater resources. The Committee generally supported the notion that these users bear a proportionate responsibility to maintain aquifer productivity and availability into the future.”<sup>269</sup>

Small quantity users are often unregulated but may cumulatively cause significant resource impact and create challenges for achieving sustainable levels of water use.

A further challenge facing the state is the need to address increasing groundwater withdrawals outside of GWMAs. The Water Resources Plan noted that “seventy-five percent of the groundwater demand for 2040 is expected to occur outside the coastal plain GWMAs” and recommended “creating some basic water budgets in these areas” as means to begin addressing unregulated groundwater use in these areas.<sup>270</sup> Currently, 52% of all groundwater withdrawals do not trigger permit requirements.<sup>271</sup>

Failure to track groundwater use in unregulated basins creates the potential for unsustainable use.

## 2. Public Interest

### a. *Public resource*

Virginia’s constitution and statutory frameworks recognize water as a public resource to be managed and protected for the benefit of the public. The Virginia Constitution provides:

To the end that the people have clean air, pure water, and the use and enjoyment for

2014], [https://www.deq.virginia.gov/Portals/0/DEQ/LawsAndRegulations/GeneralAssemblyReports/AWRP\\_090814FINAL.pdf](https://www.deq.virginia.gov/Portals/0/DEQ/LawsAndRegulations/GeneralAssemblyReports/AWRP_090814FINAL.pdf) (last visited July 27, 2020).

<sup>263</sup> REPORT TO THE VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY AND VIRGINIA GENERAL ASSEMBLY, EASTERN VIRGINIA GROUNDWATER MANAGEMENT ADVISORY COMMITTEE 14 (July 2017), [http://leg5.state.va.us/User\\_db/frmView.aspx?ViewId=5053&s=14](http://leg5.state.va.us/User_db/frmView.aspx?ViewId=5053&s=14) (last visited, July 27, 2020).

<sup>264</sup> 2019 STATUS REPORT, *supra* note 270, at 6.

<sup>265</sup> 2017 STATUS REPORT, *supra* note 283 at 15.

<sup>266</sup> *Virginia Water Resources Plan*, VA. DEP’T OF ENVTL. QUALITY, 102 (April 2015) [hereinafter *Water Resources Plan*],

[http://missionh2ovirginia.com/wp-content/uploads/2015/04/SWRP\\_.pdf](http://missionh2ovirginia.com/wp-content/uploads/2015/04/SWRP_.pdf) (last visited July 16, 2020).

<sup>267</sup> *Id.* at 102.

<sup>268</sup> The legislative authorization for the Committee has expired. *See* VA. CODE ANN. § 62.1-256.1.

<sup>269</sup> 2017 STATUS REPORT, *supra* note 283, at 29.

<sup>270</sup> *Water Resources Plan*, *supra* note 297, at 102.

<sup>271</sup> 2019 STATUS REPORT, *supra* note 270, at 22.

recreation of adequate public lands, waters, and other natural resources, it shall be the policy of the Commonwealth to conserve, develop, and utilize its natural resources, its public lands, and its historical sites and buildings.

Further, it shall be the Commonwealth's policy to protect its atmosphere, lands, and waters from pollution, impairment, or destruction, for the benefit, enjoyment, and general welfare of the people of the Commonwealth.<sup>272</sup>

The public nature of the resource and duty to protect it from impairment for the benefit of the public is reiterated throughout the state water code. The introductory language of Virginia's State Water Control Law states "[t]he public welfare and interest of the people of the Commonwealth require the proper development, wise use, conservation and protection of water resources together with protection of land resources, as affected thereby."<sup>273</sup> Further, the legislature identifies its policy to "protect existing high quality state waters and restore all other state waters to such condition of quality that any such waters will permit all reasonable public uses and will support the propagation and growth of all aquatic life . . ."<sup>274</sup>

In addition to these broad policy statements, the state's permitting schemes incorporate public interest criteria as mandatory considerations in permitting decisions. For example, in permitting a water withdrawals the

