

GROUNDWATER LAWS AND REGULATIONS: A PRELIMINARY SURVEY OF THIRTEEN U.S. STATES

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I. Introduction

This report presents preliminary results of a study investigating the groundwater laws and regulations of thirteen U.S. states. The purpose of the project is eventually to compile and present the groundwater laws and regulations of every state in the United States that could then be used in a series of comparisons of groundwater governance principles, strategies, issues, and challenges. Professor Gabriel Eckstein at Texas A&M University School of Law and Professor Amy Hardberger at Saint Mary's University Law School developed a matrix to ascertain chief components and characteristics of the groundwater legal regime of each state. Student researchers then used the matrix to respond to a standardized set of questions about the groundwater laws and regulations of a selection of states. Before continuing with assessments of the remaining states, Professors Eckstein and Hardberger present in this report the results developed thus far, and now seek feedback about the overall project, including its objectives, methodology, and preliminary results.

II. Feedback and Reviews

At this stage in the research, Professors Eckstein and Hardberger seek feedback and reviews from practitioners, academics, and other professionals working in the field of water law. Such responses ideally would examine the content and substance of the research gathered, evaluate the accuracy of information, assess the structure and format of the work product, and consider the usefulness of the project and its findings to date. Professors Eckstein and Hardberger would also be interested in responses regarding how the recipients and other professionals might use the information presented in the study, whether additional areas of research would be helpful, and how the data could be most usefully presented. Feedback and reviews should be sent to:

Professor Gabriel Eckstein: gabrieleckstein@law.tamu.edu

Professor Amy Hardberger: ahardberger@stmarytx.edu

III. Research Approach

1. Introduction

This study presents preliminary results of a survey of groundwater laws and regulations of thirteen U.S. states. The purpose of the project is twofold:

- 1) To compile and present this data in a comprehensive format that would allow water managers, researchers, governmental representatives, and other interested parties to explore the various governance mechanisms that states have employed to manage their groundwater resources;
- 2) To develop cross-state comparisons exploring the different mechanisms and approaches used to address groundwater-related issues and challenges, such as groundwater ownership and allocation, aquifer depletion, climate variability, shifting water needs and demands, fouling of recharge zones, and other topics.

In this preliminary compilation, the groundwater laws and regulations of thirteen states were summarized. This collection will now be distributed for external review as a means of soliciting evaluations, comments, and recommendations on the substance, methodology, and process of the study, as well as its underlying objectives.

2. Methodology

Professor Gabriel Eckstein at Texas A&M University School of Law and Professor Amy Hardberger at Saint Mary's University Law School developed a matrix to ascertain chief components and characteristics of the groundwater legal regime of each state. The questions and criteria were initially developed based on Professors Eckstein and Hardberger's professional experience working on water law-related issues, as well as their education in geology (Eckstein holds a B.A. in Geology, while Professor Hardberger holds a B.A. and M.S. in Geology). With the assistance of law students, the professors developed a research protocol outlining the types of resources to use and providing a structure for the work-product for each state. The protocol also provides tips and recommendations for locating various types of information since the nature and quality of information available, as well as the location of such information needed, varies from state to state.

Over the past three years, law students working under the professors' supervision applied the survey to a select group of U.S. states. Each student worked on a particular state answering the survey questions for that state. Afterwards, a second law student reviewed the work and offered questions and recommendations. The first student was then asked to revise the survey in response to those comments. The second law student also checked the survey responses for clarity and accuracy, and researched any portions of the survey for which the first researcher was unable to find answers. As some student researchers graduated, new student researchers familiarized themselves with completed summaries before beginning research on additional states. This resulted in each survey being read, edited, and refined by at least three students before finalization.

Once a state survey was completed, Professors Eckstein and Hardberger reviewed the summary and offered additional comments and suggestions, whereupon the original student revised the survey in response. Once a final revised survey was submitted, Professors Eckstein and Hardberger would then review it once more and approve final drafts. Professors Eckstein and Harberger were also available for questions throughout the process, and often reviewed preliminary drafts, offered recommendations for source material, and provided feedback on process and substance of each survey.

Once an individual survey was approved, the survey was sent to one or more in-state water law experts for external review.¹ Thereafter, once all internal and external comments were incorporated, student researchers reformulated survey findings into an essay form, deleting individual questions asked by the survey and replacing them with descriptive, brief headings. The essay form is intended to make results more readable and useful for later qualitative use. The thirteen summaries contained in this study are the preliminary results of this process.

3. Research Design

This project's legal research is doctrinal or theoretical, inquiring what the law is in particular areas by using the primary sources of case law and relevant legislation.² Arguably, all doctrinal

¹ Although collection of expert responses is still ongoing for some of the state surveys contained in this study, all responses will be incorporated into the revised survey findings as they are submitted.

² Ian Dobinson and Francis Johns, *Qualitative Legal Research*, in RESEARCH METHODS FOR LAW, 19 (Mike McConville and Wing Hong Chui Ed., Edinburgh University Press, 2007).

research is qualitative simply because it is non-numerical.³ If law could be assessed using a systematic approach and the same law could be identified no matter who carried out the research, only then could doctrinal research be deemed to be quantitative.⁴ However, any assumption that there is an objective approach to finding the law is at odds with the reasoning frequently used to make the law by judges and legislators.⁵ For example, attorneys discover applicable legal principles through the processes of elimination and inductive reasoning where a principle is gleaned from precedent analysis.⁶ Typically, doctrinal research is not merely finding correct legislation and cases and making objectively verifiable statements of law, but rather is a process of selecting, weighing, and ranking materials by authority and source.⁷ It is likely that such inductive reasoning must be qualitative in its methodology.⁸ However, qualitative research can, and should, still be systematic, explicit, and reproducible, providing a framework for identifying, evaluating, and synthesizing primary sources.⁹ Accordingly, to establish a systematic process for research for this project, research questions, primary and secondary sources, and synthesis of results were discussed before research began. Moreover, the research process and its results were reviewed and revised in order to better achieve a systematized and consistent process.

Source Selection

Because doctrinal law is based on authority and hierarchy, researchers must carefully select sources from primary authorities.¹⁰ Secondary sources like law review articles may be useful in interpreting primary sources, but cannot be the main focus of doctrinal legal research.¹¹ Selection of sources in advance helps the methodology be thorough, systematic, justifiable, and reproducible.¹² Relevant legal documents may be self-selecting in doctrinal legal research because law is precedential and hierarchical; however, legal researchers and students involved in project such as this one must ensure they do not select sources based on whether the sources support a particular position or outcome.¹³

Here, law students were asked to rely primarily on case law, statutes, and regulations to answer the questions posed in the survey. A limited number of secondary sources, such as journal articles and water law treatises, were used, in part because of limited availability of primary sources from specific states. A focus on codified and case law from each state increased the accuracy and reliability of research findings. This strategy focused on established, primary resources to ensure all possible relevant documents were discovered. Focus on a limited number of sources allows the research to be documented, duplicated, and applied in a manner with limited bias.

³ *Id.*

⁴ *Id.* at 21.

⁵ *Id.*

⁶ *Id.*

⁷ *Id.* at 21-22.

⁸ *Id.* at 21.

⁹ *Id.* at 22.

¹⁰ *Id.* at 23.

¹¹ *Id.*

¹² *Id.*

¹³ *Id.* at 31.

Topic Selection

The states included in this preliminary effort were selected by Professors Eckstein and Hardberger with the initial objective of generating a diverse compilation of states and rules. Garnering the widest possible selection of state groundwater laws and regulations allowed the researchers to project the extent and limits likely encountered in the final, fifty state survey. Criteria included geography, climatic conditions, the states' individual characterization of their groundwater legal system (e.g., prior appropriation, reasonable use, etc.), and the variety of uses to which states employed their groundwater resources (e.g., agriculture, municipal, industrial, etc.). The target of this preliminary compilation was 25% of the states in the United States.

Survey Questions

In doctrinal research, research questions arise from a search for law applicable to a given set of circumstances, and do not inquire as to value judgments or policy.¹⁴ There may be an assumption that law exists to be found, but the research questions must recognize that law derives from the *reasoning applied* to the sources found.¹⁵ Here, a matrix containing survey questions were designed to help researchers describe the groundwater laws and regulations of each state for comparative purposes. The matrix approach helped quantify results of what is otherwise qualitative research. Because United States groundwater laws and regulations vary widely among the states, and are often under-developed and lack clarity, attempting to garner standardized results will allow later users of this data to conduct cross-state comparisons.

First, the survey required the development of an overview of each state's groundwater governance system, asking the researcher to characterize the system against established legal doctrines, such as prior appropriation or reasonable use. The survey specified that results may include a combination of doctrines, accommodating states that incorporate principles from multiple regimes. The survey then required a description of the basis for groundwater rights under the legal rights system used by each state. The basis for groundwater rights may be based on overlying land ownership, timing of appropriation, permit, or other criteria. Standards for obtaining a groundwater right under various legal regimes may also differ, and in response, the survey required the researcher to describe what types of use (beneficial, reasonable, or other) may give rise to obtaining a groundwater right.

The survey next asked the researcher to compile the major sources of state law describing the groundwater legal system. Many states have one or more seminal cases where state courts describe groundwater rights and use standards for the jurisdiction. States also frequently have statutory and regulatory schemes governing the right to, and use of, groundwater. As many states only recently adopted such statutory and regulatory schemes, they often attempt to codify the existing common law in the state. By compiling the major sources of law in this area, the survey lays the groundwork for subsequent detailed analyses and comparisons.

The next area of the survey examined the scope of the groundwater right, once acquired by a user. To that end, it questioned whether individuals, the public, or the state in trust "owns" the groundwater; and whether the state distinguishes between ownership of groundwater and the right to use it. It further asked what types of uses are permitted, and whether any uses are preferred. If

¹⁴ *Id.* at 23.

¹⁵ *Id.*

uses are preferred, the survey asked whether there is a hierarchy between groundwater uses, for example between domestic or agricultural use. It also asked whether use standards such as beneficial or reasonable use are implicated in this hierarchy. Additionally, the survey required the researcher to determine whether location of use is a factor in the scope of a valid groundwater right. Certain jurisdictions require use of water on the land from which it is drawn, and to that end the survey asked whether transport of water away from the overlying land, or outside of its basin of origin, is addressed in state law.

The survey next inquired about the loss of groundwater rights. In some states, statutory or common law procedures for losing groundwater rights have not been developed. In others, rigorous legal criteria govern loss of groundwater rights through forfeiture, abandonment, or other process. The survey asked whether loss procedures have been outlined in state law, and asks the researcher to expound on circumstances and legal procedures accompanying loss of rights.

The survey next asked whether state law recognizes hydrologic connections between groundwater and surface water. If the state does address connections between ground and surface water in law, the survey asked the researcher to determine whether any priority between ground and surface water users exists. Additionally, since states that do recognize hydrologic connections between ground and surface water often do so within a context of liability for overuse, the survey asked what penalties the state imposes for interference.

Finally, the survey asked the researcher to list all relevant permitting and regulatory authorities for groundwater in the state, including state and local agencies. The survey also required researchers to determine the scope of authority for the agencies involved. The survey closed with an inquiry into any potential special districts, such as conservation or special districts, or critical management areas, which may be managed by the state or local agencies.

As the research progressed and data was collected from more states, these questions were modified several times to better reflect the goals of the study and to accommodate the broad and varied scope of U.S. groundwater law. Each time research uncovered an important aspect of one state's law that was not addressed by the survey, the survey questions were updated to reflect the new finding, and previously collected survey data was edited to address the changed or additional survey questions. Applying a flexible standard to the initial states surveyed allowed the project to reflexively incorporate the researchers' preliminary findings.

4. Analysis

While analysis of the collected data will occur at a later phase of the project, a variety of quantitative methods may be considered. Univariate descriptive data analysis gives a data snapshot by providing a basic summary of each studied variable in terms of frequency, or by statistics showing mean, mode, or median.¹⁶ Bivariate analysis attempts to analyze the variables together, exploring similarities and differences by comparing averages between subjects.¹⁷ Statistical tests may then measure correlations between variables.¹⁸ Finally, explanatory analysis attempts to answer "why" rather than "what" questions, and looks for causes as well as patterns in

¹⁶Wing Hong Chui, *Quantitative Legal Research*, in RESEARCH METHODS FOR LAW, 61 (Mike McConville and Wing Hong Chui Ed., Edinburgh University Press, 2007).

¹⁷*Id.* at 62.

¹⁸*Id.*

data.¹⁹ Methods like logistic regression and structural equation modelling explore the effect of two or more dependent variables on an independent variable.²⁰

To accomplish more quantifiable analysis of this qualitative data, an excel spreadsheet showing abbreviated responses to each question, by state, may be developed in the future. At that point, graphic and tabular display of the results also may be considered.

As an example, one area of interest for potential graphic display would show areas of combined or changing legal rights systems. Many states' laws are self-described as a particular groundwater legal regime, but in practice use another system – for example, Tennessee courts have described groundwater in the state as governed by the rule of reasonable use, but in practice groundwater allocation more closely resembles the correlative rights system. Groundwater rights systems have also changed as statutes developed codified schemes – for example, Mississippi common law originally followed the absolute ownership rule for groundwater, but later statutory enactments describe a regulated riparian system. Showing these changes or combinations in a table could allow more quantifiable analysis of otherwise qualitative data.

5. Objectives

Once completed, the study preliminarily will be presented as a desk reference book. Such a reference should be of great interest to state legislatures, policymakers, and agencies across the country who wish to examine their groundwater legal regimes, as well as those of their sister states. It should also be of interest to them in their efforts to explore how various states respond to the numerous groundwater-related challenges and concerns facing states across the country, including shifting water demands, aquifer depletion, climate change impacts on freshwater resources, groundwater-surface water interaction, and other issues. Similarly, this reference book should be of interest to legal and policy scholars focusing on the usefulness and effectiveness of state water laws and regulations and exploring the same types of issues as legislatures, policymakers, and agencies. Finally, it could be particularly useful for engineering companies and law firms who need to know the basic legal framework for groundwater management and regulation in the multiple jurisdictions in which they operate.

As the study progresses, and if appropriate resources become available, the data and information generated from this study will be coded and converted into a searchable database, potentially on the Internet. The purpose of such a database is to facilitate cross-state comparisons exploring the different mechanisms and approaches states use to address groundwater rights, allocation, depletion, and other factors, including the groundwater-related challenges and concerns noted above.

6. Limitations

The present study was limited by the selection of states, discussed above, and by its focus on groundwater use rights. This focus excluded a large body of state groundwater law addressing groundwater quality and contamination. Groundwater quality law is generally based on federal U.S. law and could easily constitute the entire subject matter of another comprehensive survey.

¹⁹ *Id.*

²⁰ *Id.*

Focus on allocation and use rights related to groundwater resources addresses an area of law that is still largely under-developed, that is not addressed by federal law, and that demonstrates wide variations between states. These variations are of scholarly interest because they highlight different principles of use, ownership, and management.

It is possible that the survey, by providing potential answers within its questions, limited qualitative description by the researchers. Nevertheless, focus on obtaining both qualitative and quantifiable results necessitated survey questions that pointedly limited the researcher's scope.

Appendices

Appendix A: Alabama

Alabama generally follows the Reasonable Use doctrine in allocating groundwater rights, which are based on overlying land ownership and beneficial use. The state governs groundwater rights through the Alabama Water Resources Act, which designates regulatory authorities for groundwater withdrawal.

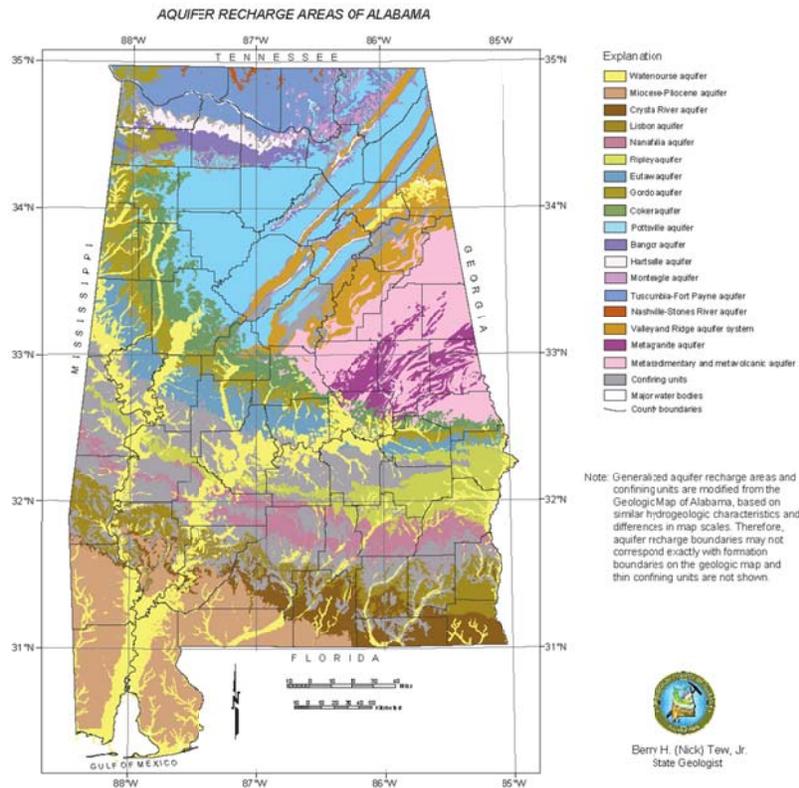


Fig. A.1. Aquifer Recharge Areas of Alabama¹

1. Definitions, Basis of Rights, Standards, and Interactions

The common law generally governs groundwater rights in Alabama. The Alabama Supreme Court in *Adams v. Lang* articulated that the common law doctrine of Reasonable Use (the American Rule) is the basis for groundwater rights in Alabama, such that no right exists to groundwater if such water is not used for beneficial purposes.² However, Alabama's application of "Reasonable Use" differs from that commonly used. Notably, groundwater uses on overlying

¹ Geological Survey of Alabama, *Alabama Aquifers*, http://www2.ogb.state.al.us/gsa/water/water_information.html.

² *Adams v. Long*, 553 So. 2d 89 (Ala. 1989).

land were not compared, balanced, or measured against a “reasonableness” test and were treated as reasonable even though neighboring wells were affected. In essence, the Alabama Supreme Court seemed to endorse a form of the absolute ownership rule seen at common law and held beneficial use on overlying land as reasonable *per se*. Thus, Alabama appears to use the “American Rule” in name only when the use is upon the overlying land.³

The Alabama Water Resources Act maintains that the conservation and management of groundwater use should enable the people of Alabama to realize the full beneficial use of groundwater, while preserving future resource use.⁴ Alabama defines beneficial use as “the diversion, withdrawal, or consumption of the waters of the state in such quantity as is necessary for economic and efficient utilization consistent with the interests of this state.”⁵

Alabama applied its version of the Reasonable Use doctrine to resolve conflicts between water users when groundwater was transported away from overlying land. In *Martin v. City of Linden* (1995), the Alabama Supreme Court incorporated the Reasonable Use-American Rule to resolve a groundwater dispute.⁶ Specifically, the Court considered the city’s proposed withdrawal unreasonable because the daily export of 500,000 gallons would harm neighboring landowners.⁷ It is important to note that the court did not necessarily hold that groundwater exportation itself was unreasonable *per se*, but that groundwater exportation was unreasonable when harm to neighboring land was imminent.

As Beck explains, the traditional American rule of reasonable use applies to conflicts between competing beneficial uses.⁸ But though the Court suggested it was applying the reasonable use rule, other scholars argue that perhaps the Court instead applied the absolute ownership rule.⁹ These scholars suggest that because the *Adams* court did not balance competing uses to determine their comparative reasonableness, the court failed to consider the principle that is “at the heart of [the] reasonable use doctrine.”¹⁰ Additionally, Alabama courts have applied nuisance theory to balance competing uses, particularly in a case where an aquifer was dewatered, but the water was not withdrawn for beneficial use on overlying land.¹¹

For most uses, overlying land ownership serves as the basis for the legal right to groundwater.¹²

³ Bearden, Bennett L., Alice in Groundwater Land: *Damas v. Lang* and Nominal 'Reasonable Use' in Alabama Water Law and Policy, 34:2 *The Wave* at 21,22 (2015).

⁴ ALA. CODE § 9-10B-2(3).

⁵ ALA. CODE § 9-10B-3(2).

⁶ Robert E. Beck and William L. Andreen, *6-AL Waters and Water Rights II, Alabama: Underground Water* (LexisNexis treatise).

⁷ *Martin v. City of Linden*, 667 So. 2d 732, 746-40 (Ala. 1995). According to Dellapenna, the Alabama court may have chose “to avoid the complexities of applying the reasonable use or the correlative rights rule by adopting a rule that basically allows the biggest and most powerful pump to win.” See Joseph W. Dellapenna, *The Law of Water Allocation in the Southeastern United States at the Opening of the Twenty-First Century*, 25 UALR L. REV. 9, 48 (2002). Dellapenna, *supra* note 2, at 48.

⁸ Beck and Andreen, *supra* note 2.

⁹ Dellapenna, *supra* note 3 at 48.

¹⁰ Dellapenna, *supra* note 3 at 48.

¹¹ Dellapenna, *supra* note 3 at 48. See *City of Mobile v. Lester*, 804 So. 2d 220 (Ala. Civ. App. 2001) (applying nuisance theory to damage to homes caused by the city’s dewatering of an aquifer through repairs to a street).

¹² *Adams*, 553 So. 2d 89. See generally, Dellapenna, *supra* note 3 at 47-49.

In Alabama, a person who owns land that does not overlie a water source has no right to groundwater, though they do not appear to be restricted from obtaining this right through obtaining land or an easement. In *Adams v. Lang*, the defendant groundwater user was not liable for injuries to neighboring landowners because the defendant's withdrawal was for a beneficial use on overlying land.¹³

Large groundwater withdrawals are required by the State to apply for "certificates of use," which act as a registration system to keep track of groundwater withdrawals.¹⁴ Each certificate of use issued by OWR is conditioned upon the user submitting annual reports that detail the amount of water withdrawn on a monthly basis.¹⁵

OWR issues these certificates upon receipt of a declaration of beneficial use, in accordance with the Alabama Water Resources Act.¹⁶ Public water systems,¹⁷ water users withdrawing or consuming 100,000 gallons or more per day¹⁸ and large irrigators having the capacity to use 100,000 or more per day, are required to apply for a "certificate of use."¹⁹ OWR only limits the issuance of Certificates of Use if the office determines that the proposed use lies within a capacity stress area or the proposed use interferes with existing uses.²⁰ It is important to note that though the statute requires that existing uses should not be affected by the proposed use, the same statute emphasizes that existing rights, that is, common law rights, will not be modified. Thus, this seems to limit the effectiveness of the bar on affecting existing uses. Overall, the Certificate of Use system serves more of a ministerial, rather than managerial, purpose, as the OWR does not actively manage groundwater uses.²¹

The Certificate of Use incorporates a condition that the user will submit the amounts it respectively diverts, withdraws, or consumes on a monthly basis.²² Each declaration of beneficial use (application for certificate of use) shall include the following information: water source, primary uses of the water indicating that the actual or proposed use is "beneficial," geographic location of the place of withdrawal/diversion and return, estimated or actual quantity withdrawn, and "basis of legal right to use the water to be diverted."²³

Water users *withdrawing fewer than 100,000* gallons per day are not required to apply for "certificates of use" and do not need to declare their beneficial use, unless the commission determines that it is necessary to accomplish the purposes of the Alabama Water Resources Act.²⁴

Additionally, the installation of wells withdrawing 50 gallons per minute or more or the alteration

¹³ *Adams*, 553 So. 2d at 91-92.

¹⁴ ALA. CODE § 9-10B-3(4).

¹⁵ ALA. CODE § 9-10B-20(f).

¹⁶ ALA. CODE § 9-10B-3(4).

¹⁷ ALA. CODE § 9-10B-20(a)-(b). Time period to file for public water systems is dependent on whether the system supplies 10,000 or more households.

¹⁸ ALA. CODE § 9-10B-20(a).

¹⁹ ALA. CODE § 9-10B-20(d).

²⁰ ALA. CODE § 9-10B-20(e).

²¹ Elliot, Heather, *Alabama's Water Crisis*, 63 Ala. L. Rev. 383, 394 (2012).

²² ALA. CODE § 9-10B-3(4), -19, -20(e)-(f), -22.

²³ ALA. ADMIN. CODE 305-7-10-.02; AC § 9-10B-3(8). See Dellapenna, *supra* note 3 at 50.

²⁴ ALA. CODE § 9-10B-20(c).

of wells to withdraw 50 gallons per minute or more within a coastal zone requires a permit from the Alabama Department of Environmental Management (ADEM).²⁵

2. Sources of Law

The Court's application of the reasonable use doctrine generally governs disputes and conflicts between groundwater users. Thus, groundwater law in Alabama is primarily derived through precedential case-law. The Alabama Water Resources Act was enacted in 1993 in an attempt to bolster established case law and the common law scheme addressing water rights in the state.²⁶ However, the Act did not give any agency concrete regulatory or managerial authority over groundwater resources, and the OWR serves more as a technical assistant and data source than a resource manager.

3. Scope of Right

a. Groundwater Ownership

The Alabama Water Resources Act states: "All waters of the state, whether found on the surface of the ground or underneath the surface of the ground, are among the basic resources of the State."²⁷ This suggests, though not clearly, that groundwater belongs to the state, with the public having the right to use it.

b. Scope of Use

i. Permitted and Preferred Uses

The Alabama Supreme Court, when resolving groundwater disputes, has characterized several activities as allowable beneficial uses. These uses include using artesian wells for a variety of practices, such as to water cattle, to water pecan trees, and to fill catfish ponds.²⁸ Pursuant to the Alabama Water Resources Act, uses that must file a Declaration of Beneficial Use to be allowable include public water systems, withdrawals more than 100,000 gallons per day, and those who have an irrigation system with a capacity to withdraw more than 100,000 gallons per day.²⁹ Presumably then, as long as users in Alabama file when appropriate, most uses are allowable.

The use of waters of the state for human consumption is recognized as a priority use of the state, and limitations on human consumption cannot be imposed except in emergency situations.³⁰ In *Martin v. City of Linden*, the Court described the City's attempt to find a permanent source of freshwater, but noted that they *did not believe* that, "in supplying their subscribers with water, municipalities enjoy greater rights than do private individuals or corporations, and in such instances municipalities stand upon the same footing as do private corporations."³¹

Alabama defines beneficial use as "the diversion, withdrawal, or consumption of the waters of the

²⁵ ALA. ADMIN. CODE 335-8-2-.09

²⁶ ALA. CODE § 9-10B-1.

²⁷ ALA. CODE § 9-10B-2(1).

²⁸ *Adams v. Lang*, 553 So.2d 89 (Ala. 1989).

²⁹ ALA. CODE § 9-10B-3(15), -20(a)-(d).

³⁰ ALA. CODE § 9-10B-2(1).

³¹ *City of Linden*, 667 So.2d at 739.

state in such quantity as is necessary for economic and efficient utilization consistent with the interests of this state.”³² In *Adams*, the court applied its understanding of the American rule of reasonable use:

Where a landowner who is conducting any sort of operations to which its land is adapted in an ordinary and careful manner, and as a consequence percolating water is drained, affecting the surface owner’s water supply, either of that or adjoining land, no liability for his damage exists. But if the waters are drained without a reasonable need to do so, or are willfully or negligently wasted in such operation in a way and manner as that is should have been anticipated to occur, and as a proximate result the damage accrued to the surface owners so affected, including adjoin landowners, there is an actionable claim...³³

Several years later, the *City of Linden* Court based its understanding of the reasonable use doctrine on a 1940 case in the Pennsylvania Supreme Court because of similar fact situations.³⁴

ii. Location of use

Water uses that require groundwater to be conveyed away from its source on the overlying land to land that does not overlie the water source is considered unreasonable only when it harms neighboring lands.³⁵ The application of the “reasonable use” doctrine to non-overlying land groundwater uses was confirmed in 1995 by the Alabama Supreme Court in *Martin v. City of Linden*.³⁶ In Alabama, a person who owns land that does not overlie a water source has no right to the groundwater. Thus, any diversion of groundwater from overlying to non-overlying land is unreasonable per se.³⁷ The overlying vs. non-overlying land distinction is important to the Alabama Court, primarily because diverting to non-overlying was the crucial difference in *City of Linden*, as opposed to *Adams v. Lang*.³⁸

The facts in *Martin v. City of Linden* do not specify whether the City’s proposal involved the transport of water outside the basin. Under the reasonable use rule, the court did not permit the City’s proposal to pump 500,000 gallons per day from the well to the City, which was fifteen-miles away.³⁹ However, it is unclear whether transporting the water away from the well to a

³² ALA. CODE § 9-10B-3(2).

³³ *Adams*, 553 So.2d at 91 (Ala. 1989), citing *Sloss-Sheffield Steel & Iron Co. v. Wilkes*, 165 So. 764 (Ala. 1936) (Sloss I), *Sloss-Sheffield Steel & Iron Co. v. Wilkes*, 181 So. 276 (Ala. 1938).

³⁴ *City of Linden*, 667 So. 2d at 738-39 (citing *Rothrauff v. Sinking Spring Water Co.*, 14 A.2d 87 (1940)).

³⁵ W. Barron A. Avery, *Disenfranching the Non-Riparian: Alabama’s Water Resource Management Program*, 39 CUMB. L. REV. 437, 442 (2008-09).

³⁶ *City of Linden*, 667 So. 2d 732.

³⁷ *City of Linden*, 667 So. 2d 732; Dellapenna, *supra* note 3 at 47-49.

³⁸ See Beck and Andreen, *supra* note 2. According Beck and Andreen:

In *Adams*, the use of underlying groundwater to fill commercial catfish ponds had been approved as “reasonable” even though that action periodically caused the neighbor’s wells to run dry. The crucial difference, according to the court, was the fact that in *Adams* the water was used on the property from which it was pumped, whereas in the current case the City of Linden intended to divert groundwater for use off-site.

³⁹ *City of Linden*, 667 So. 2d at 734.

location fifteen-miles away also suggests that the transport of water outside a basin is additionally not permitted under the reasonable use rule.⁴⁰

c. Loss of water rights

Water rights may be limited or reduced in quantity. The Water Resources Commission (WRC) may adopt or promulgate rules or regulations that limit or reduce the water available to a person holding a certificate of use.⁴¹ This includes any situation where the OWR recommends to the Commission, after fact-finding, that an area needs to be designated as a capacity stress area.⁴² ADEM subsequently acts as the enforcer of the new restrictions.⁴³ Groundwater users who do not submit a Declaration of Beneficial Use to the Office of Water Resources (OWR) or who make a false statement, may be subject to administrative or civil enforcement actions.⁴⁴

No person's beneficial use of the quantitative waters of the state shall be restricted by the OWR or the WRC unless the beneficial use is within a designated capacity stress area.⁴⁵ Further, the use may not be restricted unless the person has received due process of the law, including a public hearing.⁴⁶ The Alabama Department of Environmental Management directs any actions that restrict, limit, or condition a person's beneficial use of Alabama water resources.⁴⁷

In the event that a water user brings a cause of action against a neighbor, they generally must litigate under the common law. The Water Resources Commission may also restrict or limit water use in capacity stress areas, though they have not established any areas to this point.

4. Hydraulic Connection and Regulation

Apparently, no law regulates the interaction between groundwater and surface water, and the Alabama Water Resources Act does not protect minimum surface flows or minimum levels of groundwater.⁴⁸

5. Regulatory Authorities

The Alabama Water Resources Act vested authority in OWR and WRC to implement the Act by developing plans and strategies for the management of Alabama's ground and surface water.⁴⁹ The OWR, through the WRC, can promulgate rules and regulations and "implement quantitative water resource programs and projects for the coordination, conservation, development, management, use, and understanding of the waters of the state."⁵⁰ The Act further grants the ADEM with authority to issue permits when necessary to limit or restrict withdrawals, as well as

⁴⁰ *Id.* at 733.

⁴¹ ALA. CODE § 9-10B-23(a).

⁴² ALA. CODE § 9-10B-21; ALA. CODE § 9-10B-21, 22.

⁴³ ALA. CODE § 9-1-B-23(a).

⁴⁴ ALA. CODE § 9-10B-5(18),(19).

⁴⁵ ALA. CODE § 9-10B-2(6)(a).

⁴⁶ ALA. CODE § 9-10B-2(6)(b).

⁴⁷ ALA. CODE § 9-10B-2(6)(b).

⁴⁸ Dellapenna, *supra* note 3 at 49.

⁴⁹ ALA. CODE § 9-10B-2(5); AC §9-10B-4 to 9-10B-18.

⁵⁰ ALA. CODE § 9-10B-5(3).

authority to enforce Act.⁵¹ It is important to reiterate that a general permitting system does not exist in Alabama, as Certificates of Use are mostly used as registration tools.

The OWR is tasked with developing long-term plans, promulgating rules and regulations for the purposes of the “Alabama Water Resources Act.” The OWR monitors by implementing quantitative water resource programs and serving as a repository for data regarding waters of the state.⁵² The OWR also has authority to enforce all provisions of the Act.⁵³ In addition, ADEM has the power to enforce regulations related to capacity stress areas. The WRC has the power to establish and adopt rules or regulations and to hear and determine administrative appeals of the Office.

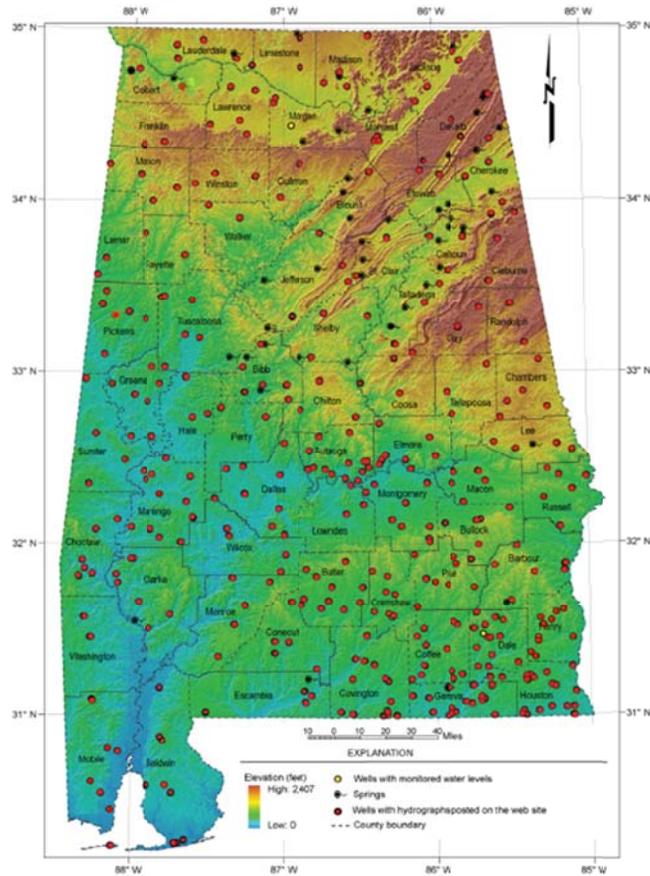


Fig. A.2. Springs and Well Monitoring Locations⁵⁴

⁵¹ ALA. CODE § 9-10B-2(6)(b).

⁵² ALA. CODE § 9-10B-5.

⁵³ ALA. CODE § 9-10B-5(17).

⁵⁴ Geological Survey of Alabama, *Alabama Aquifers*, http://www2.ogb.state.al.us/gsa/water/water_information.html.

The ADEM—Coastal Division issues groundwater withdrawal permits for new wells whose surface location is in a coastal area or whose surface location is not in a coastal area but whose 50 year capture zone extends into the coastal area.⁵⁵ Users that plan to extract groundwater at a rate of 50 gallons per minute or greater require a permit from ADEM-Coastal Division.⁵⁶ This regulation also contains several provisions regarding saltwater intrusion.⁵⁷

a. Special Districts

No person’s beneficial use of the quantitative waters of Alabama shall be restricted by the OWR or WRC except where such beneficial use is within an area designated as a capacity stress area.⁵⁸ Any restriction or condition placed on any person’s beneficial use of water resources can be implemented only after: i.) the WRC determines that the action is necessary because the aggregated uses of the waters in such area exceed or will exceed the availability,⁵⁹ and ii.) such person has been afforded due process, including a public hearing, within enforcement of such action under the direction of ADEM.⁶⁰

i. Critical Groundwater Management Areas and Other Designated Areas

The Office of Water Resources has the authority to declare an area of the state as a “capacity stress area,” such that the aggregate uses of the waters in such area currently exceeds or will exceed the availability of such waters.⁶¹ Capacity Stress Areas are defined as an area of the state designated when the commission determines that the use of the waters of the state, whether groundwater, surface water, or both, requires coordination, management, and regulation for the protection of the interests and rights of the people of the state.⁶²

If the WRC decides to implement restrictions, limitations, or conditions on water use in capacity stress areas, the Commission must consider all relevant matters.⁶³ These matters include: the uses of water under each ‘certificate of use’ in the area, the quantity of water returned by each holder of a certificate of use to the capacity stress area, the reasonably foreseeable impacts on the economic or other interests of the Alabama, and the effect of these limitations and restrictions on the status of such area as a capacity stress area.⁶⁴ Further, the Commission is required to review any imposed limitations or restrictions every twelve months.⁶⁵

Priority is given to certain uses when limiting withdrawals in capacity stress areas, thus this section is also pertinent to the ‘Hierarchy of Purposes’ described above. The Act states that the “use of waters of the state for human consumption is recognized as a priority use...no limitation

⁵⁵ ALA. ADMIN. CODE 335-8-2-.09.

⁵⁶ ALA. ADMIN. CODE 335-8-2-.09.

⁵⁷ ALA. ADMIN. CODE 335-8-2-.09(2)-(4).

⁵⁸ ALA. CODE § 9-10B-2(6).

⁵⁹ ALA. CODE § 9-10B-2(6)(a).

⁶⁰ ALA. CODE § 9-10B-2(1)(b).

⁶¹ ALA. CODE § 9-10B-2(6)(a).

⁶² ALA. CODE § 9-10B-3(3).

⁶³ ALA. CODE § 9-10B-22(c).

⁶⁴ ALA. CODE § 9-10B-22(c).

⁶⁵ ALA. CODE § 9-10B-22(c).

upon the use of water for human consumption shall be imposed except in emergency situations after the Office has considered all feasible alternatives to such limitations.”⁶⁶ Because implementation of capacity-stress restrictions is made solely through the modification of certificates of use,⁶⁷ the fact that the Act exempts certain categories of users from the COU requirements implicitly creates a priority scheme within capacity stress areas.⁶⁸

The Water Resources Commission has not yet established any capacity stress areas.⁶⁹ Alabama appears to be reluctant to establish these capacity stress areas. Despite a severe drought in the Flint River Basin along the southwest Georgia/ southeast Alabama border in the early 2000s, only Georgia curtailed water withdrawal permitting.⁷⁰

⁶⁶ ALA. CODE § 9-10B-2(2).

⁶⁷ Ala. Code § 9-10B-22(a)-(b).

⁶⁸ ALA. CODE § 9-10B-20..

⁶⁹ Dellapenna, *supra* note 3, at 52.

⁷⁰ See Adam M. Kron, David H. Pope, Gilbert B. Rogers. *Water Issues in the Deep South*, 11 No. 1 ABA WATER RESOURCES COMMITTEE NEWSL. 15 (Dec. 2008).

Appendix B: Arkansas

Arkansas is generally considered to operate under a “Reasonable Use” groundwater governance system,¹ although a statutory permitting system regulates withdrawals in “critical groundwater areas.”²

1. Definitions, Basis of Rights, Standards, and Interactions

In *Jones v. Oz-Ark-Val Poultry Co.* (1957), the Supreme Court of Arkansas applied its reasonable use rule for surface water in *Harris v. Brooks* (1955), to groundwater.³ The Court explained, “We see no good reason why the same rule should not apply to a true subterranean stream or to subterranean percolating waters.”⁴ However, the Court in *Jones v. Oz-Ark-Val* did not solely refer to rule as reasonable use, but described it as “the rule of ‘reasonable use’, the rule of correlative rights, or the American rule.”⁵ Josepha W. Dellapenna considers the holding in *Jones* to suggest a reasonable use approach, stating that “this appears to be the true form of the doctrine in which competing uses are balanced against each other to determine the specific allocation of each user.”⁶

Academics note that Arkansas has described itself as following the “correlative rights doctrine.”⁷ To further confuse the designation, the Arkansas Natural Resources Commission (ANRC) said this might be called a version of the “correlative rights doctrine for ground water,” which is similar to the approach of the surface water “reasonable use rule.”⁸ Academics summarize the Arkansas groundwater doctrine as “Each surface owner above a common source of groundwater has an equal right to make reasonable use of the groundwater subject to the equal rights of other surface owners to make a reasonable use.”⁹

Much of the confusion with the “reasonable use vs. correlative rights” designation apparently stems from the decision in *Jones* to follow the American Rule described in *Hudson v. Dailey*:

“Where two or more persons own different tracts of land, underlaid by porous material..., which is saturated with water moving with more or less freedom therein, *each has a common and correlative right to the use* of this water upon his land, to the full extent of

¹ J.W. Dellapenna, *The Law of Water Allocation in the Southeastern States at the Opening of the Twenty First Century*, 25 U. ARK. LITTLE ROCK L. REV. 9 (2002).

² ARK. ADMIN. CODE § 138.00.6-401.4 (2014).

³ *Jones v. Oz-Ark-Val Poultry Company*, 306 S.W.2d 111 (Ark. 1957); *Harris v. Brooks*, 283 S.W.2d 129 (Ark. 1955).