Board must find that the withdrawal will not have a "detrimental impact on existing instream or off stream uses" and determine the project (including consideration of existing impacts from existing withdrawals) will not cause a "significant impairment of the state waters or fish and wildlife resources," have an adverse impact to existing beneficial uses (which is defined to include instream uses), or cause a violation of water quality standards.<sup>275</sup>

Further, a groundwater withdrawal permit may be modified or revoked if the Board "determin[es] that the withdrawal authorized by the permit or special exception endangers human health or the environment and cannot be regulated to acceptable levels by permit or special exception modification."<sup>276</sup>

#### *b. Public participation*

Both groundwater and surface water permitting processes provide for public notice and opportunity to comment on water management.<sup>277</sup> Prior to issuance of a final permit an applicant must publish notice of the draft permit in a public newspaper. Comments are reviewed to determine whether to hold a hearing on the permit. DEQ must grant a hearing where a minimum of 25 comments demonstrate "significant public interest in the issuance, denial, modification, or revocation of the permit in question."<sup>278</sup> Final permit decisions are appealable.<sup>279</sup> Opportunity for public notice and comment is also available during the designation of SWMA and GWMA.<sup>280</sup>

Finally, opportunity for public notice and comment is required as part of the development of water plans.<sup>281</sup> This includes opportunity to comment on the plan but also the opportunity to request a public hearing

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<sup>272</sup> VA. CONST. art. XI, § 1. Virginia's Constitution recognizes the public trust doctrine for the land beneath navigable waters.

<sup>273</sup> VA. CODE ANN. § 62.1-1.1(d).

<sup>274</sup> VA. CODE ANN. § 62.1-44.2.

<sup>275</sup> VA. CODE ANN. § 62.1-44.15:20; 9 VA. ADMIN. CODE 25-210-370.

<sup>276</sup> 9 VA. ADMIN. CODE § 25-610-300(A)(4); 9 VA. ADMIN. CODE 25-610-310(A).

<sup>277</sup> 9 VA. ADMIN. CODE § 25-610-250 (groundwater); 9 VA. ADMIN. CODE § 25-610-140 (surface water).

<sup>278</sup> 9 VA. ADMIN. CODE 25-210-140(B) (for surface water); 9 VA. ADMIN. CODE 25-610-270 (for groundwater).

<sup>279</sup> VA. CODE ANN. § 62.1-44.29.

<sup>280</sup> 9 VA. ADMIN. CODE 25-11-150(A) (for groundwater); 9 VA. ADMIN. CODE 25-220-150(B).

<sup>281</sup> 9 VA. ADMIN. CODE 25-780-150.

where there is substantial interest and demonstrated concern regarding consistency with the planning requirements.<sup>282</sup>

### 3. Environmental Flows

Instream flows to support ecological function are protected as part of the state's surface water permitting framework. Specifically, regulated withdrawals are conditioned to protect instream uses.<sup>283</sup> The VWPSP statutory authority expressly authorizes conditions for the "preservation of instream flow," including but not limited to conditions on "the volume of water which may be withdrawn as a part of the permitted activity and conditions necessary to protect beneficial uses."<sup>284</sup> Similarly, the SWMA provides additional authority to incorporate minimum flow requirements as condition to a permit to protect instream beneficial uses—"flow conditions may include but are not limited to conditions that limit the volume and rate at which water may be withdrawn at certain times and conditions that require water conservation and reductions in water use."<sup>285</sup>

DEQ evaluates the impact to instream uses as part of every surface water withdrawal permit. To support this assessment, applicants are required to provide information on current streamflows, instream needs, and anticipated impacts to those instream uses.<sup>286</sup> Based on the anticipated cumulative impacts, DEQ integrates withdrawal limits and minimum instream flow conditions into permits.<sup>287</sup>

Authorizing the incorporation of minimum flows can provide a mechanism to ensure a minimum quantity of water is maintained instream.