⁴ *Jones v. Oz-Ark-Val Poultry Company*, 306 S.W.2d 111, 113 (Ark. 1957).

⁵ *Id.*

⁶ J.W. Dellapenna, *The Law of Water Allocation in the Southeastern States at the Opening of the Twenty First Century*, 25 U. ARK. LITTLE ROCK L. REV. 9, 52 (2002); See generally, Phillip E. Norvell, *Arkansas*, in 6 WATERS AND WATER RIGHTS, 227-30, 234-36 (Robert E. Beck ed., LEXIS Relp. 2001).

⁷ See generally, Earl Finbar Murphy, *The Status of the Correlative Rights Doctrine in Groundwater Today*, in 3 WATERS AND WATER RIGHTS, § 22.05(a) (Robert E. Beck ed., LEXIS Relp. 2001).

⁸ ARKANSAS NATURAL RESOURCES COMMISSION, *Water Law in Arkansas*, 6 (2011), https://static.ark.org/eeuploads/anrc/arkansas_water_law_2011_draft-new.pdf.

⁹ G. Alan Perkins, *Arkansas Water Rights: Review and Considerations for Reform*, 25 U. ARK. LITTLE ROCK L. REV. 123, 129 (2002).

his needs if the common supply is sufficient, and to the *extent of a reasonable share* thereof, if the supply is so scant that the use by one will affect the supply of the others.”¹⁰

Water rights are an incident of the surface ownership of property, and may not be transferred separate from the property itself.¹¹ Under the Arkansas Groundwater Protection and Management Act (the Act), groundwater rights are issued for beneficial uses.¹² The Act includes a definition of beneficial use: “the use of water in such quantity as is economical and efficient and which use is for a purpose and in a manner which is reasonable, not wasteful, and is compatible with the public interest.”¹³

2. Sources of Law

The major case addressing groundwater rights in Arkansas is *Jones v. Oz-Ark-Val Poultry Company*, 306 S.W.2d 111 (Ark. 1957). Additionally, in 1991, the Arkansas General Assembly enacted the Arkansas Ground Water Protection and Management Act.¹⁴

3. Scope of Right

a. Groundwater Ownership

In *Felton Oil Co. v. Gee* (Ark. 2004), the State argued that groundwater is a state resource, which can be limited by legislative enactments, and that the purported groundwater owners merely had riparian rights to reasonable use of their groundwater.¹⁵ The court reasoned that the State failed to cite any statutory authority or case law to establish the State’s ownership of groundwater.¹⁶

b. Scope of Use

i. Permitted and Preferred Uses

Pursuant to the Act, water rights are issued for beneficial uses.¹⁷ The statutes are vague in offering any specific restrictions on allowable types of usage, so long as they are beneficial uses. Although usage is not generally restricted based on type of use, these usages may have different annual reporting requirements: for example, commercial agricultural usage has different annual reporting requirements than small-scale domestic withdrawals.¹⁸

The Arkansas Natural Resources Commission is authorized, by Ark. Code Ann. § 15-22-901, to issue groundwater rights for beneficial uses, giving preference first to sustaining life, then to maintaining health, and finally to increasing wealth.¹⁹ The sustaining life and maintaining health

¹⁰ *Jones*, 306 S.W.2d at 115; *Hudson v. Dailey*, 156 Cal. 617 (1909).

¹¹ ARK. CODE ANN. § 15-22-911(h) (2014).

¹² ARK. CODE ANN. § 15-22-911(a) (2014).

¹³ ARK. CODE ANN. § 15-22-903.

¹⁴ 1991 ARK. ACTS 154 and 342 (codified at ARK. CODE ANN § 15-22-901 et seq.).

¹⁵ *Felton Oil Co. v. Gee*, 182 S.W.3d 72 (Ark. 2004).

¹⁶ *Id.*

¹⁷ ARK. CODE ANN. § 15-22-911(a).

¹⁸ ARK. CODE ANN. § 15-22-302.

¹⁹ ARK. ADMIN. CODE § 138.00.6-404.1 (2014), also cited as *Arkansas Natural Resources Commission*

provisions suggests that domestic use is the utmost priority. Arkansas defines domestic use as “the use of water for ordinary household purposes, including human consumption, washing, the watering of domestic livestock, poultry, and animals, and the watering of home gardens for consumption by the household.”²⁰ The ANRC rules and case law do not indicate a specified preference between commercial agriculture or industrial usages.

The ANRC issues groundwater rights for beneficial uses²¹ and on all renewal applications, consideration shall be given to reasonable beneficial use.²² The ANRC defines beneficial use as “the use of water in such quantity as is economical and efficient and which use is for a purpose and in a manner which is reasonable, not wasteful, and is compatible with the public interest.”²³ The seminal Arkansas groundwater cases offered some insight into the meaning of reasonable use: “It is unreasonable to permit appellees to use thousands of gallons of water per day for the purpose of processing chickens, not leaving enough water for the domestic needs of the Joneses and Mrs. Ward.”²⁴

ii. Location of Use

Overlying land is the basis for the right to groundwater and the water rights “run with the land,” thus when the property is sold, the water right automatically transfers to the new landowner.²⁵ In *Lingo*, the court indicated that groundwater is not restricted to use on overlying land, but may be transported and used on non-overlying land.²⁶ Interestingly, public water supply systems and marketers of bottled water are not restricted in the place of use of groundwater.²⁷

Water rights are an incident of surface ownership of property, and the right may not be transferred separate from the property itself.²⁸ Conversely, Arkansas rejects the appurtenance rule restricting use to the overlying land²⁹ and allows the export of water for use off and away from the overlying land—if there is no injury to the owners of land overlying the aquifer and their respective water uses.³⁰

In *Lingo v. City of Jacksonville*, the court reasoned that it would be “permissible for a riparian owner to remove subterranean and percolating waters and *use it away from the lands* from which it was pumped if this use does not injure the common supply of the riparian owners.”³¹ Arkansas case law is silent on the transport of water outside a basin. In *Lingo*, the proposed transport was within the same subterranean watershed, as the city wanted to transport water five miles away

Rules for the Protection and Management of Ground Water (Effective 2005).

²⁰ ARK. CODE ANN. § 15-22-903, codifying 1991 Ark. Acts 154 and 342.

²¹ ARK. CODE ANN. § 15-22-911(a).

²² ARK. CODE ANN. § 15-22-911(d)(2).

²³ ARK. ADMIN. CODE § 138.00.6-401.3 (2014).

²⁴ *Jones v. Oz-Ark-Val Poultry Company*, 306 S.W.2d 111, 115 (Ark. 1957).

²⁵ ARK. CODE ANN. § 15-22-911(h); ARK. ADMIN. CODE § 138.00.6-404.7 (2014).

²⁶ *Lingo v. City of Jacksonville*, 522 S.W.2d 403, 404 (Ark. 1975).

²⁷ ARK. CODE ANN. § 15-22-905(6).

²⁸ ARK. CODE ANN. § 15-22-911(h).

²⁹ Joseph W. Dellapenna, *Correlative Rights Today*, in 21 WATERS AND WATER RIGHTS § 21.04 (Amy L. Kelley, ed., 3rd ed. LEXISNEXIS/Matthew Bender 2014).

³⁰ *Lingo v. City of Jacksonville*, 522 S.W.2d 403, 405 (Ark. 1975).

³¹ *Lingo v. City of Jacksonville*, 522 S.W.2d 403, 404 (Ark. 1975).

from its wells for municipal consumption.³²

c. Loss of Water Rights

A water right may be cancelled under several conditions:

- i. if water is used for a purpose other than that for which the water right was issued,³³
- ii. for nonuse or failure to put the water to a reasonable beneficial use within a reasonable period of time following the issuance of the water right if the nonuse is for a reason other than implementation of conservation measures, crop rotation, conversion to surface water sources, or climatic conditions;³⁴
- iii. for failure to report water use for two consecutive years under Ark. Code Ann. §15-22-302 or failure to pay the fee as set out in Ark. Code Ann. § 15-22-913 for two consecutive years.³⁵

The Arkansas Natural Resources Commission has all powers necessary to enforce the Arkansas Ground Water Protection and Management Act.³⁶ This authority includes the power to issue subpoenas for any witness to testify or produce relevant records in any proceeding before the commission,³⁷ as well as the power to enter upon property (at reasonable times) for the purpose of conducting investigations to enforce the Act.³⁸ Any person aggrieved by decisions and actions under the Act by the Arkansas Natural Resources Commission may appeal pursuant to the Arkansas Administrative Procedure Act, § 25-15-201 et seq.³⁹

4. Hydraulic Connection and Regulation

Ground/Surface Water interactions are not regulated in Arkansas from a hydrologic perspective, but within a critical groundwater designation area, tax credits are available for conversion from groundwater to surface water, with the highest amount of credit going to surface water conversions by individuals owning land in critical groundwater areas.⁴⁰ Arkansas appears to provide monetary benefit for using surface water, as opposed to groundwater, in certain locations.

5. Regulatory Authorities

The Arkansas Natural Resources Commission⁴¹ has the powers necessary to enforce the Arkansas Ground Water Protection and Management Act (AGWPMA).⁴² Its website and contact information are:

³² *Lingo v. City of Jacksonville*, 522 S.W.2d 403, 405 (Ark. 1975).

³³ ARK. CODE ANN. § 15-22-911(e)(1)(A).

³⁴ ARK. CODE ANN. § 15-22-911(e)(2).

³⁵ ARK. CODE ANN. § 15-22-911(e)(3).

³⁶ ARK. CODE ANN. § 15-22-904.

³⁷ ARK. CODE ANN. § 15-22-904 (2).

³⁸ ARK. CODE ANN. § 15-22-904 (4).

³⁹ ARK. CODE ANN. § 15-22-912.

⁴⁰ ARK. CODE ANN. § 26-51-1007 and § 26-51-1008.

⁴¹ ARK. CODE ANN. § 15-20-201 et seq.

⁴² ARK. CODE ANN. § 15-20-901 et seq.; ARK. ADMIN. CODE § 138.00.6-401.4 (2014); *Arkansas Natural Resources Commission, Rules for the Protection and Management of Groundwater*, Title IV, § 401.4 (Effective 2005).

<http://www.anrc.arkansas.gov/>

101 East Capitol Avenue, Suite 350

Little Rock, AR 72120

Phone: (501) 682-1611

The ANRC has the powers necessary to accomplish the purpose of the AGWPMA, by establishing a comprehensive groundwater protection program to conserve ground water and protect water quality.⁴³ The AGWPMA provides an administrative process for identifying critical ground water areas and provides a process for initiation of regulation limiting ground water withdrawals, as well as establishing ground water criteria.⁴⁴ ANRC has reporting (or monitoring) requirements for certain groundwater users in Arkansas, although exemptions.⁴⁵

a) ANRC Reporting Requirements

All persons who withdraw groundwater, unless exempted, must submit annual usage reports to ANRC no later than March 1 for the prior water year.⁴⁶ Exemptions include household wells exclusively for domestic use and wells with maximum potential flow rates less than 50,000 gallons.⁴⁷ If required to report, the withdrawal report must include:

- a. For water used for agriculture:⁴⁸
 - number and size of wells; name/address of water user; crops, livestock, poultry, or fish type grown; acreage (irrigated/aquacultured); quantity of water used; and location (i.) of the wells; and (ii.) of the water use.
- b. For water used for other than agriculture:⁴⁹
 - number, size, and location of wells; name/ address of water user; use made of the water; quantity of water used.

b) ANRC Regulation of Withdrawals in Critical Areas

After designating the critical groundwater areas, the ANRC must follow the outlined procedures to initiate its regulatory authority. These procedures include having public hearings and following the Arkansas Administrative Procedure Act.⁵⁰ Wells existing at the time the regulatory program is implemented must apply for issuance of a “water right” within one year of the initiation of regulation.⁵¹ This right is recognized based on average quantity withdrawn, beneficial use, and reported during the past three years.⁵² Failure to apply for a water right within one year of

⁴³ ARK. CODE ANN. § 15-20-201 et. seq.; ARK. ADMIN. CODE § 138.00.6-401.4 (2014).

⁴⁴ ARK. CODE ANN. § 15-22-906.

⁴⁵ ARK. ADMIN. CODE § 138.00.6-402.1 (2014).

⁴⁶ ARK. ADMIN. CODE § 138.00.6-402.1 (2014).

⁴⁷ ARK. CODE ANN. § 15-22-302; ARK. ADMIN. CODE § 138.00.6-402.2 (2014).

⁴⁸ ARK. ADMIN. CODE § 138.00.6-402.3 (2014).

⁴⁹ ARK. ADMIN. CODE § 138.00.6-402.3 (2014).

⁵⁰ ARK. CODE ANN. § 15-22-909.

⁵¹ ARK. ADMIN. CODE § 138.00.6-404.3 (2014).

⁵² ARKANSAS NATURAL RESOURCES COMMISSION, *Water Law in Arkansas*, 20 (2011),

regulatory authority creates a conclusive presumption of abandonment of use.⁵³ Although the ANRC has the authority to initiate regulation in critical groundwater areas by following a process similar to that required for designation of an area, the ANRC has never taken steps to regulate these areas.⁵⁴

c) Exceptions to ANRC’s powers in critical groundwater areas

No groundwater withdrawals can be reduced from wells for which a water right has been issued under Section 404.3 and the right holder can demonstrate a 20% reduction of his groundwater use by either conserving water or converting to surface water supplies.⁵⁵ There will be no reduction of the withdrawal of groundwater from existing wells in an alluvial or sustaining aquifer for which the user has a “grandfathered” water right.⁵⁶



Fig. B.2. Arkansas Critical Groundwater Designations⁵⁷

https://static.ark.org/eeuploads/anrc/arkansas_water_law_2011_draft-new.pdf.

⁵³ ARK. ADMIN. CODE § 138.00.6-404.3 (2014).

⁵⁴ ARKANSAS NATURAL RESOURCES COMMISSION, Critical Groundwater Areas, <http://anrc.ark.org/divisions/water-resources-management/groundwater-protection-and-management-program/critical-groundwater-areas/>.

⁵⁵ ANRC Rule § 404.5.

⁵⁶ ARK. CODE § 15-22-905(1)(A-B).

⁵⁷ UNION COUNTY WATER CONSERVATION BOARD, *Sparta Aquifer Recharge Area*, <https://argis.ualr.edu/website/unionCoGraph/spartaHistory.asp>.

a. Special Districts

The ANRC can designate “critical groundwater areas.” The Arkansas Natural Resources Commission has established three “critical groundwater areas,” each in the different counties overlying the Sparta aquifer. These critical areas include:

the South Arkansas Critical Groundwater Area,
the Grand Prairie Critical Groundwater Area, and
the Cache Critical Groundwater Area.⁵⁸

⁵⁸ ARKANSAS NATURAL RESOURCES COMMISSION, *Water Law in Arkansas*, Revised by the ANRC in 2011, pg. 18-19. https://static.ark.org/eeuploads/anrc/arkansas_water_law_2011_draft-new.pdf.

Appendix C: Colorado

Colorado uses a modified system of prior appropriation to allocate groundwater rights: “While the doctrine of prior appropriation is recognized, such doctrine should be modified to permit full economic development of designated ground water resources.”¹ There are four categories of groundwater in Colorado: tributary groundwater, designated groundwater, nontributary groundwater, and Denver basin groundwater, and appropriation rules differ depending on the type of groundwater at issue.²

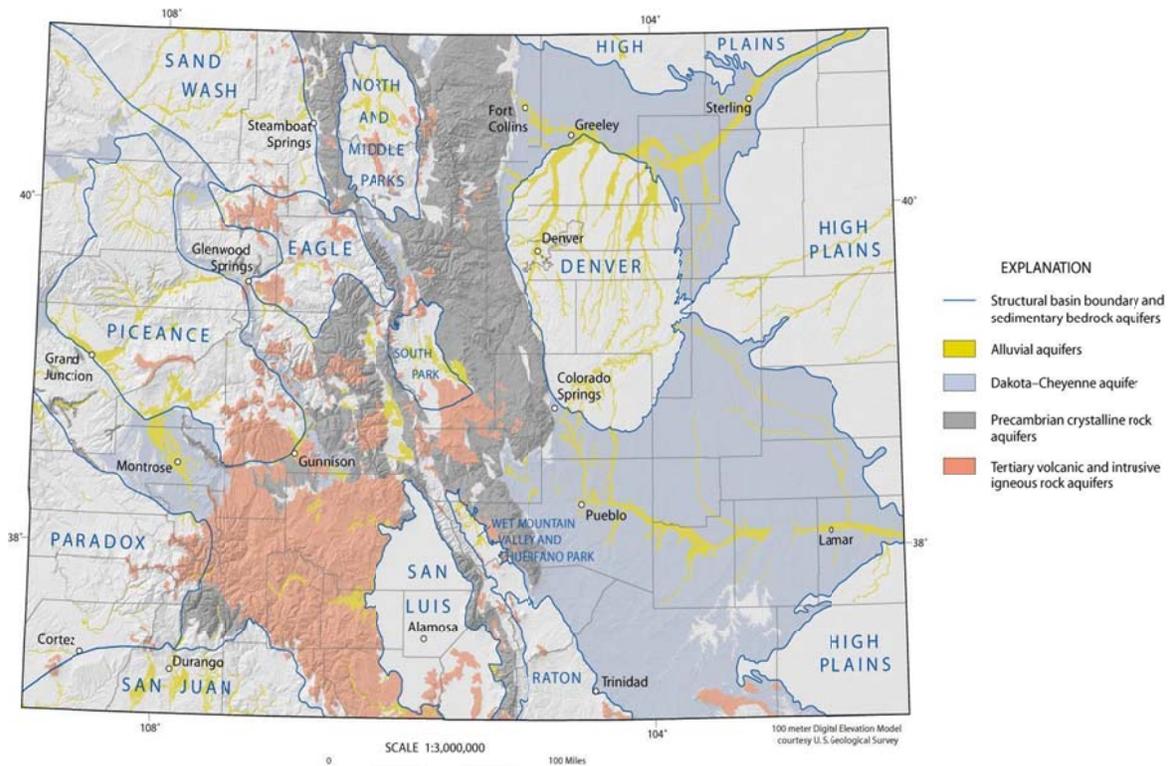


Fig. C.1. Groundwater Atlas of Colorado³

¹ 37 COLO. REV. STAT. ART. 90-102(1); *Upper Black Squirrel Creek v. Goss*, 993 P.2d 1177, 1183–84 (Colo. 2000), noting “[The General Assembly] intended this modified appropriation to: (1) permit full economic development of designated ground water resources, (2) protect prior appropriations of designated ground water, and (3) protect and maintain reasonable ground water pumping levels, but not to require the maintenance of historical water levels.”

² *Colorado Ground Water Comm'n v. N. Kiowa-Bijou Groundwater Mgmt. Dist.*, 77 P.3d 62, 69 (Colo. 2003).

³ Colorado Geological Society, *Groundwater Atlas of Colorado*, <http://coloradogeologicalsurvey.org/wp-content/uploads/wateratlas/downloads.html>.

1. Definitions, Basis of Rights, Standards, and Interactions

In general, Colorado is described as following Modified Prior Appropriation in governance of its groundwater, defined as beneficial use in reasonable amounts through appropriation.⁴ However, appropriation rules differ based on the type of groundwater at issue. Tributary groundwater is groundwater hydraulically connected to surface streams, and because it can deplete surface water, it is treated as surface water in the state's surface prior appropriation system.⁵ All groundwater in Colorado that is not Denver Basin groundwater is presumed to be tributary unless proven by clear and convincing evidence.⁶ Therefore, tributary groundwater is integrated into the administration of surface water priority systems.⁷ Designated groundwater defined as located within designated groundwater basins and not also within the Denver Basin aquifers.⁸ Nontributary groundwater is located outside a designated groundwater basin and, if pumped, will not deplete surface streams at rates of more than 1/10th of 1% of the rate of pumping within 100 years.⁹ Denver Basin groundwater is comprised of four stratified, geologically isolated aquifers, and is governed by distinct statutory guidelines.¹⁰

Designated groundwater rights are adjudicated by the Colorado Ground Water Commission, which uses a modified prior appropriation system to permit the full economic development of designated groundwater resources.¹¹ Tributary groundwater is governed by prior appropriation surface water principles.¹² To designate a groundwater supply "nontributary" it must first be proven by clear and convincing evidence, either in the well permitting process or in water court.¹³ Rights to nontributary water are determined by the total amount of recoverable water beneath the overlying land, and are allowed on the basis of an aquifer life expectancy of 100 years, and the average pumped amount may not exceed 1% of the recoverable water underlying the owner's land.¹⁴ Denver Basin aquifer rights are governed by statutory rules, and unlike designated groundwater withdrawal rights (which are determined by a modified appropriation system), Denver Basin rights are appurtenant to ownership of the overlying land.¹⁵ Permitting procedures, replacement rates, and municipal withdrawal procedures differ slightly for waters within the Denver Basin, which are still categorized as tributary groundwater, designated groundwater, or nontributary groundwater, depending on whether the waters are located in another designated groundwater basin.¹⁶

Prior appropriation rights require beneficial use in reasonable amounts, and apply to tributary and

⁴ COLO. REV. STAT. ANN. § 37-90-102.