Important components of Virginia's approach to instream flows include protection of instream uses as a primary focus of the state's water management framework,<sup>288</sup> mandatory consideration of impacts to instream uses as part of any permitting decision,<sup>289</sup> the ability to adjust water permits when they negatively impact instream uses,<sup>290</sup> and an inclusive definition of instream uses beyond fish and wildlife to include aesthetic, recreational, and water quality needs.<sup>291</sup>

Where Virginia has integrated instream needs in its surface water management, those considerations are notably absent from its regulation of groundwater withdrawals. The groundwater code does not include environmental uses as a beneficial use.<sup>292</sup> Further, the regulation of groundwater does not consider impacts to instream uses of surface water. However, Virginia's State Water Resources Plan recognizes that groundwater withdrawals can impact surface water flows and that such impacts are likely to be particularly acute during low flow periods. The plan also recognizes that data related to connections between groundwater withdrawals

<sup>282</sup> 9 VA. ADMIN. CODE 25-780-150(D).

<sup>283</sup> VA. CODE ANN. § 62.1-44.3 (definition of beneficial use); VA. CODE ANN. § 62.1-44.15:22.

<sup>284</sup> VA. CODE ANN. § 62.1-44.15:22.

<sup>285</sup> 9 VA. ADMIN. CODE 25-220-100.

<sup>286</sup> 9 VA. ADMIN. CODE 25-210-340(B)(5).

<sup>287</sup> 2019 STATUS REPORT, *supra* note 240, at 7.

<sup>288</sup> VA. CODE ANN. § 62.1-44.36(5) (directing the Board to foster and encourage "the maintenance of stream flows sufficient to support aquatic life and to minimize pollution").

<sup>289</sup> 9 VA. ADMIN. CODE 25-210-370 (regulations require the protection of instream flows uses as part of the state's permitting program and the

Board is required to condition permits to protect these instream uses).

<sup>290</sup> VA. CODE ANN. § 62.1-266(E)(3) (GWMA permit); 9 VA. ADMIN. CODE 25-610-300(A)(4) (GWMA permit); 9 VA. ADMIN. CODE § 25-210-380(A)(1) (surface water permit).

<sup>291</sup> VA. CODE ANN. § 62.1-44.3 (defining beneficial uses to include a broad set instream uses necessary for "the protection of fish and wildlife resources and habitat, maintenance of waste assimilation, recreation, navigation, and cultural and aesthetic values)."

<sup>292</sup> VA. CODE ANN. § 62.1-255. "Beneficial use" includes domestic (including public water supply), agricultural, commercial, and industrial uses."



are lacking.<sup>293</sup> Despite these acknowledgements, without being incorporated into the water code they lack regulatory teeth.

While most streams are not currently overallocated, it is predicted that additional out-of-stream uses coupled with the increasing prevalence of drought will result in lower flows than are needed to maintain healthy ecosystem function.<sup>294</sup> Therefore, it may become important for the state to identify the minimum flows necessary to protect identified beneficial uses and incorporate those as clear limits in water resources allocations. The state should also recognize the link between groundwater withdrawals and surface water flows and codify requirements for the state to consider those impacts as part of its groundwater management. Finally, unpermitted withdrawals also pose a challenge to maintaining minimum streamflows. Without regulatory authority, the state lacks the ability to condition these withdrawals to protect streamflows.<sup>295</sup>

#### 4. Planning

Virginia's water management framework emphasizes the importance of planning to meet the diverse range of present and future needs.<sup>296</sup> Plans must address seven areas that include estimates of current and future water needs; estimates of minimum instream flows during drought conditions to "maintain water quality and avoid permanent damage to aquatic life in streams, bays, and estuaries"; and the ability to meet current and future needs to include instream needs in drought conditions.<sup>297</sup> Board regulations require all counties, cities and towns to submit its own local water supply plan or participate in a regional planning.<sup>298</sup> Developed water plans must "[i] ensure that adequate and safe drinking water is available,

(ii) encourage and protect all beneficial uses, (iii) encourage and promote alternative water sources, and (iv) promote conservation."<sup>299</sup>

State water plans must be developed every five years—the most recent state-wide plan was released in 2015 and will be updated in 2020.