⁵ *Colorado Ground Water Comm'n v. N. Kiowa-Bijou Groundwater Mgmt. Dist.*, 77 P.3d 62, 69 (Colo. 2003), *see also* COLO. REV. STAT. §§ 37-92-201 through 37-92-305.

⁶ *Colorado Ground Water Comm'n v. N. Kiowa-Bijou Groundwater Mgmt. Dist.*, 77 P.3d 62, 69 (Colo. 2003).

⁷ COLO. REV. STAT. § 37-92-102.

⁸ COLO. REV. STAT. § 37-90-103(6)(a).

⁹ COLO. REV. STAT. § 37-90-103(10.5).

¹⁰ COLO. REV. STAT. § 37-90-103(10.5, 10.7).

¹¹ COLO. REV. STAT. §§ 37-90-106; 37-90-102.

¹² COLO. REV. STAT. §§ 37-92-201 through 37-92-305.

¹³ *Colorado Ground Water Comm'n v. N. Kiowa-Bijou Groundwater Mgmt. Dist.*, 77 P.3d 62, 69 (Colo. 2003).

¹⁴ COLO. REV. STAT. § 37-90-137(4), 2 COLO. CODE REG. 402-7 § 8(A).

¹⁵ COLO. REV. STAT. §§ 37-90-107(7)(a) -- 111(5).

¹⁶ COLO. REV. STAT. § 37-90-103(10.5).

designated groundwater of the state.¹⁷ However, the legislature has noted that the prior appropriation principles may be modified to permit full economic development of the economic resource.¹⁸ Nontributary groundwater statutory rights are governed by the “best available evidence” used by the General Assembly in recognizing the finite nature of nontributary groundwater outside of groundwater basins; those rights are based on beneficial use in amounts that will conserve the resource and protect vested water rights.¹⁹

2. Sources of Law

The Colorado Groundwater Management Act sets out groundwater definitions, establishes the Groundwater Commission, lays out rules for determining designated basins and well permits, and establishes groundwater management districts and water conservation boards.²⁰

The Colorado Ground Water Commission (“CGWC”) issues rules and regulations as well as case law from Colorado Water Courts.²¹ Colorado is divided into seven water divisions with a water judge in each division.²² The Ground Water Commission determines areas to designate as groundwater basins, in which groundwater management districts may be formed.²³

¹⁷ COLO. REV. STAT. § 37-90-102.

¹⁸ COLO. REV. STAT. § 37-90-102.

¹⁹ COLO. REV. STAT. § 37-90-102(2).

²⁰ COLO. REV. STAT. ANN. § 37-90-101 -- 90-143.

²¹ CO DEP’T OF NATURAL RESOURCES, *Colorado Division of Water Resources*, <http://water.state.co.us/Home/Pages/default.aspx>.

²² COLO. REV. STAT. ANN. § 37-92-203.

²³ COLO. REV. STAT. § 37-90-118.

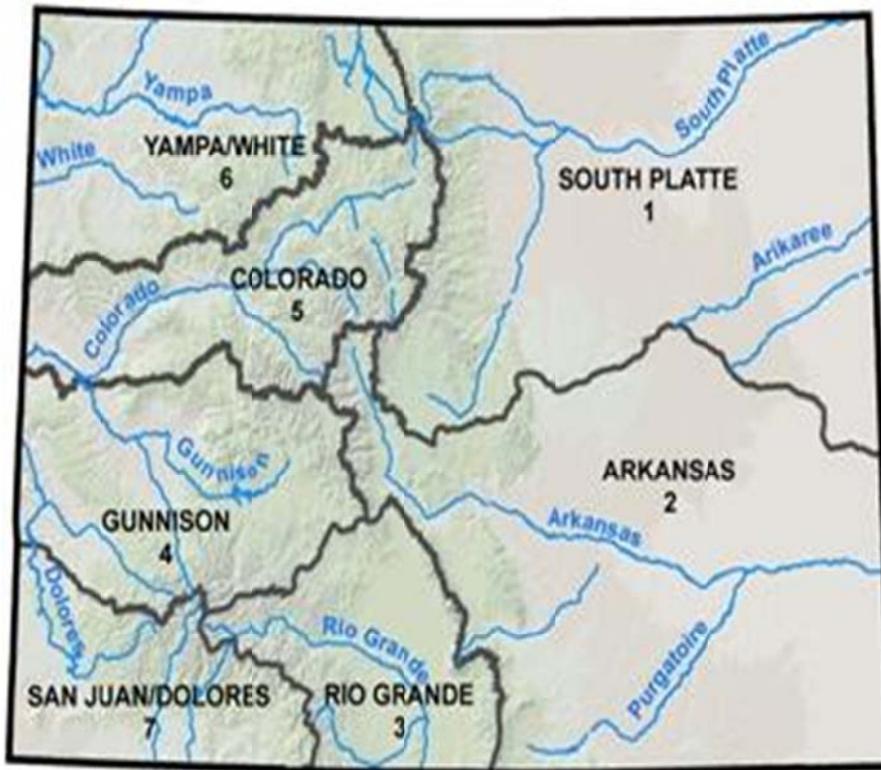


Fig. C.2. Division of Offices by Major River Basins²⁴

3. Scope of Right

a. Groundwater Ownership

Colorado statute states it is “the policy of the state of Colorado that all water in or tributary to natural surface streams, not including nontributary groundwater as that term is defined in section 37-90-103, originating in or flowing into this state have always been and are hereby declared to be the property of the public, dedicated to the use of the people of the state, subject to appropriation and use in accordance with sections 5 and 6 of article XVI of the state constitution and this article. As incident thereto, 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.”²⁵ This section designates both surface and groundwater as publicly owned resources, except for nontributary groundwater, located outside groundwater basin districts and where withdrawal will not deplete the flow of natural streams within one hundred years of continuous withdrawal.²⁶

²⁴ COLORADO DIVISION OF WATER RESOURCES, *Division Offices by Major River Basins*, <http://water.state.co.us/DivisionsOffices/Pages/default.aspx>.

²⁵ COLO. REV. STAT. ANN. § 37-92-102.

²⁶ COLO. REV. STAT. ANN. § 37-92-103.

b. Scope of Use

i. Permitted and Preferred Uses

The Colorado Groundwater Management Act proscribes a regulatory scheme to non-tributary groundwater and designated groundwater basins, including the Denver Basin. It provides for groundwater permitting based on beneficial use: “Any person desiring to appropriate groundwater for a beneficial use in a designated groundwater basin shall make application to the commission in a form to be prescribed by the commission. The applicant shall specify the particular designated groundwater basin or subdivision thereof from which water is proposed to be appropriated, the beneficial use to which it is proposed to apply such water, the location of the proposed well, the name of the owner of the land on which such well will be located, the estimated average annual amount of water applied for in acre-feet, the estimated maximum pumping rate in gallons per minute, and, if the proposed use is irrigation, the description of the land to be irrigated and the name of the owner thereof, together with such other reasonable information as the commission may designate on the form prescribed. The amount of water applied for shall only be utilized on the land designated on the application. The place of use shall not be changed without first obtaining authorization from the ground water commission.”²⁷

While the Colorado Groundwater Management Act does not define “beneficial” as used in the above section, it specifies that a commission may examine whether a use creates unreasonable waste or unreasonably affect the rights of other appropriators.²⁸ Assessment of waste or unreasonable adverse effect may include analysis of annual yield and recharge rates, priority of existing claims, proposed method of use, and impairment to others including by unreasonable lowering of the water level beyond reasonable economic limits.²⁹

Tributary groundwater, by contrast, is groundwater hydraulically connected to surface streams, and because it can deplete surface water, it is treated as surface water in the state’s surface prior appropriation system - therefore, it is governed by prior appropriation surface water principles.³⁰ Those principles rely on a common law concept of “beneficial use,” which is defined as, “use of that amount of water that is reasonable and appropriate under reasonably efficient practices to accomplish without waste the purpose for which the appropriation is lawfully made.”³¹ Such uses include firefighting, recreation, fishery, wildlife, municipal or governmental uses, and state appropriations (including minimum flow appropriations) for the “benefit and enjoyment of present and future generations” for environmental preservation.³²

The Colorado Constitution provides that “(t)he right to divert the unappropriated waters of any natural stream to beneficial uses shall never be denied. Priority of appropriation shall give the better right as between those using water for the same purposes; but when the waters of any natural stream are not sufficient for the service of all those desiring to use of the same, those using the water for domestic purposes shall have the preference over those claiming for any other purpose, and those using the water for agricultural purposes shall have preference over those

²⁷ COLO. REV. STAT. ANN. § 37-90-107.

²⁸ COLO. REV. STAT. ANN. § 37-90-107(5).

²⁹ COLO. REV. STAT. ANN. § 37-90-107(5).

³⁰ COLO. REV. STAT. §§ 37-92-201 -- 37-92-305.

³¹ COLO. REV. STAT. ANN. § 37-92-103(4).

³² COLO. REV. STAT. ANN. § 37-92-103(4)(a-c).

using the same for manufacturing.”³³ In one early case, the state Supreme Court stated that the rule of priority was essential to make irrigated agriculture possible in the arid climate, and that once appropriated, the appropriation may be used anywhere, and not necessarily appurtenant to the riparian land or within the watershed.³⁴ As such, priority of appropriation is the basis on which groundwater may be claimed for use.

ii. Location of Use

Nontributary ground water is allocated upon the basis of ownership of the overlying land, but no state law indicates whether the location of the groundwater’s use affects ownership rights.³⁵

c. Loss of Water Rights

Ground and surface priority appropriations may be lost in whole or in part by abandonment, rebuttably raised by a period of non-use lasting ten years and proven through a water court proceeding.³⁶ Forfeiture of conditional groundwater rights may also occur where a holder fails to pursue conditional water rights with reasonable diligence.³⁷

Abandonment and forfeiture may cause a loss of priority groundwater rights, but eminent domain has not been used to cause a loss of existing priority groundwater rights in Colorado. While claimants are prohibited from adversely possessing water within surface streams or tributary aquifers, Colorado law allows private water users to adversely possess each other after the water has been diverted from the stream or aquifer pursuant to an adjudicated water right.³⁸ To succeed on such claims, claimants must demonstrate they exclusively, hostilely, and adversely made actual, beneficial, consumptive use of all or a portion of the existing adjudicated water right for an 18 year adverse possession period.³⁹

Adjudication of groundwater right loss occurs through the Colorado Water Courts, which are divided into district courts. Water judges for each division consider matters in which protests have been filed or that have been referred by water referees.⁴⁰ When deciding on a change of a water right, the court’s decision shall include the condition that approval of such change is subject to reconsideration by the water judge on the question of injury to vested rights of others for a period after the decision is made, and include consideration of historical use to which the water rights were put and proposed future uses involved.⁴¹ Appellate review is allowed to the water court’s judgment, but no appellate review is permitted of parts of judgments regarding which no protests have been filed.⁴²

³³ COLORADO CONST. Art. XVI Section 6.

³⁴ *Coffin v. Left Hand Ditch Co.*, 6 Colo. 443, 447 (1882).

³⁵ COLO. REV. STAT. ANN. § 37-90-102.

³⁶ COLO. REV. STAT. ANN. § 37-92-103(1), (2).

³⁷ *Talco Ltd. v. Danielson*, 769 P.2d 468 (Colo. 1989).

³⁸ *Archuleta v. Gomez*, 200 P.3d 333, 337 (Colo. 2009).

³⁹ *Archuleta v. Gomez*, 200 P.3d 333, 337 (Colo. 2009); *Farmer v. Farmer*, 720 P.2d 174, 177 (Colo. App. 1986).

⁴⁰ COLO. REV. STAT. ANN. § 37-92-304.

⁴¹ COLO. REV. STAT. ANN. § 37-92-304(6).

⁴² COLO. REV. STAT. ANN. § 37-92-304(9).

4. Hydraulic Connection and Regulation

Colorado water law addresses hydraulically connected surface and groundwater, which it defines as tributary groundwater. Because tributary groundwater can deplete surface water, it is treated as surface water in the state's surface prior appropriation system.⁴³ All groundwater in Colorado that is not Denver Basin groundwater is presumed tributary unless proven by clear and convincing evidence.⁴⁴

Because tributary groundwater is governed by prior appropriation, as is surface water, date of appropriation prioritizes use, whether the water in question is tributary groundwater or surface water.⁴⁵ This is unlike nontributary ground water, where rights accrue based on land ownership of the estate above.⁴⁶ However, where surface water becomes over-appropriated, state law presumes that groundwater depletions result in injury to senior appropriators absent a showing to the contrary.⁴⁷

Where a hydraulically connected groundwater user cannot show its depletions would occur even when senior water rights do not have a "call" on the surface body, a water court may order 100% replacement of those withdrawals.⁴⁸

5. Regulatory Authorities

Colorado's primary authorities governing groundwater are the Division of Water Resources, also called the Office of the State Engineer, and the Water Courts, which oversee and hear disputes regarding both surface and groundwater. Colorado also has a Ground Water Commission, which oversees groundwater use within designated groundwater basins. Colorado's Board of Examiners for Pump Installation and Well Construction Contractors oversee pumping equipment and related groundwater quality issues.

Governing entities' contact information is listed at the following websites:

State Engineer/Division of Water Resources: <http://water.state.co.us/Home/Pages/default.aspx>

"The State Engineer for the State of Colorado receives authority for administering the waters of the state by statute. The powers given are very broad and by no means restricted to those listed herein. He, along with the Division Engineers and staff, are responsible for the administration and distribution of the state's waters, the promulgation of rules and regulations to assist in such administration, the collection and study of data on water supplies (both surface and groundwater), the compliance with compact commitments and administration between states, and the

⁴³ *Colorado Ground Water Comm'n v. N. Kiowa-Bijou Groundwater Mgmt. Dist.*, 77 P.3d 62, 69 (Colo. 2003), *see also* COLO. REV. STAT. §§ 37-92-201 through 37-92-305.

⁴⁴ *Colorado Ground Water Comm'n v. N. Kiowa-Bijou Groundwater Mgmt. Dist.*, 77 P.3d 62, 69 (Colo. 2003).

⁴⁵ *Colorado Ground Water Comm'n v. N. Kiowa-Bijou Groundwater Mgmt. Dist.*, 77 P.3d 62, 70 (Colo. 2003).

⁴⁶ *Bayou Land Co. v. Talley*, 924 P.2d 136, 149 (Colo. 1996).

⁴⁷ *City of Aurora ex rel. Util. Enter. v. Colorado State Eng'r*, 105 P.3d 595, 607 (Colo. 2005).

⁴⁸ *City of Aurora ex rel. Util. Enter. v. Colorado State Eng'r*, 105 P.3d 595, 607 (Colo. 2005).

enforcement of laws imposed by statutes and the courts.”⁴⁹ The State Engineer appoints seven Division Engineers, one for each of the seven divisions.⁵⁰

Water Courts: <https://www.courts.state.co.us/Courts/Water/>

Divided into seven divisions, the Water Courts are staffed by a division engineer appointed by the state engineer, a water judge appointed by the state Supreme Court, a water referee appointed by the water judge, and a water clerk assigned by the District Court.

Ground Water Commission: <http://water.state.co.us/cgwc>

CGWC – The CGWC is a regulatory and adjudicatory body authorized by the General Assembly to manage and control groundwater resources within eight Designated Groundwater Basins in eastern Colorado. The General Assembly granted the CGWC authority under Title 37, Article 90 of the Colorado Revised Statutes (Groundwater Management Act) to adjudicate water rights and issue large capacity well permits.⁵¹

Ground Water Management Districts:

<http://water.state.co.us/groundwater/CGWC/Pages/ManagementDistricts.aspx>

The Groundwater Commission established eight designated basins and thirteen groundwater management districts. The districts may adopt additional rules and regulations to help administer groundwater within the district.

Board of Examiners for Pump Installation and Well & Pump Installation Contractors:

<http://water.state.co.us/groundwater/BOE/Pages/default.aspx>

The Board has supervisory authority over construction and abandonment of wells and pumping equipment, and may adopt regulatory and administrative rules to approve, examine, revoke, suspend, or deny licenses of applicants to preserve state groundwater resources.

a. Special Districts

Colorado has seven water divisions,⁵² 8 designated basins and 13 local groundwater management districts within designated basins.⁵³ There is also the Denver Basin, where statutory law allows the owner of land to apply for a determination of water right for the Denver Basin ground water. Such right is determined by either, a water court or the CGWC depending on in which Designated Basin the land is located.⁵⁴

⁴⁹ COLORADO DIVISION OF WATER RESOURCES, *Synopsis of Colorado Water Law* (2016), <http://water.state.co.us/DWRIPub/DWR%20General%20Documents/SynopsisofCOWaterLaw.pdf>.

⁵⁰ COLO. REV. STAT. ANN. § 37-92-202.

⁵¹ COLORADO GROUND WATER COMMISSION, *Designated Basins*, <http://water.state.co.us/groundwater/CGWC/Pages/default.aspx>.

⁵² COLO. REV. STAT. ANN. § 37-92-201.

⁵³ COLORADO DIVISION OF WATER RESOURCES, *Designated Basins and Ground Water Management Districts*, <http://water.state.co.us/groundwater/CGWC/Pages/ManagementDistricts.aspx>.

⁵⁴ COLO. REV. STAT. § 37-92-203(1)(a); COLORADO DIVISION OF WATER RESOURCES, *Denver Basin Ground Water Rights*, <http://water.state.co.us/groundwater/GWAdmin/DenverBasin/Pages/DenverBasin.aspx>.

Designated Basins

1. Kiowa-Bijou
2. Southern High Plains
3. Upper Black Squirrel Creek
4. Lost Creek
5. Camp Creek
6. Upper Big Sandy
7. Upper Crow Creek
8. Northern High Plains

Ground Water Management Districts

1. North Kiowa-Bijou
2. Southern High Plains
3. Upper Black Squirrel Creek
4. Lost Creek
5. Upper Big Sandy
6. Plains
7. Sand Hills
8. Arikaree
9. Frenchman
10. Central Yuma
11. W-Y
12. East Cheyenne
13. Marks Butte

Appendix D: Florida

Florida defines groundwater as “water beneath the surface of the ground, whether or not flowing through known and definite channels.”¹

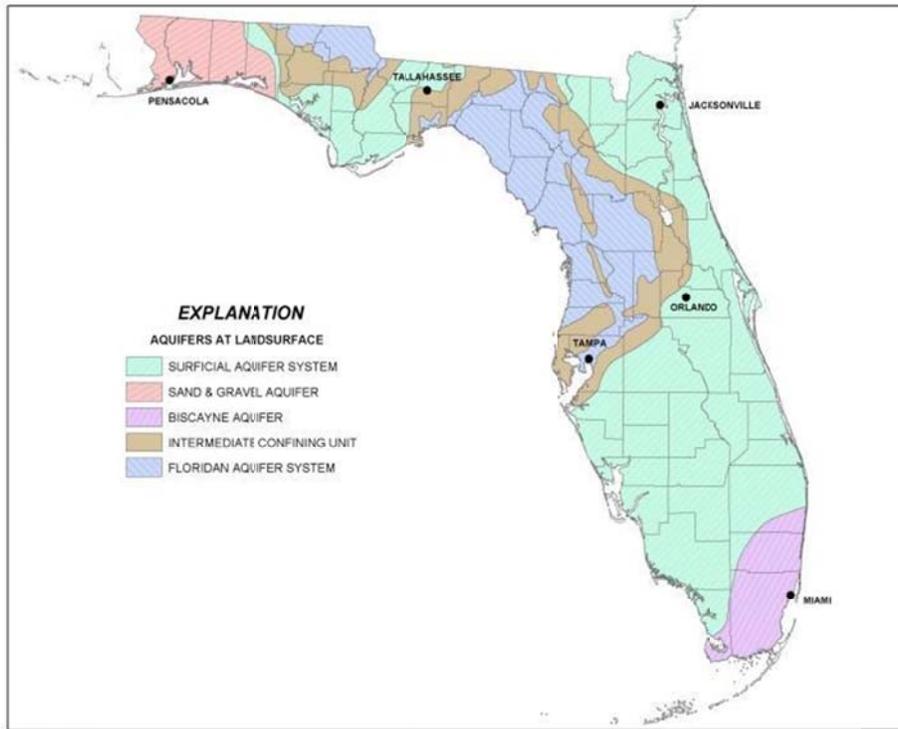


Fig. D.1. Florida Aquifers²

1. Definitions, Basis of Rights, Standards, and Interactions

Florida follows the Reasonable Use governance system for groundwater, although the common law is statutorily modified to require a Permit for most Consumptive Uses (other than domestic uses).³ Although the Supreme Court of Florida has recognized the rule of Reasonable Use,⁴ the Florida Water Resources Act of 1972 (“the Act”) represents the statutory modification of the common law. In general, permits are required for groundwater withdrawals in Florida, “[h]owever, no permit shall be required for domestic consumption of water by individual users.”⁵

¹ FLA. STAT. ANN. § 373.019.

² FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION, *Aquifers*, <https://fldep.dep.state.fl.us/swapp/Aquifer.asp>.

³ *Vill. of Tequesta v. Jupiter Inlet Corp.*, 371 So. 2d 663, 666 (Fla. 1979); FLA. STAT. ANN. § 373.219.

⁴ *See Vill. of Tequesta v. Jupiter Inlet Corp.*, 371 So. 2d 663, 666-67 (Fla. 1979); *see also Koch v. Wick*, 87 So. 2d 47, 48 (Fla. 1956); *Cason v. Florida Power Co.*, 76 So. 535, 536-57 (Fla. 1917).

⁵ FLA. STAT. ANN. § 373.219 (West); *City of Cocoa v. Holland Props., Inc.*, 625 So. 2d 17, 20 (Fla. Dist.

The Act maintains the Reasonable Use standard, as it is the policy of the Florida legislature “to promote the availability of sufficient water for all existing and future reasonable-beneficial uses and natural systems.”⁶

Academics cite Florida case law, specifically in *Labruzzo v. Atl. Dredging & Const. Co.* and *Tequesta v. Jupiter Inlet Corp.*, as examples of cases that never actually applied correlative rights in the strict sense of a proportional sharing of groundwater among overlying landowners.⁷ “These courts were not very clear about the difference between their interpretation of correlative rights and the reasonable use rule.”⁸ In fact, Joseph Dellapenna now considers Florida’s Water Resources Act (Fla. Stat. Ann. §§ 373.012 to 373.619) to be an example of a “regulated riparian system,” as the state moved away from an unregulated common law system.⁹

Overlying land ownership is the basis for the right to withdraw groundwater in Florida, presuming the resource is withdrawn for domestic use.¹⁰ In Florida, domestic use refers to the “use of water for the individual personal household purposes of drinking, bathing, cooking, or sanitation. *All other uses shall not be considered domestic.*”¹¹ The right is vested in the landowner for use on his/her land, even if the use could cause injury to his neighbor as long as it is reasonable and put to a beneficial use. As the Florida Supreme Court has stated, a “landowner, who, in the course of using his own land, obstructs, diverts, or removes percolating water to the injury of his neighbor . . . must be (making) a reasonable exercise of his proprietary right, i.e., such an exercise as may be reasonably necessary for some useful or beneficial purpose, generally relating to the land in which the waters are found.”¹²

However, if withdrawing for a non-domestic consumptive use, the Act requires a permit to obtain the right to withdraw groundwater.¹³ Therefore, all other uses, aside from individual withdrawals for drinking, bathing, cooking, or sanitation must obtain a permit in order to use groundwater. To obtain a permit “the applicant must establish that the proposed use of water: (a) Is a reasonable-beneficial use []; (b) Will not interfere with any presently existing legal use of water; and (c) Is consistent with the public interest.”¹⁴

As discussed in *Village of Tequesta v. Jupiter Inlet Corp.*, the Florida Supreme Court established the standard for the right as “reasonable-beneficial use,” such that the use of groundwater is “reasonably necessary for some useful or beneficial purpose.”¹⁵ However, Florida’s common law groundwater governance regime has been statutorily modified by the Act. Thus, in combining the two systems—the basis for the right is a statutory modification of reasonable use. Florida’s Water Resource Act defines “Reasonable-beneficial use” as the “use of water in such quantity as is

Ct. App. 1993).

⁶ FLA. STAT. ANN. § 373.016 (3)(d) (West).

⁷ *Labruzzo v. Atl. Dredging & Const. Co.*, 54 So. 2d 63, 675-77 (Fla. 1951); *Tequesta v. Jupiter Inlet Corp.*, 371 So. 2d 663, 666-70 (Fla. 1971).

⁸ Joseph W. Dellapenna, *A Primer on Groundwater Law*, 49 IDAHO L. REV. 265, 279-80 (2013)

⁹ Joseph W. Dellapenna, *A Primer on Groundwater Law*, 49 IDAHO L. REV. 265, 302-303 (2013)

¹⁰ *Vill. of Tequesta v. Jupiter Inlet Corp.*, 371 So. 2d 663, 666 (Fla. 1979).

¹¹ FLA. STAT. ANN. § 373.019 (6) (West).

¹² *Vill. of Tequesta v. Jupiter Inlet Corp.*, 371 So. 2d 663, 666 (Fla. 1979).

¹³ See *supra* note 2 and accompanying text.

¹⁴ FLA. STAT. ANN. § 373.223.

¹⁵ *Vill. of Tequesta v. Jupiter Inlet Corp.*, 371 So. 2d 663, 666 (Fla. 1979).

necessary for economic and efficient utilization for a purpose and in a manner which is both reasonable and consistent with the public interest.”¹⁶ In creating the state water plan, the Department must consider: (1) “the attainment of the maximum *reasonable-beneficial* use of water”; (2) “the maximum economic development of water consistent with other uses”; (3) “the quantity of water available for application to a *reasonable-beneficial* use”; (4) “the prevention of wasteful and uneconomical...uses of water; and (5) “the preservation and enhancement of the water quality of the state.”¹⁷

Interestingly, the Florida Supreme Court described the reasonable use rule that was adopted by Florida: “[A] landowner, who, in the course of using his own land, obstructs, diverts, or removes percolating water to the injury of his neighbor...must be [making] a reasonable exercise of his proprietary right, i.e., such an exercise as may be reasonably necessary for some useful or beneficial purpose, generally relating to the land in which the waters are found.”¹⁸

Though perhaps merely persuasive, the Court in *Village of Tequesta* described the impact of the reasonable use standard on a given groundwater user, “[a] person developing his own land could make a substantial investment with no way of determining whether reasonable use by others would limit or destroy his development right even though it was the first in time.”¹⁹

2. Sources of Law

The principal source of authority for groundwater allocation is Florida’s Water Resource Act of 1972 (Fla. Stat. Ann. § 373). The Florida Supreme Court has provided both the foundation of groundwater law in Florida in *Cason v. Florida Power Co.* (1917) and *Koch v. Wick* (1956),²⁰ as well as an interpretation of the Act in 1979 in the case of *Village of Tequesta v. Jupiter Inlet Corp.*²¹ In fact, *Village of Tequesta* indirectly upheld the constitutionality of the Act.²² In *Osceola County v. St. Johns River Water Management Dist.*, the Florida Supreme Court recognized that the Act created a statewide and comprehensive framework for regulating, protecting, and permitting the consumptive uses of water.²³

In *Southwest Florida Water Management Dist. v. Charlotte County*, the court approved of an administrative law judge’s statement, “[i]n adopting the Florida Water Resources Act, the legislature clearly intended to supplant the common law allocation system.”²⁴

In recognition of Florida’s challenges with saltwater intrusion, groundwater depletion, and surface water pollution, the Act makes all waters in the state subject to regulation, unless otherwise specifically exempt.²⁵

¹⁶ FLA. STAT. ANN. § 373.019.

¹⁷ FLA. STAT. ANN. § 373.036(2)(a), (b), (d), (e), (g) (West) (emphasis added).

¹⁸ *Vill. of Tequesta v. Jupiter Inlet Corp.*, 371 So. 2d 663, 666 (Fla. 1979).

¹⁹ *Vill. of Tequesta v. Jupiter Inlet Corp.*, 371 So. 2d 663, 670 (Fla. 1979).

²⁰ *Koch v. Wick*, 87 So. 2d 47, 48 (Fla. 1956); *Cason v. Florida Power Co.*, 76 So. 535, 536-57 (Fla. 1917).

²¹ *Vill. of Tequesta v. Jupiter Inlet Corp.*, 371 So. 2d 663, 666-67 (Fla. 1979).

²² Mary Jane Angelo and Christine A. Klein, *4-FL Waters and Water Rights I* (LexisNexis).

²³ *Osceola County v. St. Johns River Water Management Dist.*, 504 So. 2d 385, 386 (Fla. 1987).

²⁴ *Southwest Florida Water Management Dist. v. Charlotte County*, 774 So. 2d 903, 912 (Fla. Dist. Ct. App. 2001).

²⁵ FLA. STAT. ANN. § 373.023(1).

3. Scope of Right

a. Groundwater Ownership

Pursuant to *Village of Tequesta*, the overlying landowner has a usufructuary right to the water underlying his land: “The right of the owner to groundwater underlying his land is to the usufruct of the water and not to the water itself.”²⁶ Therefore, the landowner does not actually own a property right in the water, “[t]he ownership of the land does not carry with it any ownership of vested rights to underlying groundwater not actually diverted and applied to beneficial use.”²⁷

“There is a right of use as it passes, but there is no ownership in the absolute sense. It belongs to the overlying owner in a limited sense, that is, he has the unqualified right to capture and control it in a reasonable way with an immunity from liability to his neighbors for doing so. When it is reduced to his possession and control, it ceases to be percolating water and becomes his personal property. But if it flows or percolates from his land, he loses all right and interest in it the instant it passes beyond the boundaries of his property, and when it enters the land of his neighbor it belongs to him in the same limited way. The right of the owner to ground water underlying his land is to the usufruct of the water and not to the water itself.”²⁸

b. Scope of Use

i. Permitted and Preferred Uses

Consumptive use permitting is governed by Part II of the Act, specifically Fla. Stat. Ann. §§ 373.203-373.250. To obtain a consumptive use permit, the applicant must establish that the proposed use of water: (a) is a reasonable-beneficial use as defined in s. 373.019; (b) will not interfere with any presently existing legal use of water; and (c) is consistent with the public interest.²⁹ The reasonable-beneficial use condition is implemented by WMD regulations—such that each WMD sets forth their own criteria that must be met for the use to be recognized as a reasonable-beneficial use. For example, the St. Johns WMD has various requirements:

- all available water conservation measures that are economically, environmentally, or technically feasible;
- when reclaimed water is available, it must be used if economically, environmentally, and technically feasible;
- the proposed use must be the lowest quality source available for the intended use;
- that environmental and economic harm must be reduced to an acceptable amount; and
- that the use must not cause saltwater intrusion.³⁰

Based on these requirements, it seems that the reasonable-beneficial use designation is determined from a perspective that values economically, environmentally, and technically feasible uses. According to scholars, WMDs “rarely deny consumptive use permit applications,

²⁶ *Vill. of Tequesta v. Jupiter Inlet Corp.*, 371 So. 2d 663, 667 (Fla. 1979).

²⁷ *Vill. of Tequesta v. Jupiter Inlet Corp.*, 371 So. 2d 663, 667 (Fla. 1979).

²⁸ *Vill. of Tequesta v. Jupiter Inlet Corp.*, 371 So. 2d 663, 667 (Fla. 1979).

²⁹ FLA. STAT. ANN. § 373.019(1)(a)-(c).

³⁰ FLA. ADMIN. CODE ANN. R. 40C-2.301(4) (2006).

although they frequently impose numerous permit conditions.”³¹ Among the five WMDs in Florida, only one requires a permit for uses or withdrawals less than 100,000 gallons per day.³²

For example, an owner of “a 120-unit condominium does not qualify as an individual user and thus must secure a permit in order to draw water from beneath its property.”³³ Artesian wells: Wells must have installed valves “capable of controlling the discharge from the well and . . . so adjusted that only a supply of water is available which is necessary for ordinary use”³⁴

Interestingly, the Act also contains a rarely used and controversial provision that allows the WMDs or Department to “reserve from use” certain quantities of water for environmental, public health, and safety reasons.³⁵

In *Village of Tequesta*, serving a 120-unit condominium did not qualify as an individual user and “thus must secure a permit in order to draw water from beneath its property.”³⁶ Note the differences among WMDs regarding the requirement of a permit for the withdrawal of less than 100,000 gallons per day. Only one WMD requires a permit for the withdrawal of less than 100,000 gallons per day (e.g., South Florida WMD).³⁷

Regarding competing applications for consumptive use permits, the WMD “shall give preference to a renewal over an initial application,” and likely will approve competing initial applications based on the one that “best serves the public interest.”³⁸

In the context of domestic uses, the statute does not require a permit for overlying individual domestic uses.³⁹ Hence any individual use automatically receives a priority in use. Also during any curtailment during water shortage, domestic uses without permits would likely be excluded from consideration as the individual wells, within specifications,⁴⁰ would be largely unregulated as relating to water quantity.

As noted above, the WMDs set forth criteria in their regulations as to what constitutes a reasonable-beneficial use in order to receive a consumptive use permit. The “reasonableness” determination depends on a case-by-case analysis of multiple variables. According to the Florida Supreme Court, these variables include: “[T]he reasonable demands of other users; the quantity of water available for use; the consideration of public policy.”⁴¹

³¹ 4-FL Waters and Water Rights I, Mary Jane Angelo and Christine A. Klein.

³² FLA. ADMIN. CODE. r. 40E-2.041(1), 40E-2.051 (rules of the South Florida WMD).

³³ *Vill. of Tequesta v. Jupiter Inlet Corp.*, 371 So. 2d 663, 671 (Fla. 1979).

³⁴ FLA. STAT. ANN. § 373.206 (West).

³⁵ FLA. STAT. ANN. § 373.223(4) (West); *see generally* Mary Jane Angelo and Christine A. Klein, *4-FL Waters and Water Rights I* (LexisNexis).

³⁶ *Vill. of Tequesta v. Jupiter Inlet Corp.*, 371 So. 2d 663, 671 (Fla. 1979).

³⁷ FLA. ADMIN. CODE. r. 40E-2.041(1), 40E-2.051 (rules of the South Florida WMD).

³⁸ FLA. STAT. ANN. § 373.233.

³⁹ *See supra* Part 2.a.

⁴⁰ *See* FLA. STAT. ANN. § 373.326 (excluding, *inter alia*, a well that is 2 inches or under in diameter, on the person's own or leased property, intended for use only in a single-family house which is his or her residence.)

⁴¹ *Vill. of Tequesta v. Jupiter Inlet Corp.*, 371 So. 2d 663, 670 (Fla. 1979).

ii. Location of use

Even though under the statutory permit system non-overlying land can obtain rights,⁴² overlying land is required for the purpose of a well. Before the permit system this was more of an issue. For example it might have been unreasonable for a small parcel of land to withdraw excessive amounts of water for use on non-overlying to the detriment of the larger neighboring parcel, even though the off-site use was for the public good.⁴³ Today, under the permit system the question of reasonableness and beneficial use is determined upon permitting.⁴⁴ Although, the statutory scheme seems to favor overlying land as individual use for domestic purposes does not require a permit for such use.⁴⁵

In the Act's declaration of policy, the legislature makes a general reference to both the use on overlying vs. non-overlying land, as well as the transport of groundwater. Accordingly, as a public resource that benefits the entire state and to protect groundwater resources, the Act directs the department and water management districts to encourage the use of water from sources nearest the area of use or application whenever possible.⁴⁶ However, the Act further clarifies this statement, noting that the preference to use water from sources nearest the area of use/application does not apply to the transport and direct/indirect within the region of the Central and Southern Florida Flood Control Project, nor shall it apply anywhere in the state to the transport and use of water supplied exclusively for bottled water as defined by statute (s. 500.03(1)(d), nor shall it apply to the transport and use of reclaimed water for electrical power production by an electric utility (s. 366.02(2)).⁴⁷

An inter-district groundwater transfer is acceptable if it within the public interest and the District approves the transfer.⁴⁸ With exception of the Suwannee District that contains a spring basin, the other districts contain multiple basins. Consequently, the statute infers transfers outside a basin.

c. Loss of Water Rights

Consumptive use permits can be granted for up to twenty years, though permits may be granted for up to fifty years for municipalities, public works or public service corporations, or governmental bodies.⁴⁹ Consumptive use permits may be revoked for two or more years of nonuse, or for violation of application procedures, permit conditions, or statutory provisions.⁵⁰ Additional circumstances include:

- Temporarily under a water shortage.
- Statutory, including forfeiture and a form of abandonment.
- Failure to renew permit/permit duration.
- Eminent domain.

⁴² See *infra* Part 4.b.iii.2.

⁴³ *Koch v. Wick*, 87 So. 2d 47 (Fla. 1956).

⁴⁴ See *infra* Part 4.b.iii.2.

⁴⁵ See *supra* Part 2.a.

⁴⁶ FLA. STAT. ANN. § 373.016 (4)(a).

⁴⁷ FLA. STAT. ANN. § 373.016 (4)(a).

⁴⁸ FLA. STAT. ANN. § 373.2295.

⁴⁹ FLA. STAT. ANN. § 373.236.

⁵⁰ FLA. STAT. ANN. § 373.243.

In the event of a water shortage, the WMD “may impose such restrictions on one or more users of the water resource as may be necessary to protect the water resources of the area from serious harm.”⁵¹ The WMD or the Department must promulgate regulations that sets forth a water-use classification system, and during times of water shortage, these authorities may impose restrictions on one or more classes of water use. Additional restrictions may be imposed under emergency orders.⁵²

“The governing board or the department may revoke a permit as follows:

- (1) For any material false statement in an application to continue, initiate, or modify a use, or for any material false statement in any report or statement of fact required of the user pursuant to the provisions of this chapter, the governing board or the department may revoke the user's permit, in whole or in part, permanently.
- (2) For willful violation of the conditions of the permit, the governing board or the department may permanently or temporarily revoke the permit, in whole or in part.
- (3) For violation of any provision of this chapter, the governing board or the department may revoke the permit, in whole or in part, for a period not to exceed 1 year.
- (4) For nonuse of the water supply allowed by the permit for a period of 2 years or more, the governing board or the department may revoke the permit permanently and in whole unless the user can prove that his or her nonuse was due to extreme hardship caused by factors beyond the user's control. For a permit issued pursuant to s. 373.236(7), the governing board or the department may revoke the permit only if the nonuse of the water supply allowed by the permit is for a period of 4 years or more.
- (5) The governing board or the department may revoke a permit, permanently and in whole, with the written consent of the permittee.”⁵³

Generally, permits are only granted for a maximum of 20 years. However, there is a 50 year duration for municipalities and public works with ties to bonds.⁵⁴

Rights may also be affected by eminent domain actions. Although the right is only a usufructuary one, which “is not considered ‘private property’ requiring condemnation proceedings unless the property has been rendered useless for certain purposes,”⁵⁵ the right is tied to the land, in which case an eminent domain proceeding would effectively include the water right. However, “[n]o private property shall be taken except for a public purpose and with full compensation therefor paid to each owner or secured by deposit in the registry of the court and available to the owner.”⁵⁶

4. Hydraulic Connection and Regulation

Even though Florida makes distinctions between surface waters and underground water, it regulates consumptive use permits in the same manner.⁵⁷ The same District regulates both ground and surface water, e.g. there is not a separate ground water district. Florida’s Supreme Court has

⁵¹ FLA. STAT. ANN. § 373.175.

⁵² FLA. STAT. ANN. § 373.246.

⁵³ FLA. STAT. ANN. § 373.243.

⁵⁴ FLA. STAT. ANN. § 373.236.

⁵⁵ *Vill. of Tequesta v. Jupiter Inlet Corp.*, 371 So. 2d 663, 666 (Fla. 1979).

⁵⁶ FLA. CONST. ART. X, § 6.

⁵⁷ *See* FLA. STAT. ANN. §§ 373.203-301.

recognized the “interrelated parts of the hydrologic cycle”⁵⁸ and there is recognition of interaction, or an intertwined relationship, throughout Florida’s Water Resource Act. For example:

Minimum Water Level. “The minimum water level shall be the level of groundwater in an aquifer and the level of surface water at which further withdrawals would be significantly harmful to the water resources of the area.”⁵⁹

Aquifer Storage. “The governing board may establish works of the district for the purpose of introducing water into, or drawing water from, the underlying aquifer for storage or supply. However, only water of a compatible quality shall be introduced directly into such aquifer.”⁶⁰

Hydrologic Conditioning. “In order to aid in the development of a better understanding of the unique surface and groundwater resources of this state, the water management districts shall develop an information program designed to provide information concerning existing hydrologic conditions of major surface and groundwater sources in this state and suggestions for good conservation practices within those areas. The water management districts shall utilize the most efficient means to regularly distribute this information to members of the Legislature, the media, and the public.”⁶¹

Artesian Wells. “Nothing in ss. 373.203, 373.206, 373.209, or this section shall be construed to apply to an artesian well feeding a lake already in existence prior to June 15, 1953, which lake is used or intended to be used for public bathing and/or the propagation of fish, where the continuous flow of water is necessary to maintain its purity for bathing and the water level of said lake for fish.”⁶²

Generally, there is no priority among users of hydraulically linked ground and surface water. However, the statutes note that:

Surface Water. “Each water management district . . . shall maintain a list that prioritizes water bodies of regional or statewide significance within the water management district.”⁶³

Underground Streams. The owner of land through which subsurface water, without any distinct, definite, and known channel, percolates or filters through the soil to that of an adjoining owner, is not prohibited from digging into his own soil, and appropriating water found there to any legitimate purposes of his own, though, by so doing, the water may be entirely diverted from the land to which it would otherwise naturally have passed; but, if subterranean water has assumed the proportions of a stream flowing in a well-defined channel, the owner of the land through which it flows will not be authorized to divert it, pollute it, or improperly use it, any more than it the stream ran upon the surface in a well-defined course.”⁶⁴

⁵⁸ *Vill. of Tequesta v. Jupiter Inlet Corp.*, 371 So. 2d 663, 666 (Fla. 1979).