In addition to providing a comprehensive overview of the status of water resources, needs of the state and management challenges, the plan identifies gaps in the state's water management framework and suggest actions to address these shortcomings. For example, in the context of addressing unpermitted uses, the report recommended agency action through existing statutory authority and legislative action to increase agency authority: recommending future options of "the establishment of Surface Water Management Areas and Groundwater Management Areas and changes to pertinent statutes and/or regulations to capture unpermitted withdrawals."<sup>300</sup>

Robust planning provides opportunity to understand status of water resources and adapt management to changing conditions.

In addition to planning requirements, the Board is required to provide annual updates to the state legislature on "the status of the state's water resources." These updates provide important information on current uses as well as identify challenges and priorities.<sup>301</sup>

In addition to planning requirements, the legislature authorizes the Board to require reporting of water use over 1 million gallons in one month for irrigation uses and 10,000 gallons for other uses.<sup>302</sup> Since 1982, the Board has implemented this authority to require

<sup>293</sup> 2015 WATER RESOURCES PLAN, *supra* note 297 at 75.

<sup>294</sup> *Id.* at 98.

<sup>295</sup> *Virginia Water Resources Plan*, *supra* note 297, at 100.

<sup>296</sup> VA. CODE ANN. § 62.1-44.38.

<sup>297</sup> VA. CODE ANN. § 62.1-44.38(A)–(B).

<sup>298</sup> 9 VA. ADMIN. CODE 25-78-10.

<sup>299</sup> 9 VA. ADMIN. CODE 25-780-40.

<sup>300</sup> *Virginia Water Resources Plan*, *supra* note 297, at 100.

<sup>301</sup> VA. CODE ANN. § 62.1-44.40

<sup>302</sup> VA. CODE ANN. § 62.1-44.38(C); 9 VA. ADMIN. CODE 25-200-10.








water users to report uses as outlined in the water code, recognizing that water reporting increases the state's understanding of water uses which is critical to water planning.<sup>303</sup> In addition, the Board emphasizes that reporting assists water users in understanding their own water use and can help increase efficiency.<sup>304</sup> Exemptions from reporting requirements challenge the accuracy of data collected. The 2019 Water Status Report noted an increase in private wells and that "the understanding of unreported unpermitted withdrawals is essential to ensure that the water resource management gains from permitting and permit reductions are not lost due to those unpermitted withdrawals."<sup>305</sup>

**restoration of water resources creates obligations to manage the resource for the benefit of future generations and to protect the environment.**

Mandatory water reporting should include all water users to allow for a comprehensive understanding of water use.

## 5. Public Trust Principles

-  **Incorporating the protection of environmental flows as a required permit condition helps protect instream flows.**
-  **Including the consideration of water quality within water use decisions acknowledges the tie between quantity and quality and allows for the inclusion of permit conditions to protect water quality.**
-  **Maximum permit terms and the authority to revoke or modify permit allows the state to maintain control over water resources and respond to changing conditions and needs.**
-  **Authority to require permits for unregulated uses where the use is having an adverse impact on instream uses allows the state to respond to resource challenges without imposing additional regulatory burdens by requiring regulation of a new category of uses.**
-  **Establishing water management goals that require both the protection and**

<sup>303</sup> 9 VA. ADMIN. CODE 25-200-20.

<sup>304</sup> WATER SUPPLY PLANNING PROGRAM - ANNUAL WATER WITHDRAWAL REPORTING, VA. DEP'T OF ENVTL. QUALITY, <https://www.deq.virginia.gov/Programs/Water/>

WaterSupplyWaterQuantity/WaterSupplyPlanning/AnnualWaterWithdrawalReporting.aspx (last visited July 26, 2020).

<sup>305</sup> 2019 STATUS REPORT, *supra* note 270, at 23.

Public Trust Elements	Principles in Nevada Water Code
Affirmation that water is a public resource	<ul style="list-style-type: none"> <li>✓ Virginia Constitution, Article XI, Section 1</li> <li>✓ Va. Code Ann. § 62.1-1.1(d).</li> <li>✓ Va. Code Ann. § 62.1-44.2.</li> </ul>
Public interest as a criterion in management decisions	<ul style="list-style-type: none"> <li>✓ 9 Va. Admin. Code § 25-210-370 (surface water permitting criteria)</li> <li>✓ VA. CODE ANN. § 62.1-263 (groundwater permitting criteria)</li> </ul>
Opportunity for public participation in management decisions and to enforce public interest values.	<ul style="list-style-type: none"> <li>✓ 9 VA. ADMIN. CODE § 25-610-250 (groundwater)</li> <li>✓ 9 VA. ADMIN. CODE § 25-610-140 (surface water).</li> </ul>
Requirements for planning and data collection.	<ul style="list-style-type: none"> <li>✓ Va. Code Ann. § 62.1-44.38 (Planning requirements)</li> <li>✓ Va. Code Ann. § 62.1-44.40 (yearly status reports)</li> <li>✓ Va. Code Ann. § 62.1-44.38(C); 9 Va. Admin. Code 25-200-10 (reporting requirements)</li> </ul>
Ability to adjust uses to address potential or actual overuse.	<ul style="list-style-type: none"> <li>✓ 9 Va. Admin. Code § 25-210-380(A)(1) (authority to adjust VWPPP)</li> <li>✓ 9 Va. Admin. Code 25-220-210 (describing circumstances allowing for modification of an SWMA permit).</li> <li>✓ 9 Va. Code Ann. § 62.1-266 (groundwater management area permits are term limited and revocable)</li> <li>✓ 9 Va. Admin. Code § 25-210-310(B) (authority to regulate unpermitted uses)</li> </ul>
Identification of the needs of future generations and the environment as recognized beneficial uses	<ul style="list-style-type: none"> <li>✓ 9 Va. Admin. Code § 25-210-340(5)(a) (definition of in stream uses)</li> <li>✓ Va. Code Ann. § 62.1-44.36(5) (directing the Board to foster and encourage "the maintenance of stream flows sufficient to support aquatic life and to minimize pollution").</li> </ul>
Mechanism to protect environmental flows.	<ul style="list-style-type: none"> <li>✓ Va. Code Ann. § 62.1-44.15:22 (conservation of in stream flows in VWPPP)</li> <li>✓ Va. Code Ann. § 62.1-248 (SWMA permits must include flow conditions)</li> <li>✓ Va. Code Ann. § 62.1-246 (designation of SWMA to protect in stream flows)</li> </ul>
Requirement to manage within safe yields.	X
Flexibility to allow for the voluntary reallocation of water.	X

## IV. RECOMMENDATIONS

Aggregating research from the four focus states, nine types of regulations emerged as important components of advancing sustainability and intergenerational equity as outcomes of water management. The appropriate type and combination of provisions will vary based on existing regulatory systems, geography, and political climate. It is important to note that recommended regulations are based on the water codes in the four surveyed states and a review of other states and countries may yield more effective and varied approaches. Because water law and policy in the United States focuses on state water codes, each state is unique landscape. The representative states in this study provide a good overview of the basic structures of state law and all states share some commonalities and general architectures in common, but particular study within an individual state's water code is necessary to make progress in that context.


### A. AFFIRMATION THAT WATER IS A PUBLIC RESOURCE.


States should codify the status of water as a public resource and the state's obligation to steward the resource for the benefit of present and future generations and to preserve the environment.


While the affirmation of water as a public resource protects against privatization of the resource and carries implied duties of equitable management; it is also recommended that provisions direct management of water to support public trust outcomes. As is seen in both Nevada and Colorado, merely stating the public nature of the resource does not protect against overallocation. The inclusion of clear policies around protection of the resource for specific goals can guard against unsustainable use.

Michigan provides the most comprehensive statement on the duties to steward the environment for present and future

generations. These statements are incorporated in the state's constitution and natural resources statutes.

 **Michigan Constitution, Article 4, Section 53.** The conservation and development of the natural resources of the state are hereby declared to be of paramount public concern in the interest of the health, safety and general welfare of the people. The legislature shall provide for the protection of the air, water and other natural resources of the state from pollution, impairment and destruction.


 **Michigan Compiled Laws § 324.32702(c).** The waters of the state are valuable public natural resources held in trust by the state, and the state has a duty as trustee to manages its water effectively for the use and enjoyment of present and future residents and for the protections of the environment.