⁵⁹ FLA. STAT. ANN. § 373.042.

⁶⁰ FLA. STAT. ANN. § 373.087.

⁶¹ FLA. STAT. ANN. § 373.145.

⁶² FLA. STAT. ANN. § 373.213.

⁶³ FLA. STAT. ANN. § 373.453.

⁶⁴ *Tampa Waterworks Co. v. Cline*, 37 Fla. 586, 20 So. 780 (1896).

Injunctions may be issued for improper groundwater withdrawals by the WMDs.⁶⁵ Also, in regards to violations of permit conditions. “Holders of consumptive use permits who violate conditions of such permits shall be liable to abutting consumptive use permit holders for damages caused by such permit violations. No cause of action shall accrue under this section until the complainant has first applied for and then been denied relief by the water management district for the permit violations complained of. The provisions of this section are supplemental, and nothing in this section is intended to preclude the use of any other existing cause of action, remedy, or procedure.”⁶⁶

5. Regulatory Authorities

The Florida Department of Environmental Protection (“the Department”) has the primary authority to construe and apply the policies set forth in the Act.⁶⁷ Further, the Department is responsible for the administration of the Act, although it is state policy to enter into interagency agreements with other state agencies, including water management districts.⁶⁸ The Department may be contacted at:

Florida Dept. of Environmental Protection:

2600 Blair Stone Road M.S. 3500
Tallahassee, Florida 32399
(850)-245-8336
<http://www.dep.state.fl.us/mainpage/default.htm>

Florida has five Water Management Districts (“WMDs”) with statutorily defined locations in very great detail.⁶⁹ “Water districts are the sole agencies empowered to grant consumptive use permits in Florida.”⁷⁰ Further, the Department delegates its authority—which is to have the lead role in the conservation, protection, management, and control of all state waters—to the WMDs “to the greatest extent practicable.”⁷¹

The Water Management Districts are given broad power to implement Florida’s Water Resource Act (Fla. Stat. Ann. § 373). Essentially, the Department of Environmental Protection can delegate its powers, *inter alia*, to “[a]dminister and enforce all provisions of this chapter, including the permit systems . . . consistent with the water resource implementation rule.”⁷² The districts have common mission goals of water supply, flood protection, water quality, and natural systems. These goals include permitting, quality and quantity monitoring, research, regulation, land acquisition and management, and reporting.⁷³ The Water Management Districts may create

⁶⁵ *Tampa Waterworks Co. v. Cline*, 37 Fla. 586, 20 So. 780 (1896).

⁶⁶ FLA. STAT. ANN. § 373.245.

⁶⁷ FLA. STAT. ANN. § 373.016.

⁶⁸ FLA. STAT. ANN. § 373.026.

⁶⁹ FLA. STAT. ANN. § 373.069 (creation of water management districts).

⁷⁰ *City of Cocoa v. Holland Props., Inc.*, 625 So. 2d 17, 20 (Fla. Dist. Ct. App. 1993).

⁷¹ FLA. STAT. ANN. § 373.016(3) (West); *see also* Alexander Rhodes, *Capacity Sharing: The Next Step in Florida’s Evolving Water Economy*, XXVI STETSON L. REV. 805, 814 (1997).

⁷² FLA. STAT. ANN. § 373.103(1).

⁷³ *See supra* Part 6.b. (collective information from listed websites).

Basins and Sub-districts, and define their borders.⁷⁴

The five WMDs may be contacted at:

1. *Northwest Florida WMD*
81 Water Management Drive
Havana, FL 32333-4712
(850) 539-5999
<http://www.nwfwmd.state.fl.us>
2. *Suwannee River WMD*
9225 CR 49
Live Oak, FL 32060
(386)-362-1001
<http://www.srwmd.state.fl.us>
3. *St. Johns WMD*
P.O. Box 1429
Palatka, FL 32178-1429
(386)-329-4500
<http://www.sjrwmd.com>
4. *Southwest Florida WMD*
2379 Broad Street
Brooksville, FL 34604-6899
(352)-796-7211
<http://www.swfwmd.state.fl.us>
5. *South Florida WMD*
3301 Gun Club Road
West Palm Beach, FL 33406
(561)-686-8800
<http://www.sfwmd.gov>

⁷⁴ FLA. STAT. ANN. § 373.0693.

Appendix E: Illinois

Illinois defines groundwater as “Underground water which occurs within the saturated zone and geologic materials where the fluid pressure in the pore space is equal to or greater than atmospheric pressure.”¹ At common law, it followed the Absolute Ownership rule for groundwater use; however, its statutory scheme affirms the principle of Reasonable Use.

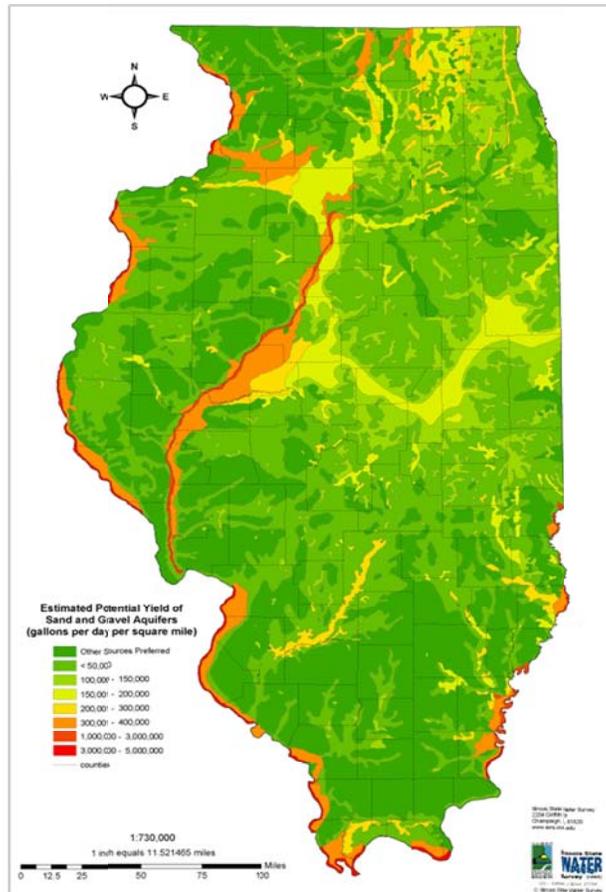


Fig. E.1. Estimated Potential Yield of Sand and Gravel Aquifers²

1. Definitions, Basis of Rights, Standards, and Interactions

For many years, Illinois followed the Absolute Ownership or English Rule for groundwater ownership.³ However, the state’s statutory scheme for groundwater governance changed when

¹ 525 ILL. COMPILÉD STATUTES ANN. 45/4 (hereinafter “ILCS”).

² Illinois State Water Survey, *Estimated Potential Yield of Sand and Gravel Aquifers* (2003).

³ An early Illinois case from 1899, *Edwards v. Haeger*, discussed groundwater rights issue and went on to state the rule of ‘absolute ownership’ in its decision even though the ownership of property - not the issue

Illinois adopted the Water Use Act of 1983 (“Water Use Act”).⁴ *Bridgman v. Sanitary District of Decatur* affirmed the Water Use Act, specifically affirming the provision that established the rule of Reasonable Use and its applicability to “groundwater withdrawals in the State.”⁵ Subsequently, the State also adopted the Illinois Groundwater Protection Act of 1987 (“Groundwater Protection Act”), which mandated statewide monitoring of wells and data collection programs, among other regulations.⁶

Because the Reasonable Use rule for groundwater originated from same body of case law as the Reasonable Use rule for surface water, some commentators suggest that groundwater disputes in Illinois should consider the applicability of the substantial case history that had developed for surface waters.⁷ In some instances, this the answers in this questionnaire follow the same reasoning as the Court in *Bridgman*, which also considered the similarities between groundwater and surface water withdrawals.⁸ The *Bridgman* Court explained, “By using the terms ‘natural wants’ and ‘artificial wants’ in the definition of reasonable use...the legislature has adopted the same standards for groundwater withdrawals as that which applies to surface water withdrawals pursuant to [*Evans v. Merriweather* [(1842)]]”.⁹

The *Bridgman* Court rejected the absolute ownership basis rule for groundwater withdrawals.¹⁰ This suggests that absolute ownership of the land overlying the groundwater, without reasonable use of that withdrawal, is not the basis for the right. However, overlying land ownership is presumably a platform to obtain the right of groundwater withdrawals, presuming that the use is a “reasonable one.”¹¹ To establish parallels between groundwater and surface water withdrawals, the *Bridgman* Court also cited *Merriweather* in terms of the basis of the right, “Each riparian proprietor is bound to make such a use of running water, as to do as little injury to those below him, as is consistent with a valuable benefit to himself. The use must be a reasonable one.”¹²

Surface water ownership, through the acquisition of riparian rights by owning land at the water’s edge—may also reflect the importance of overlying land ownership as a basis for the right in a groundwater ownership context.¹³ To acquire riparian rights for streams in Illinois, the property owner must own land that “includes or encompass[es] the shoreline.”¹⁴ For lakes, the land owner

of groundwater rights - was the central and deciding issue in this case. See *Edwards v. Haeger* (get citation) Even though the reference in *Edwards* to the absolute ownership doctrine was considered as mere dictum by numerous legal scholars, the doctrine of absolute ownership in *Edwards* has been cited favorably in numerous court decisions. Mann, Fred L., Harold H. Ellis, and N.G.P. Krausz, *Water Use Law in Illinois* (University of Illinois Agricultural Experiment Station Bulletin 703, in cooperation with Economic Research Service, U.S. Department of Agriculture, 1964).

⁴ 525 ILL. STAT. ANN. 45/1 et seq. (2010) (known as the Water Use Act of 1983).

⁵ *Bridgman v. Sanitary District of Decatur*, 164 Ill. App. 3d 287, 291-92, 517 N.E. 2d 309, 312-13 (Ill. App. Ct. 4th Dist. 1987); 525 ILL. STAT. ANN. 45/3(c), 45/6 (effective Jan. 1, 2010) (amending ILL. REV. STAT. 1985, ch. 5, par 1606, §6).

⁶ 415 ILCS 55/1 et seq. (2015) (“Illinois Groundwater Protection Act”).

⁷ William P. Hardy, 6-IL Waters and Water Rights I(B)(2) (Matthew Bender & Co., LexisNexis 2015).

⁸ *Bridgman*, 164 Ill. App. 3d at 292-93.

⁹ *Id.*

¹⁰ *Id.* at 294.

¹¹ *Id.* at 293.

¹² *Id.* at 293 (citing *Merriweather*, 4 Ill. 492, 495 (1842)).

¹³ See *Bouris v. Largent*, 94 Ill. App. 2d 251, 256 (1968).

¹⁴ *Id.*

“must own property that touches the lake at its boundary line.”¹⁵ From a groundwater perspective, if the same principles of Reasonable Use are applicable as the *Bridgman* Court suggested, then land ownership of property that overlies groundwater is the basis of the right if the subsequent withdrawals are put to a reasonable use.

In addition, seniority in length (or time) of use does not increase the right of use, particularly for surface water withdrawals. In 1867, the Supreme Court of Illinois in *Bliss v. Kennedy* denied the plaintiffs argument that their right to use the water in the stream was superior due to the fact they were the first to construct a mill on the stream.¹⁶ The Court rejected this argument, reasoning that “prior occupancy giv[es] no exclusive right.”¹⁷

The Water Use Act established the Reasonable Use rule for groundwater withdrawals, such that the use of groundwater is subject to a “reasonable use.”¹⁸ In particular, the Water Use Act defines “reasonable use” as “the use of water to meet *natural wants* and a fair share for *artificial wants*. It does not include water used wastefully or maliciously.”¹⁹ The *Bridgman* court relied on the terms “artificial wants” and “natural wants” to draw the similarities between groundwater and surface water—because both the Water Use Act and the *Merriweather* court each used this terminology.²⁰

The concepts of natural wants and artificial wants examines whether riparian or overlying land owners are putting their respective withdrawals to a reasonable use. The *Bridgman* court cited *Merriweather* to explain these concepts in the context of groundwater withdrawals. With regards to “natural wants,” these are generally domestic uses such as drinking, bathing, and cooking, which are “absolutely necessary” to one’s existence.²¹ The Illinois Supreme Court in *Merriweather* reasoned that “quench[ing] thirst,” “household purposes,” and “water for cattle” are necessary.²² Without water for these “absolutely indispensable” uses—“both man and beast will perish.”²³ In contrast, “artificial wants” are non-essential and not indispensable. The *Merriweather* Court, as cited in *Bridgman*’s seminal groundwater decision, reasoned that water for “irrigation and manufactures” are natural wants.²⁴

2. Sources of Law

The Water Use Act of 1983 is the primary source of law that governs the groundwater allocation system in Illinois.²⁵ The Water Use Act described the Reasonable Use rule in the groundwater context. Case law remains significant because several Illinois courts have explained certain provisions within the statutory regime. For instance, the *Bridgman* Court affirmed the Water Use Act, explaining that the Illinois Supreme Court’s explanation concerning the reasonable use of surface water is also applicable to understand the reasonable use of groundwater. In addition, the Groundwater Protection Act of 1987 sets forth various technical programs to monitor and collect

¹⁵ *Smith v. City of Greenville*, 115 Ill. App. 3d 39, 43 (1983).

¹⁶ *Bliss v. Kennedy*, 43 Ill. 67, 1867 WL 4984 (Ill. 1867).

¹⁷ *Id.* at 74.

¹⁸ 525 ILCS 45/3(c).

¹⁹ 525 ILCS 45/4.

²⁰ *Bridgman*, 164 Ill. App. 3d at 291-93.

²¹ *Id.* at 292 (citing *Merriweather*, 4 Ill. at 495).

²² *Id.*

²³ *Id.*

²⁴ *Id.* at 292-93 (citing *Merriweather*, 4 Ill. at 495-96).

²⁵ 525 ILCS 45/1 et seq.

groundwater data.²⁶ The Water Authorities Act also plays a peripheral role in the governance of groundwater withdrawals in Illinois.²⁷

The statutory framework under the Water Use Act includes a complaint investigation and review process, an administrative hearing and appeals process, and a penalties provision.²⁸

3. Scope of Right

a. Groundwater Ownership

The *Merriweather* Court explained that the “property in the water, therefore, by virtue of the riparian ownership, is in its nature usufructuary and consists, in general, not so much of the fluid itself, as of the advantage of its impetus.”²⁹ The Illinois General Assembly declares it to be in the public interest to better manage and conserve water.³⁰ In further recognition that the *Bridgman* Court rejected the absolute ownership rule, it seems that the state “owns” the groundwater, although its citizens are free to withdraw as long as the groundwater is put to a reasonable use.

b. Scope of Use

i. Permitted and Preferred Uses

The use of groundwater for both artificial wants and natural wants are allowable types of use in Illinois, subject to the reasonable use limitation. As discussing in the following section, the hierarchy for purposes of these uses becomes implicated during potential conflicts between artificial vs. natural wants or during times of Groundwater Emergencies.

Courts in Illinois have referred to the following uses as natural uses: quenching thirst, household purposes, water for cattle, and more generally, domestic uses.³¹ Some scholars have argued that watering cattle may not be a natural want in the current era, considering that the *Evans* decision occurred in the mid-1800s, a time when “watering cattle was necessary for sustenance in the household.”³² In particular, this may lead to confusion in determining whether large modern-day commercial livestock operations are considered artificial uses, rather than natural uses.

In contrast, the following uses are not consider natural uses, and thus are classified as artificial uses: water for irrigating lands and water for propelling machinery (i.e., manufactures).³³

Regarding preferences of use, natural users of water prevail over artificial users of water.³⁴ The *Bridgman* Court’s reasoning referenced the *Merriweather* decision to explain this principle.³⁵ Thus, in disputes between these opposing uses, such as for domestic vs. industrial purposes, the

²⁶ 415 ILCS 55/1 et seq.

²⁷ 70 ILCS 3715/0.01 et seq.

²⁸ 525 ILCS 45/5.1, 7.

²⁹ *Evans v. Merriweather*, 4 Ill. 492, 492 (1842).

³⁰ 525 ILCS 45/2.

³¹ *Bridgman*, 164 Ill. App. 3d at 292-93 (citing *Merriweather*, 4 Ill. at 495-96).

³² William P. Hardy, 6-IL Waters and Water Rights I(B) (Matthew Bender & Co., LexisNexis 2015).

³³ *Bridgman*, 164 Ill. App. 3d at 292-93 (citing *Merriweather*, 4 Ill. at 495-96).

³⁴ *Bridgman*, 164 Ill. App. 3d at 292-93 (citing *Merriweather*, 4 Ill. at 495-96).

³⁵ *Id.*

domestic purpose will prevail as a natural want.³⁶ “If [the landowner] desires to use [water] for irrigation or manufactures, and there be a lower proprietor to whom its use is essential to supply his natural wants, or for his stock, he must use the water so as to leave enough for such lower proprietor.”³⁷ The Court further explained that if there is a lack of water or diminished supply, which may not be sufficient to “answer the natural wants of the different proprietors living on it,” then the artificial uses for either irrigation or manufacturing are not allowed.³⁸

Reasonable Use is the primary standard for preference governing groundwater law in Illinois. However, the standard of beneficial use is implicated within a water quality (rather than quantity) perspective. The Groundwater Protection Act adopted the policy that groundwater is of “vital importance to the general health, safety, and welfare.”³⁹ As such, the policy is administered by utilizing the groundwater resources of Illinois for “beneficial and legitimate purposes,” as well as preventing waste and managing the resources to maximize the benefits for the people of Illinois.⁴⁰ Further, the Groundwater Protection Act, defines “resource groundwater” as “groundwater that is presently being or in the future capable of being put to beneficial use by reason of being suitable quality.”⁴¹

iii. Location of Use

Given the aforementioned similarities in groundwater and surface water jurisprudence, some practitioners note that the “terms ‘riparian landowner’ and ‘overlying landowner’ should be considered interchangeable in Illinois water law doctrine.”⁴² Similar to the use of surface water, the groundwater withdrawals are also subject to the reasonable use limitation, whether they are used on overlying vs. non-overlying land. It is likely that the Reasonable Use rule implies that groundwater pumping for use on non-overlying land requires compensation to any injured overlying owners.

Although the Water Use Act does not explicitly mention the transport of groundwater, some practitioners have analyzed this issue within the context of the reasonable use of surface water. A report given to the Illinois Groundwater Association in 1985 suggested that “the right to transport water for use off overlying land does not exist without statutory authority.”⁴³ Further, the report explained that the usufructuary right is “incidental to the ownership of the riparian land and limited to the riparian proprietor.”⁴⁴ Although this issue has not been explicitly analyzed by courts from the perspective of groundwater transfers, the existing case law suggests that the transfer of groundwater may not be allowed in Illinois.

In *Batavia Manufacturing Company v. Newton Wagon Company*, the Illinois Supreme Court reasoned that a riparian proprietor’s contract that conveyed surface water rights to another for

³⁶ *Id.*

³⁷ *Id.*

³⁸ *Id.*

³⁹ 415 ILCS 55/2 (b).

⁴⁰ 415 ILCS 55/2 (b).

⁴¹ 415 ILCS 55/3 (j).

⁴² Gary R. Clark, P.E., *Illinois Groundwater Law: The Rule of Reasonable Use*, at 22, ILL. DEPT. OF TRANS. DIV. OF WATER RESOURCES (Sept. 18, 1985) (“A Report to the Illinois Groundwater Association”).

⁴³ Gary R. Clark, P.E., *Illinois Groundwater Law: The Rule of Reasonable Use*, at 23, ILL. DEPT. OF TRANS. DIV. OF WATER RESOURCES (Sept. 18, 1985) (“A Report to the Illinois Groundwater Association”).