 **Michigan Compiled Laws § 324.1701(1).** The attorney general or any person may maintain an action in the circuit court having jurisdiction where the alleged violation occurred or is likely to occur for declaratory and equitable relief against any person for the protection of the air, water, and other natural resources and the public trust in these resources from pollution, impairment, or destruction.


### B. PUBLIC INTEREST AS A CRITERION IN MANAGEMENT DECISIONS.


Water codes should incorporate a nondiscretionary public interest criterion for water management decisions. The code should also define the components of the public interest assessment. The inclusion of public

interest criteria provides a mechanism for the state to balance the benefits of water development with other impacts to the resource and environment. These considerations often also provide a mechanism for public participation in water management decisions. Particularly in western states, the inclusion of public interest criteria provides an important mechanism to consider non-consumptive needs in making water management decisions. Where public interest criteria are not included, they are often not part of the decision-making calculus.

 **Nevada Revised Statute § 533.370(2).** “[W]here its proposed use or change . . . threatens to prove detrimental to the public interest, the State Engineer shall reject the application and refuse to issue the requested permit.”


 **Nevada Revised Statute § 533.345(2)(b).** “The State Engineer shall approve the application if . . . The temporary change is in the public interest.”

 **Virginia Code § 9VAC25-210-370(D)(3).** “Based on an assessment by the board, this withdrawal, whether individually or in combination with other existing or proposed projects, does not cause or contribute to, or may not reasonably be expected to cause or contribute to: a. A significant impairment of the state waters or fish and wildlife resources; b. Adverse impacts on other existing beneficial uses; o c. A violation of water quality standards.”

 **Michigan Compiled Laws § 324.32723 (6).** Michigan provides that the department shall only issue a water withdrawal permit if two conditions are met: “The withdrawal will be implemented so as to ensure that the proposal will result in no individual or cumulative adverse resource impacts.”

#### **C. OPPORTUNITY PUBLIC PARTICIPATION IN MANAGEMENT DECISIONS AND TO ENFORCE PUBLIC INTEREST VALUES.**

Water codes should provide for public participation to enforce public interest considerations in water management decisions. Public participation will help align water regulation with public values. Further, it can provide an important check on regulatory actions to ensure that the public interest is being protected.


 **Colorado, Colorado Revised Statute § 37-92-302(1)(b).** “Any person, including the state engineer, who wishes to oppose the application may file with the water clerk a verified statement of opposition setting forth facts as to why the application should not be granted or why it should be granted only in part or on certain conditions. The statement of opposition may be filed on behalf of all owners of water rights who, by affixing their signatures to the statement of opposition, in person or by attorney, consent to being included in the statement and who may be detrimentally affected by granting of the application. The water clerk shall send a copy of the statement of opposition to the state engineer and the division engineer.”


#### **D. REQUIREMENTS FOR PLANNING AND DATA COLLECTION.**


Water resource planning and data collection are critical components of achieving more sustainable resource management. Planning requirements provide the opportunity to look holistically at water use across the state and are often the only time quantity and quality are considered together. In addition, planning can provide an opportunity to identify opportunities to amend state water laws to advance the public's evolving values and goals. Finally, planning process can incorporate robust opportunities for public participation in framing state priorities for managing its water.

Data also plays a key role in sustainable resource management and is cited as a recurring hurdle in regulating within a sustainable yield. In the surveyed states, a lack of data arose both from unregulated uses as well as a lack of mandatory measuring and

reporting requirements. Provisions should require both measuring and reporting requirements. Ideally, these should apply to all water users as exempting certain small users can result in large cumulative data gaps.

 **Virginia Code § 62.1-44.40(A).** “The Board, with advice and guidance from the Commissioner of Health, local governments, public service authorities, and other interested parties, shall establish a comprehensive water supply planning process for the development of local, regional, and state water supply plans consistent with the provisions of this chapter.”


 **Virginia Code § 62.1-44.40.** “The Board shall submit an annual report to the Governor and the General Assembly on or before October 1 of each year on matters relating to the state's water resources policy and the status of the state's water resources, including ground water.”

 **Virginia Administrative Code § 9VAC25-200-40(A).** Every nonexempt user other than crop irrigators shall have installed and shall operate a gaging device or methodology before commencing withdrawal and shall operate the device or methodology routinely thereafter. The gaging device or methodology shall measure the cumulative volume of water withdrawn at or near the source of withdrawal, or at the water treatment plant. Nonexempt crop irrigators shall comply with these measuring provisions by January 31, 1991, or before commencing withdrawal, whichever is later. Reporting. Every nonexempt user shall file with the board by January 31 of each year a reporting form, as prescribed by the board, completed insofar as it pertains to his withdrawal for the calendar year preceding. The information reported shall include the user's name, address, sources and locations of withdrawal, cumulative volume of water withdrawn each month of the calendar year, maximum day withdrawal and the month in which it occurred, and method of withdrawal measurement.


\*Virginia exempts small quantity users under 9VAC25-200-30. These exemptions can cumulatively result in significant data gaps and states may wish to expand measuring reporting requirements beyond Virginia's thresholds.

#### **E. AUTHORITY TO ADJUST USES TO ADDRESS POTENTIAL OR ACTUAL OVERUSE.**

Water codes should allow for regulatory action to address unsustainable levels of water use. In many areas water resources are already overallocated and experiencing unsustainable rates of use. Further, water resources are only anticipated to become further stressed due to climate change and continued population growth. Given current resource allocations and the likelihood of intensified water shortages, it is important to water codes authorize agencies to mitigate and correct past water resources decisions where those decisions do not advance the state's goals or values.


 **Virginia Administrative Code §§ 9VAC25-620-300, -310, 9VAC25-210-380.**

Authorizing the revocation and modification of existing permits to address uses that “endanger human health and the environment” or harms instream uses.

 **Nevada Revised Statute § 534.120(2).** “In the interest of public welfare, the State Engineer is authorized and directed to designate preferred uses of water within the respective areas so designated by the State Engineer and from which the groundwater is being depleted, and in acting on applications to appropriate groundwater, the State Engineer may designate such preferred uses in different categories with respect to the particular areas involved within the following limits: (a) Domestic, municipal, quasi-municipal, industrial, irrigation, mining and stock-watering uses; and (b) Any uses for which a county, city, town, public water district or public water company furnishes the water.”

## **F. IDENTIFICATION OF THE NEEDS OF FUTURE GENERATIONS AND ENVIRONMENT AS BENEFICIAL USES.**

Water codes should expressly identify the needs of future generations and the environment as beneficial uses that water can be allocated to meet. This factor is particularly important in states that limit water use to state-identified beneficial uses. In states that do not expressly identify these as uses, water for instream purposes may not be allowed. Further, where instream uses are recognized through agency or judicial interpretation of the water code, those interpretations are subject to change.


 **Code of Virginia § 62.1-44.3.** “In-stream beneficial uses . . . [includes] the protection of fish and wildlife resources and habitat, maintenance of waste assimilation, recreation, navigation, and cultural and aesthetic values” and “the preservation of in-stream flows for purposes of the protection of navigation, maintenance of waste assimilation capacity, the protection of fish and wildlife resources and habitat, recreation, cultural and aesthetic values.”


## **G. MECHANISM TO PROTECT ENVIRONMENTAL FLOWS.**


Maintaining sufficient water flows instream is a critical component of safeguarding a healthy ecosystem. In states adopting the prior appropriations framework, environmental flows have been protected through the model of instream water rights where environmental flows are recognized as protectable uses under the water code and water rights are acquired within the state’s priority system. These models face several hurdles including limitations on the quantity of water that can be acquired (often the minimum quantity necessary to preserve the use) and ongoing overallocation. Despite these challenges, where water rights are acquired, these models provide certainty by creating protectable property interests that can be enforced against injury from other more junior users.

Further, when coupled with flexibility to reallocate water (as described in section 9), they can provide an effective framework for integrating environmental considerations into water codes.

In states with newer frameworks for water management instream flows have been protected as part of the permitting process through the maintenance of certain baseflows and conditioning water rights as necessary to protect instream uses.