⁴⁴ *Id.*

power purposes “could not be a sale of the water of the river, or of its momentum (which they could only own the right to use on their own soil) it could amount to an estoppel of their right to use the momentum of so much water.”⁴⁵

However, there are some exceptions under Illinois law where the right to transport and sell water is granted under statutory authority.⁴⁶ In particular, this authority is granted within the state to various water utilities: including municipalities (i.e., counties)⁴⁷, Conservancy Districts,⁴⁸ and Water Authorities.⁴⁹ Although an individual may not be able to sell and transport groundwater from his overlying land, it appears that there is statutory authority to sell groundwater to water utilities.

c. Loss of water rights

Yes, subject to the Water Use Act, the use of groundwater in a wasteful or malicious matter is not allowed.⁵⁰ Water rights may be enjoined if they violate the rule of Reasonable Use pursuant to the Water Use Act. Groundwater withdrawals may also be restricted in the case of emergencies, as the Water Use Act provides the mechanism for this authority.⁵¹

Any person (or corporation, etc.), that is responsible for groundwater withdrawals that are classified as a high-capacity well, high-capacity intake, or public water supply, shall participate in the Illinois State Water Survey’s Illinois Water Inventory Program.⁵² The Water Use Act defines “high-capacity well” as “a well located on a parcel of property where the rate or capacity of water withdrawal of all wells on the property is equal to or in excess of 100,000 gallons during any 24-hour period.” Further, the Water Use Act defines “public water supply” as “all mains, pipes, and structures through which water is obtained and distributed to the public...actually used or intended for use for the purpose of furnishing water for drinking or general domestic use and which serve at least 15 service connections or which regularly serve at least 25 persons at least 60 days per year.”⁵³ Unless one of the exemptions is applicable, these groundwater users are compelled to report their withdrawals pursuant to section 45/5.3 of the Water Use Act.⁵⁴

Within a preemptive context, on the occasion that a person proposes to develop a new point of withdrawal that happens to be a high-capacity well, this person must notify the District (Soil & Water Conservation District) before construction of the well begins. The District will then notify any other potential water systems that may be impacted by the proposed well. Pursuant to this aforementioned Water Conflict Resolution provision, these reviews are also made available to the public.⁵⁵

⁴⁵ *Batavia Mfg. Co. v. Newtown Wagon Co.*, 91 Ill. 230 (1878).

⁴⁶ See ILL. REV. STAT. Chap. 24, Par. 11-125-1 and 2.

⁴⁷ See ILL. REV. STAT. Chap. 24, Par. 33-3107, and 34-3110.

⁴⁸ See ILL. REV. STAT. Chap. 42, Par. 393.

⁴⁹ See ILL. REV. STAT. Chap. 111 2/3, Par. 228, Sec. 6.

⁵⁰ 525 ILCS 45/4.

⁵¹ 525 ILCS 45/2.

⁵² 525 ILCS 45/5.3.

⁵³ 525 ILCS 45/4.

⁵⁴ 525 ILCS 45/5.3.

⁵⁵ 525 ILCS 45/5.

Some practitioners note that when a riparian (or overlying landowner) “is using more than his just proportion of the water available for artificial uses...such use perhaps is an unreasonable use as a matter of law, and it is for a jury to determine the extent to which other riparian proprietors are damaged as a result of that unreasonable use.”⁵⁶

In *Citizens Opposing Pollution v. ExxonMobil Coal U.S.A.*, the court held that the citizens group was entitled to bring an enforcement action when the coal company’s withdrawal of groundwater was in violation of the rule of “reasonable use,” as set for in the Water Use Act.⁵⁷ Because the citizens group alleged that the company was withdrawing four million gallons of water per week from a community aquifer, which affected the level of contamination, there was a question of whether this particular use was “reasonable,” rather than “wasteful or malicious.” However, this citizens group could not force the circuit court to review the groundwater withdrawal terms of the company’s mining permit under the Mining Act’s citizen suit provision.⁵⁸

Regarding to the penalties provision, any person who fails to register a point of withdrawal pursuant to the groundwater emergency restrictions of the Water Use Act may be guilty of a petty offense. Any person convicted of a second or subsequent offense is guilty of a Class C misdemeanor.⁵⁹

4. Hydraulic Connection and Regulation

Interestingly, the Court in *Bridgman*, which applied the Reasonable Use rule to groundwater, in fact relied upon an old case law from 1842 that had applied the Reasonable Use rule to surface water (*Evans v. Merriweather*). Also, the Groundwater Protection Act marks the distinction between “groundwater” and “underground water” in its definition section by including explicit explanations of both.⁶⁰ There is no apparent priority among users of hydraulically linked surface and ground waters. Additionally, there is not a statutory scheme that authorizes liability for surface and groundwater interference.

5. Regulatory Authorities

New groundwater users in Illinois of more than 100,000 gallons on any given day are subject to review by the Illinois State Water Survey.⁶¹ This is done primarily to determine the impact of a particularly large withdrawal on neighboring uses.

The Water Use Act includes a complaint investigation and review process, an administrative hearing and appeals process, and a penalties provision.⁶² Persons investigating complaints or reviews of existing or proposed wells on behalf of the Illinois Dep’t of Agriculture or Soil and Water Conservation District,⁶³ “may enter upon private property for the purpose of conducting an investigation and may review any records pertaining to pumping data.”⁶⁴ Additionally, the Water

⁵⁶ See Clark, *Illinois Groundwater Law: The Rule of Reasonable Use*.

⁵⁷ *Citizens Opposing Pollution v. ExxonMobil Coal U.S.A.*, 936 N.E.2d 181 (Ill. App. Ct. 5th Dist. 2010).

⁵⁸ *Id.*

⁵⁹ 525 ILCS 45/7.

⁶⁰ 415 ILCS 55/3 (g), (k).

⁶¹ 525 ILCS 45/5 (2007).

⁶² 525 ILCS 45/5.1, 7.

⁶³ 525 ILCS 45/4.

⁶⁴ 525 ILCS 45/5.2.

Use Act authorizes Soil and Water Conservation Districts to recommend restrictions on withdrawals in emergencies.⁶⁵

Under the Groundwater Emergency Restrictions provision in the Water Use Act, the District may recommend restrictions on groundwater withdrawals in certain parts of the state.⁶⁶ In particular, there may be restrictions in certain locations, such as any county in Illinois with a population greater than 100,000, through which the Mackinaw River flows.⁶⁷ Presumably, this may be indirectly represent statutory recognition of the hydrologic link between surface and groundwater, but it is uncertain how often this authority is exercised. This provision also sets out detailed procedures for implementing restrictions.

The regulatory authorities may be contacted at the following addresses:

- Illinois Department of Natural Resources
<http://www.dnr.state.il.us/>
One Natural Resources Way,
Springfield, IL 62702-1271.
Tel: 217-785-5500, Fax: 217-524-4177
- Illinois Department of Agriculture
[https://www.agr.state.il.us/groundwater-monitoring/
StateFairgrounds](https://www.agr.state.il.us/groundwater-monitoring/StateFairgrounds)
P.O. Box 19281
Springfield, IL 62794-9281
Telephone:217.782.2172
- Illinois Environmental Protection Agency
<http://www.epa.state.il.us/>
1021 North Grand Avenue East, P.O. Box 19276,
Springfield, IL 62794-9276.
Tel: (217) 782-5544

⁶⁵ 525 ILCS 45/3, 5.1.

⁶⁶ 525 ILCS 45/5.1.

⁶⁷ 525 ILCS 45/5.1.

Appendix F: Indiana

The State of Indiana’s groundwater (and surface water) governance system can be characterized as a “Reasonable/Beneficial Use” system. The Indiana Code defines “reasonable-beneficial use” as “the use of water for a beneficial use in such quantity and manner that is: (1) necessary for economic and efficient utilization, and (2) is both reasonable and consistent with the public interest.”¹

The Indiana Supreme Court, though not explicitly labeling the state’s groundwater governance structure, acknowledged that Indiana does not fully recognize the English rule of strict ownership of groundwater resources, as extensive case law qualifies outright ownership of the underlying groundwater.² Moreover, landowners are not shielded from liability, particularly when groundwater withdrawals are conducted with the malicious intent to harm neighboring landowners.³ In the *City of Valparaiso* (1998), the Court of Appeals reasoned that when the rights of others are affected or harmed by a landowner’s use of groundwater, this use is limited to a “reasonable and beneficial use,” such that there must be some useful purpose connected with its occupation and enjoyment.⁴

In *Wiggins* (1983), the Indiana Supreme Court rejected the Restatement,⁵ and clarified an extensive history of groundwater case law. On the topic of resource ownership, the Court reasoned, “Groundwater is part of the land in which it is present and belongs to the owner of that land.”⁶ Subsequent decisions have since qualified the strict reading of absolute groundwater ownership in *Wiggins*, as the Court itself in *Wiggins* described aspects of Reasonable Use. Further, the Court’s explanation portrayed aspects of Reasonable Use as a governing system, “[Ground water] may be put to use to the fullest extent to further enjoyment of the land, however this right does not extend to causing injury gratuitously or maliciously to nearby lands and their owners.”⁷ Additionally, property rights regarding lost waters are “enforced by courts in a manner which recognizes that some of these injuries are the necessary result of proper and legitimate utilization of land while others are not.”⁸ This description gives rise to a spectrum of scenarios in various types of cases, in which some instances are considered reasonable-beneficial use, while others are not.

Indiana’s Water Rights and Resources legislation (Article 25, Chapter 1) begins by establishing

¹ IND. CODE § 14-25-7-6.

² *New Albany & S. R.R. v. Peterson*, 14 Ind. 112 (1860) (Indiana first adopted the English rule in 1860), *Wiggins v. Brazil Coal and Clay Corp.*, 452 N.E.2d 958 (Ind. 1983) (the Supreme Court refused to apply the English Rule so strictly as to completely shield a landowner from liability for all types of damage caused by the removal of groundwater, including subsidence damage). In *City of Valparaiso*, the Indiana Court of Appeals distinguished damages alleged by the plaintiffs, from those damages alleged by the plaintiffs in *New Albany* and *Wiggins*. *City of Valparaiso v. Defler*, 694 N.E.2d 1177, 1180-82 (Ind. App. 1998).

³ *City of Valparaiso v. Defler*, 694 N.E.2d 1177, 1180 (Ind. App. 1998) (elaborating on the history of groundwater law jurisprudence in the state of Indiana).

⁴ *City of Valparaiso v. Defler*, 694 N.E.2d 1177, 1181-82 (Ind. App. 1998).

⁵ On appeal, plaintiffs sought recovery by applying the Restatement (Second) of Torts § 858 (1979).

⁶ *Wiggins v. Brazil Coal and Clay Corp.*, 452 N.E.2d 958, 964 (Ind. 1983).

⁷ *Wiggins v. Brazil Coal and Clay Corp.*, 452 N.E.2d 958, 964 (Ind. 1983).

⁸ *Wiggins v. Brazil Coal and Clay Corp.*, 452 N.E.2d 958, 963-64 (Ind. 1983).

the beneficial use standard for water rights. Interestingly, the chapter explicitly states that “*surface water* resources of Indiana [are to be] put to beneficial uses to the fullest extent.”⁹ The statute then maintains that the “*use of water*,” presumably both surface and groundwater resources, “for non-beneficial uses [is to] be prevented.”¹⁰

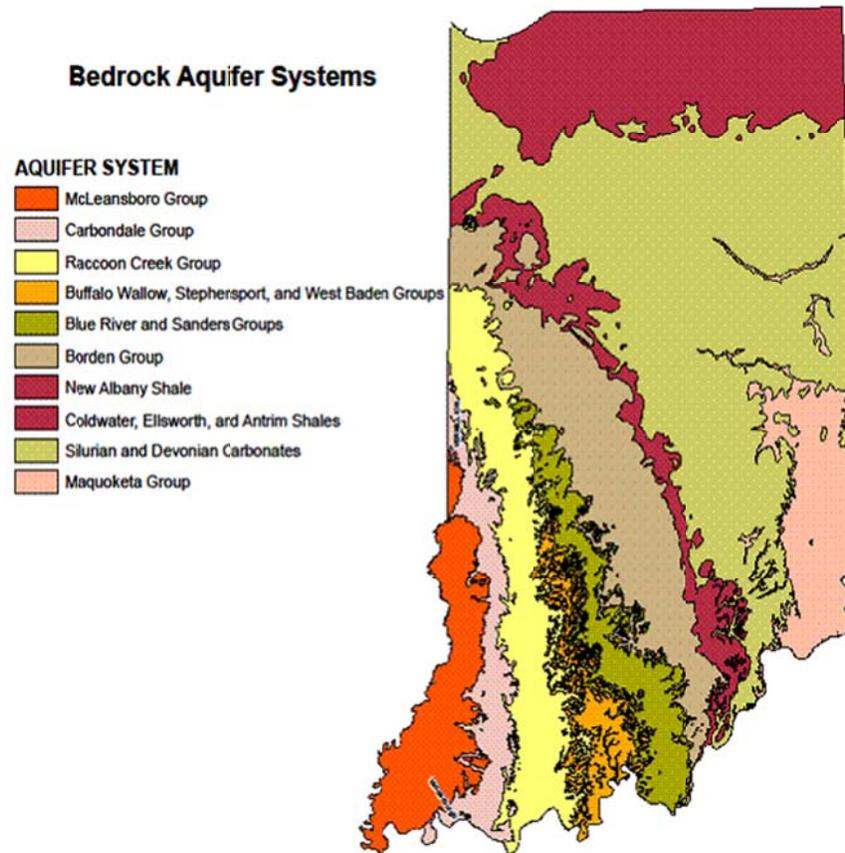


Fig. F.1. Indiana Aquifer Systems¹¹

1. Definitions, Basis for Rights, Standards, and Interactions

The Indiana Code defines “groundwater” as “all water occurring beneath the surface of the ground regardless of location and form.”¹² Groundwater is not a landowner’s property until the landowner takes it into actual possession, although overlying land ownership provides the water user with the ability to take groundwater into possession.¹³

⁹ IND. CODE § 14-25-1-1(1) (emphasis added).

¹⁰ IND. CODE § 14-25-1-1(2) (emphasis added).

¹¹ INDIANA DEP’T OF NATURAL RESOURCES, *Aquifer Systems Mapping Methods*, <http://www.in.gov/dnr/water/6186.htm>.

¹² IND. CODE § 14-25-7-3.

¹³ *People’s Gas Co. v. Tyner*, 131 Ind. 277, 31 N.E. 59 (1891). See also *City of Valparaiso v. Defler*, 694 N.E.2d 1177, 1181 (Ind. App. 1998).

For standard users¹⁴, the basis for the right to extract groundwater in the state of Indiana is overlying land ownership (and actual possession of the groundwater), although this right is ultimately qualified by Indiana’s intensive jurisprudence regarding the reasonable-beneficial use spectrum. When groundwater is present beneath the surface, Indiana considers the resource to be part of the land, thus belonging to the landowner. In contrast, water is not considered present when the groundwater “percolates away underground through porous earth from beneath one lot to surrounding lands,” and because it is no longer present, the groundwater “no longer belongs to the owner of the lot.”¹⁵

Within restricted use areas, a “significant withdrawal facility” must obtain a permit from the DNR to withdraw or use a quantity of groundwater that exceeds one hundred thousand gallons per day in addition to the quantity the person is using at the time the order designating the restricted area as a restricted use area becomes effective, unless the person has obtained a permit from the DNR to withdraw a greater quantity.¹⁶ In determining whether to grant or refuse the permit, the DNR will consider: 1.) the effect of the withdrawal of additional groundwater from the restricted use area will have on future supplies in the area; 2.) what use is to be made of the water; 3.) how the withdrawal will affect present users of groundwater in the area; 4.) whether the future natural replenishment is likely to become more or less; 5.) whether future demands will be more or less; 6.) whether additional withdrawal is in the best interest of the public.¹⁷

The standard for water rights in the state of Indiana is “beneficial use,” such that the waste of groundwater must be prevented.¹⁸ The Indiana Code defines “beneficial use” as the use of water for “any useful or productive purpose,” including various types of uses reference below as examples.¹⁹ As described by the Court in *Wiggins*, although groundwater can be used “to the fullest extent to further enjoyment of the land,” the landowner does not have the right to withdraw water with the malicious intent to harm the neighboring landowner. In addition, the 7th Circuit Court of Appeals interpreted Indiana law to allow relief for harmful waste, but wasteful uses must actually cause injury to neighboring landowners.²⁰

2. Sources of Law

The State of Indiana relies on various sources of law to govern its allocation system, including case law, statutes, and regulations. These include Indiana Supreme Court cases (i.e., *Wiggins*, *New Albany*), subsequent interpretations of these high court decisions (*City of Valparaiso*, *Allstate Ins. Co*), as well as Title 14, Article 25 “Water Rights and Resources” of the Indiana Code. In addition, the Indiana Code also codifies the Emergency Groundwater Resources Act, providing various laws that affect certain groundwater users. The DNR’s groundwater regulations for groundwater wells are located in Articles 12 & 13 of the Indiana Administrative Code, which specify the various well construction standards referenced below.

¹⁴ For purposes of this questionnaire, “standard users” refers to those non-significant users who not withdrawing more than 100,000 gallons per day in a restricted use area.

¹⁵ *Valparaiso v. Defler*, 694 N.E.2d 1177 (Ind. App. 1998).

¹⁶ IND. CODE § 14-25-3-4(a); IND. CODE § 14-25-3-6.

¹⁷ IND. CODE § 14-25-3-8.

¹⁸ Stephen L. Lucas, 6-IN Waters and Water Rights I, 1.

¹⁹ IND. CODE § 14-25-7-2.

²⁰ *Prohosky v. Prudential*, 767 F.2d 387 (7th Cir. 1985).

Both case law and statute are the foundation of Indiana’s groundwater allocation system. In 1994, the Indiana Supreme Court reasoned that the Surface Mining Control and Reclamation Act establishes an exception to the common law, such that the Indiana Department of Natural Resources has the “authority to regulate” a coal company’s use of groundwater.²¹ Scholars suggest that conflicts between competing groundwater users, and problems associated with courts’ application of the strict common law doctrines—resulted in the Indiana legislature enacting state legislation directed at alleviating “groundwater emergencies.”²² In particular, the “Emergency Groundwater Rights Act” is discussed in detail below in parts 4 and 6.

3. Scope of Right

a. Groundwater Ownership

Unlike the English Rule of absolute dominion or strict ownership, Indiana’s application of the Reasonable Use doctrine recognizes limits on the use of groundwater by landowners.²³ In the context of ownership, groundwater is not a landowner’s property until the landowner takes it into actual possession.²⁴ Moreover, in restricted use areas, the DNR considers whether the additional “significant” withdrawals (i.e., <100,000 gallons per day) are best interest of the public when determining whether to grant or refuse permits.²⁵ The Code explains that the general welfare of the people of Indiana requires that water be put to beneficial use, suggesting that if the public does not outright own the water, the public does have a quasi-usufructuary right in the resource.

The ownership of percolating groundwater in the state of Indiana has been continuously revisited by courts in various contexts. Most notably, in 2000, the Court of Appeals in *Allstate Ins. Co.* clarified groundwater ownership jurisprudence, explaining that groundwater is “not a landowner’s property until the landowner takes it into actual possession.”²⁶ To maintain ownership of groundwater requires possession, therefore, and possession suggests the landowner must do more than allow the water to percolate from the person’s land.²⁷ Revisiting *Wiggins*, the Court in *Allstate Ins. Co.* did not apply the English Rule of groundwater ownership, reasoning that “[u]nless and until a landowner takes the groundwater into actual possession, it *remains the property of the State.*”²⁸

In the beginning, the Court in *New Albany & Salem R.R.* followed English Rule and reasoned that percolating groundwater “falls within that principle which gives to the owner of the soil all that lies beneath his surface....”²⁹ This strict common law rule of groundwater ownership, however, was “all but abrogated”³⁰ in *Gagnon*—in which the Indiana Supreme Court enjoined the a landowner who maliciously pumped groundwater with the detrimental intent of harming the

²¹ *Natural Res. Comm’n v. Amax Coal Co.* 638 N.E.2d 418 (Ind. 1994).

²² Stephen L. Lucas, 6-IN Waters and Water Rights I, 6-7. The legislation was given statewide application in 1985.

²³ *City of Valparaiso v. Defler*, 694 N.E.2d 1177 (Ind. App. 1998).

²⁴ *City of Valparaiso v. Defler*, 694 N.E.2d 1177 (Ind. App. 1998).

²⁵ IND. CODE § 14-25-3-8.

²⁶ *Allstate Ins. Co. v. Dana Corp.*, 737 N.E.2d 1177, 1187 (Ind. App. 2000).

²⁷ 6-IN Waters and Water Rights I, page 6, Stephen L. Lucas.

²⁸ *Allstate Ins. Co. v. Dana Corp.*, 737 N.E.2d 1177, 1187 (Ind. App. 2000) (emphasis added).

²⁹ *New Albany & Salem R.R. v. Peterson*, 14 Ind. 112, 114 (1860). See generally 6-IN Waters and Water Rights I, page 5, Stephen L. Lucas.