 **Colorado, Colorado Revised Statute § 37-92-102-3(4)(c).** Recognizing “the need to correlate the activities of mankind with some reasonable preservation of the natural environment” established the Colorado Water Conservation Board. The agency is charged with identifying the “minimum stream flows or for natural surface water levels or volumes for natural lakes to preserve the natural environment to a reasonable degree.” To protect those minimum flows, the Board is authorized to acquire and hold instream water rights “[f]or the benefit and enjoyment of present and future generations.”

 **Virginia, Virginia Code § 62.1-248(1).** Requiring the state water board to “include a flow requirement appropriate for the protection of beneficial instream uses” in surface water permits. The level of flow required is based on “recreational and aesthetic factors and the potential for substantial and long-term adverse impact on fish and wildlife found in that particular surface water management area.”


 **Nevada, Nevada Revised Statute § 533.0241.** “For each basin in which there is groundwater that has not been committed for use, including, without limitation, pursuant to a permit, certificate or by any other water user in the basin, as of June 5, 2019, the State Engineer shall reserve 10 percent of the total remaining groundwater that has not been committed for use in the basin.”




## H. Requirement to manage within safe yields

Water codes should require that water resources be managed within a safe yield—or a maximum quantity of water that can be withdrawn without depleting the resource. Defining and managing within a safe yield can assist in preventing overuse that is determinantal to the health of the resource and environment, and negatively impacts the long-term sustainability of the resource. While more common in groundwater codes, the safe yield concept should also be adopted as a parameter for surface water allocations.

Safe yields for groundwater may be defined as the quantity that can be recharged in a given year. For surface water, safe yields should be set to protect minimum flows necessary to support environmental needs.


 **Michigan, Michigan Compiled Laws, § 324.31701.** Limiting water withdrawals to protect a set flow target in streams.


 **Nevada, Nevada Revised Statute 534.110(7)(b).** “If a basin has been designated as a critical management area for at least 10 consecutive years, except as otherwise provided in subsection 9, the State Engineer shall order that withdrawals, including, without limitation, withdrawals from domestic wells, be restricted in that basin to conform to priority rights.”


## I. FLEXIBILITY TO ALLOW FOR THE VOLUNTARY REALLOCATION OF WATER.

Water codes should provide mechanisms to support the voluntary reallocation of water. In many places, water is already overallocated and rates of use are unsustainable requiring the reallocation of existing water rights to rebalance resource use. However, in these same locations, state-mandated reallocation and curtailment is challenged by existence of property interests in water rights. In these areas, voluntary reallocation is an important tool for redistributing water rights to meet environmental needs and protect the resource

for future generations. Provisions may include allowing for temporary and permanent transfers of water rights instream, flexibility in managing water rights to be responsive to a more eradicate changing climate, and incentivizing conservation measures.

 **Colorado, Colorado Revised Statute § 37-83-105(2)(a).** “A water right owner may loan water to the Colorado water conservation board for use as instream flows pursuant to a decreed instream flow water right held by the board for a period not to exceed one hundred twenty days.”

 **Colorado, Colorado Revised Statute § 37-83-103(b).** “Any period of nonuse of any portion of a water right shall be tolled, and no intent to discontinue permanent use shall be found for purposes of determining an abandonment of a water right for the duration that: (a) The land on which the water right has been historically applied is enrolled under a federal land conservation program; or (b) The nonuse of a water right by its owner is a result of participation in: (I) A water conservation program approved by a state agency, a water conservation district, or a water conservancy district; (II) A water conservation program established through formal written action or ordinance by a municipality or its municipal water supplier; (III) An approved land following program as provided by law in order to conserve water; (IV) A water banking program as provided by law; (V) A loan of water to the Colorado water conservation board for instream flow use []; or (VI) Any contract or agreement with the Colorado water conservation board that allows the board to use all or a part of a water right to preserve or improve the natural environment to a reasonable degree . . . .”

 **Nevada, Nevada Revised Statute § 533.325.** “[A]ny person who wishes to appropriate any of the public waters, or to change the place of diversion, manner of use or place of use of water already appropriated, shall, before performing any work in connection with such appropriation, change in place of



diversion or change in manner or place of use,  
apply to the State Engineer for a permit to do  
so."