³⁰ Note, Water Rights in Indiana, 32 IND. L.J. 39, 47 (1956).

neighboring proprietor.³¹ The Court of Appeals revisited groundwater ownership jurisprudence in 2000, recognizing that Indiana does not apply the English Rule of groundwater ownership. The Court reasoned, groundwater is “not a landowner’s property until the landowner takes it into actual possession.”³²

b. Scope of Use

i. Permitted and Preferred Uses

The term “beneficial use” means the use of water resources for “any useful and productive purpose.”³³ In particular, types of “beneficial uses” include: “domestic, agricultural (irrigation), industrial, commercial, power generation, energy conversion, public water supply, waste assimilation, navigation, fish and wildlife, and recreational” uses.³⁴ It is notable that the definition of “beneficial use” does not include a catch-all phrase, suggesting that any other types of uses may not be considered beneficial under this chapter of the Indiana code.

In *Prudential*, the Seventh Circuit relied on *Wiggins*, when the Court reversed a temporary injunction entered by the district court against a farming operation. The 8,000-acre farming operation irrigated its crops with spraying rigs supplied by groundwater wells; however, malfunctions occasionally caused water to be sprayed on uncultivated areas of the farm. The Seventh Circuit did not consider this contrary to the beneficial use doctrine, because “absent proof of injury to an adjacent landowner,” the gratuitous use of groundwater is not a violation when it is “minimal and only incidental” to the beneficial use of that water.³⁵

Pursuant to the “Emergency Groundwater Rights Act,” (“EGRA”) Indiana’s regulatory tool provides a means for groundwater replacement in certain dispute circumstances.³⁶ In regards to preference of use, new groundwater wells (for both commercial and domestic users) must conform to specified construction standards set forth in the Indiana Administrative Code in order to receive statutory protection and relief under the EGRA.³⁷ This regulation is another example of Indiana’s adaptive and innovative groundwater law, primarily because this standard “seeks to maximize efficient groundwater utilization for commercial and domestic users.”³⁸ These construction standards differentiate between drilling wells into an “unconsolidated aquifer” versus a “bedrock aquifer,” providing relevant definitions for both.³⁹

In regards to local groundwater regulation, Indiana does not recognize groundwater as a watercourse whose use for business purposes can be regulated by local governmental units. The Indiana Supreme Court recognized groundwater a watercourse which could be regulated, but the Indiana legislature acted to back away from such an interpretation.⁴⁰

³¹ *Gagnon v. French Lick Hotels*, 163 Ind. at 696, 72 N.E. at 851.

³² *Allstate Ins. Co. v. Dana Corp.*, 737 N.E.2d 1177, 1187 (Ind. App. 2000); Stephen L. Lucas, 6-IN Waters and Water Rights I, 6.

³³ IND. CODE § 14-25-7-2.

³⁴ IND. CODE § 14-25-7-2.

³⁵ *Prohosky v. Prudential Ins. Co. of Am.*, 767 F.2d 387, 394 (7th Cir. 1985).

³⁶ IND. CODE § 14-25-4.

³⁷ 312 IND. ADMIN. CODE 12

³⁸ Stephen L. Lucas, 6-IN Waters and Water Rights I, 7.

³⁹ 312 IND. ADMIN. CODE 12-3-(1),(2).

⁴⁰ *Town of Avon v. W. Cent. Conservancy Dist.*, 957 N.E.2d 598 (Ind. 2011); Indiana Code §36-9-1-10.

Water permits are not required for use, but the DNR maintains an inventory for water withdrawn by “significant” water users (more than 100,000).⁴¹ The owner of a “significant water withdrawal facility” must register within three months after the facility is completed, meaning that presumably, registration is not a requirement to start begin water withdrawals as long as the facility complies with construction standards.⁴² However, failure to comply with the registration requirements commits a Class B infraction (and a separate infraction each day a violation occurs), though it is unclear if a violation results in the loss of water rights. “Significant water withdrawal facilities” must register with the DNR and provide specified information, including the registrant’s name and legal address, source of water supply, total capability of the water withdrawal facility, total capability of the water withdrawal facility per day and the amount from each source, use to be made of the water, place of use, place of discharge, geographic location of supply source, and the date of registration.⁴³ Most notably, the “significant water withdrawal facilities” must provide the DNR with their proposed type of water use when they register their facility, and at the end of each year, make a verified report of the amounts of water withdrawn each year.⁴⁴

Although the Indiana Code does not explicitly maintain a hierarchy for purpose of use, the EGRA does provide protective relief for “nonsignificant groundwater withdrawal facilities,” when the water supplies of those users who withdraw smaller quantities of groundwater are harmed by groundwater withdrawal facilities capable of withdrawing more than 100,000 gallons per day.⁴⁵ In this context, presumably most domestic users cannot withdraw more than 100,000 gallons. Therefore, it seems that protective relief is likely available for most domestic users, but not available for certain significant withdrawal facilities that pertain to industrial, agriculture, or mining uses.

ii. Location of use

Although the statute does not explicitly consider transport of groundwater, a permit may not be issued to an applicant who wants to withdraw and use more than one hundred thousand gallons per day in a restricted use area—if this owner does not have title or hold a lease, to the property from which the water is to be withdrawn.⁴⁶ Presumably, because Indiana does not have provisions that address the location of water use, groundwater transfers may be allowed if they are non-wastefully put to a “reasonable-beneficial use” and the transfer is not conducted for a malicious purpose or wasted.

Indiana is a member state of the Great Lakes Compact, which bars transfers of water away from the Great Lakes Basin, unless those transfers are to straddling communities and/or straddling counties (and the included communities).⁴⁷

⁴¹ IND. CODE § 14-25-7-11.

⁴² IND. CODE § 14-25-7-15(d).

⁴³ IND. CODE § 14-25-7-15.

⁴⁴ IND. CODE § 14-25-7-15(e).

⁴⁵ IND. CODE § 14-25-4-3,6.

⁴⁶ IND. CODE § 14-25-3-13.

⁴⁷ IND. CODE § 14-25-15

c. Loss of Water Rights

The rights to pump groundwater from land owned by a person may be lost or enjoined, if the withdrawals are with malicious intent and conducted to harm neighboring groundwater users, or the use is wholly or partially wasteful and that waste causes harm to neighbors. There appears to be a spectrum regarding the extent of pumping that could result in an injunction. In *Irving Materials, Inc.*, although pumping from a gravel pit damaged the water wells of neighboring landowners—these property owners were denied compensation for the damages.⁴⁸ Similarly, in *Wiggins*, the Supreme Court of Indiana overruled the Court of Appeals, reinstating the trial court decision to find in favor of the surface coal mining operation that drained a nearby lake.⁴⁹ Because the damage was not deliberate, the plaintiff was denied recovery.⁵⁰ In *Gagnon v. French Lick Hotels*, within the context of business rivals, interesting facts had one business owner operate a substantial pump with the intention of draining the groundwater source—to the detriment of his business competitor.⁵¹ The trial court enjoined this malicious operation of the groundwater pump. The Indiana Supreme Court affirmed the decision, reasoning that the pumping of groundwater, to the detriment of another user, may be prevented by an injunction.⁵² As mentioned before, the 7th Circuit held that wasteful use could result in a granting of relief, but only if that waste harmed neighboring lands.⁵³

Although not the legal procedure for loss of groundwater rights, the state of Indiana affords citizens with a legal procedure for relief under the EGRA—such that a “nonsignificant groundwater withdrawal facility” can seek relief under the legislation when their water supply is damaged by the owner of a “significant groundwater withdrawal facility.”⁵⁴ To obtain relief, several statutory requirements with regards to causation must be met. Under the EGRA, the term “owner” includes the owner or an interest in property and a person in possession of property.⁵⁵ A groundwater withdrawal facility that has a withdrawal capability of less than one hundred thousand (100,000) gallons of groundwater in one day is a “nonsignificant groundwater withdrawal facility.”⁵⁶ In contrast, a “significant groundwater withdrawal facility” is a facility that, in the aggregate from all sources and by all methods, has the capability of withdrawing at least one hundred (100,000) gallons of groundwater in one day.⁵⁷

If granted a permit to withdraw more than one hundred thousand gallons of water per day, these “significant” facilities must file a certified statement detailing the average daily amount of groundwater withdrawn per day. The DNR may invalidate the user’s claim to the withdrawal and use of groundwater for failure to file this certified statement of average daily withdrawals.⁵⁸ Upon invalidation, the person who violates section 6, 11, 12, or an order concerning restricted use areas,

⁴⁸ *Irving Materials, Inc. v. Carmody*, 436 N.E.2d 1163 (Ind. App. 1982).

⁴⁹ *Wiggins v. Brazil Coal and Clay Corp.*, 452 N.E.2d 958, 963-64 (Ind. 1983).

⁵⁰ *Wiggins v. Brazil Coal and Clay Corp.*, 452 N.E.2d 958, 963-64 (Ind. 1983).

⁵¹ *Gagnon v. French Lick Hotels*, 163 Ind. at 696, 72 N.E. at 851.

⁵² *Gagnon v. French Lick Hotels*, 163 Ind. at 696, 72 N.E. at 851.

⁵³ *Prohosky v. Prudential Ins. Co. of Am.*, 767 F.2d 387, 394 (7th Cir. 1985).

⁵⁴ IND. CODE §§ 14-25-4-3,6.

⁵⁵ IND. CODE § 14-25-4-4.

⁵⁶ IND. CODE § 14-25-4-3.

⁵⁷ IND. CODE § 14-25-4-6.

⁵⁸ IND. CODE § 14-25-7-11.

commits a Class C infraction.⁵⁹ In addition, the DNR may require the “significant” water user to install a meter if there is evidence that the certified state is inaccurate or false, or if the user is withdrawing a larger quantity than authorized.⁶⁰

In restricted use areas, a refusal by the DNR to grant a permit for withdrawals exceeding one hundred thousand (100,000) gallons per day is subject to court review under Indiana Code 4-21.5-5.⁶¹ To further monitor the use of “significant withdrawal facilities,” the DNR may require a person found to be committing waste of groundwater to return all or part of the groundwater to the ground.⁶²

4. Hydraulic Connection and Regulation

Indiana restricts malicious actions in regards to hydraulically linked surface and groundwater. In *Wiggins*, defendant coal company was not liable for lowering the level of plaintiff's lake formed by groundwater because defendant was making reasonable use of his land and did not act maliciously. The same principle of gratuitous and malicious injury seems to apply to ground/surface water interaction.

Even early in water law jurisprudence (i.e., 1860), Indiana courts noted the difference between common law of percolating groundwater and the “law which applies to rivers and flowing streams.”⁶³ Although Indiana does not expressly regulate the interaction, the Indiana case law does recognize four categories of water sources—suggesting that the governance structure may be designed to regulate the interaction in the future.⁶⁴ Specifically, the different water sources include: i) surface waters that flow in well-defined channels; ii.) surface waters (“dispersed” waters) that lack a well-defined channel; iii.) subsurface waters (i.e., underground watercourses) that are within a watercourse with definable boundaries; and iv.) subsurface waters (i.e., percolating groundwater) that lack a definite channel and that percolate or filter from the lands of one to the lands of another proprietor.⁶⁵

5. Regulatory Authorities

The regulatory authority regarding groundwater is the Indiana Department of Natural Resources (“DNR”), specifically, the DNR administers relief under the EGRA.⁶⁶ The contact information for the Indiana DNR is as follows:

Department of Natural Resources
402 West Washington Street
Indianapolis, IN 46204

⁵⁹ IND. CODE § 14-25-7-18.

⁶⁰ IND. CODE § 14-25-7-14.

⁶¹ IND. CODE § 14-25-3-10.

⁶² IND. CODE §§ 14-25-7-15-16.

⁶³ *New Albany & Salem R.R v. Peterson*, 14 Ind. 112, 114 (1860). *See generally* Stephen L. Lucas, 6-IN Waters and Water Rights I, 5.

⁶⁴ Stephen L. Lucas, 6-IN Waters and Water Rights I, 1.

⁶⁵ *Town of Avon v. W. Cent. Conservancy Dist.*, 957 N.E.2d 598, 604 (Ind. 2011), *Gagnon v. French Lick Springs Hotel Co.*, 163 Ind. 687, 72 N.E. 849 (Ind. 1904).

⁶⁶ IND. CODE § 14-25-4.

<http://www.in.gov/dnr/water/4847.htm>

http://dnrmaps.dnr.in.gov/apps/dnrwaterwells_enh/

The DNR website offers an informative online map of Indiana with detailed layers depicting significant water use facilities, as well as aquifer boundaries.

The DNR has the authority, when it has reason to believe it is necessary and in the public interest, to designate certain areas within the state of Indiana as restricted use areas.⁶⁷ Within these restricted use areas, a person must obtain a permit from DNR to withdraw or use a quantity of groundwater in excess of one hundred thousand (100,000) gallons per day.⁶⁸

The DNR's primary responsibility is to administer the EGRA, utilizing its agency authority to investigate and inspect "significant withdrawal facilities" under necessary circumstances. From a monitoring perspective, the DNR, in conjunction with the United States Geological Survey, is obligated to administer a "voluntary monitoring program."⁶⁹ Within this program, volunteers may provide monitoring data to the DNR.⁷⁰

Indiana's EGRA prescribes a "24-hour Investigation" provision. The legislation maintains that within twenty-four hours after receiving a written complaint from the owner of a "nonsignificant withdrawal facility," alleging that the water well on the property in the owner's possession has either failed to furnish the well's normal supply of water, or failed to furnish potable water—the DNR director shall ensure that an onsite investigation occurs.⁷¹ Interestingly, this authorizes the DNR to monitor both the *quantity and quality of groundwater* withdrawals in the state of Indiana, and to alleviate disputes involving both quantity and quality.

In addition, the DNR retains additional duties, including to conduct a continuing assessment of water availability, maintain an inventory of significant uses of water withdrawn from the surface or ground, and plan for the development and conservation of the water resource for beneficial uses.⁷² Further, the Indiana Code prescribes various powers for the "Commission," including the authority to investigate and inspect water users, establish rules for minimum groundwater levels, and when necessary for administration of the chapter, require metering (or reasonable measurements) of water withdrawals and reporting of these withdrawals from "significant" water users.⁷³

The Indiana state agency that is primarily responsible for monitoring water pollution issues is the Indiana Department of Environmental Management (IDEM), although the DNR does retain some authority to regulate water quality issues pertaining to coal mining under the Surface Mining

⁶⁷ IND. CODE § 14-25-3-4(a).

⁶⁸ IND. CODE § 14-25-3-4(a); IND. CODE § 14-25-3-6.

⁶⁹ IND. CODE § 14-25-7-12.5(a).

⁷⁰ IND. CODE § 14-25-7-12.5(a).

⁷¹ IND. CODE § 14-25-4-8.

⁷² IND. CODE § 14-25-7-11.

⁷³ IND. CODE § 14-25-7-12. The DNR ("Commission") must establish the minimum levels of groundwater, based on the level of groundwater in aquifers below which further withdrawals would be significantly harmful to the water resource of the area.

Control and Reclamation Act.⁷⁴ Interestingly, nothing in Indiana’s statutory provisions suggest that the DNR occupies the field for determining “restricted use areas” or for obtaining a permit—thus, the provisions “clearly contemplated the potential for other entities to regulate.”⁷⁵

No special districts are present in Indiana other than restricted areas. Instead, the DNR addresses these circumstances within the context of EGRA, and affords relief accordingly.

⁷⁴ 30 U.S.C. § 1201 et seq.

⁷⁵ *Town of Avon v. W. Cent. Conservancy Dist.*, 957 N.E.2d 598, 608 (Ind. 2011).

Appendix G: Louisiana

Louisiana applies the rule of capture to groundwater ownership, treating it as a “liquid mineral” under the law. Use for a beneficial purpose and registration with the State Commissioner is required for Louisiana groundwater users. While no procedure exists for wholesale loss of groundwater rights in the state, the State Commissioner may place restrictions on particular uses.

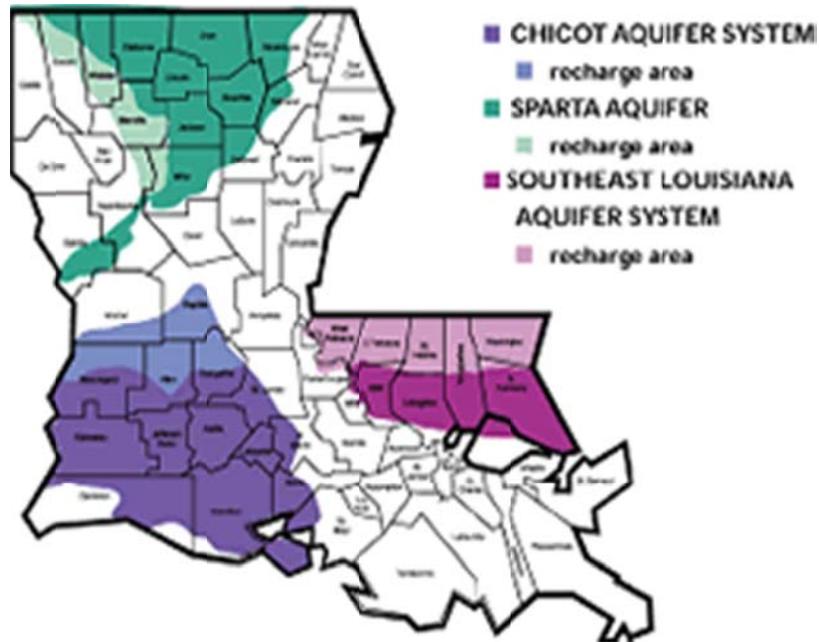


Fig. G.1. Louisiana Aquifer Systems¹

1. Definitions, Basis of Rights, Standards, and Interactions

In Louisiana, “Groundwater” is water suitable for any beneficial purpose percolating below the earth’s surface.² The Louisiana Civil Code provides that, “(u)nless otherwise provided by law, the ownership of a tract of land carries with it the ownership of everything that is directly above or under it. The owner may make works on, above, or below the land as he pleases, and draw all the advantages that accrue from them, unless he is restrained by law or by rights of others.”³ Springs and wells are considered component parts of groundwater and may be captured by the surface owner under the doctrine of accession.⁴ Under the rule of capture theory, however, percolating waters are generally not considered owned until reduced to actual possession and control of the

¹ SOUTHERN REGIONAL WATER PROGRAM, *Louisiana Water Quantity and Policy*, <http://srwqis.tamu.edu/louisiana/program-information/louisiana-target-themes/water-quantity-policy/>.

² LA. STAT. ANN. § 38:3092.

³ LA. CIV. CODE ANN. Art. 490.

⁴ James M. Klebba, *Water Rights and Water Policy in Louisiana: Laissez Faire Riparianism, Market Based Approaches, or A New Managerialism?* 53 LA. L. REV. 1779, 1819 (1993).

claimant with the surface right to withdraw -- that is, the substances are subject to ownership only when withdrawn.⁵

In 1963 the state's appeals court applied the rule of capture to groundwater ownership.⁶ In that case, plaintiffs alleged that defendant's withdrawals from a shared sand formation depleted the fresh water available to plaintiffs for domestic use, decreasing plaintiff's property values.⁷ Defendant was an oil operator using the fresh water to inject into an oil formation, but plaintiffs alleged salt water was alternatively available for that purpose.⁸ The court reasoned that without specific comparative authorities on groundwater in existing state case law, groundwater could be compared to oil and gas, and therefore found "(w)ater is a liquid mineral."⁹ For purposes of consistency, the court decided to apply the English Common Law Doctrine of rule of capture to groundwater, and not the American rule of Reasonable Use, reasoning that the body of the state's existing jurisprudence addressing oil and gas already relies on the rule of capture.¹⁰ The rule of capture permits use of water in any extent and for any use the owner of the surface desires, subject only to restrictions against avoidable injuries to a neighbor.¹¹ The court also opines that the long-term regulation and control of the water supply is a matter for the legislature to address.¹²

Today, the standard for injury to another's groundwater use is governed by the Minerals Code, which states that "A person with rights in a common reservoir or deposit of minerals may not make works, operate, or otherwise use his right so as to deprive another intentionally or negligently of the liberty of enjoying his rights, or that may intentionally or negligently cause damage to him."¹³

All users of groundwater in the state are required to register with the State Commissioner.¹⁴ The Commissioner classifies each user as domestic, municipal, industrial, agricultural, recreational, or therapeutic, and has discretion to require periodic registration renewal for certain wells.¹⁵ "Beneficial use" is defined as the use of groundwater for domestic, municipal, industrial, agricultural, recreational or therapeutic purposes.¹⁶ A proposed beneficial use must be described when groundwater users within the state register their use with the Commissioner, but no other statutory or regulatory requirements for beneficial use exist.¹⁷

2. Sources of Law

Louisiana addresses groundwater governance within the Natural Resources Policy detailed in its

⁵ *Adams v. Grigsby*, 152 So. 2d 619, 621 (La. Ct. App.), writ refused, 244 La. 662, 153 So. 2d 880 (1963); see also La. Atty. Gen. Op. No. 83-522 (1983).

⁶ *Adams v. Grigsby*, 152 So. 2d 619, 621 (La. Ct. App.), writ refused, 244 La. 662, 153 So. 2d 880 (1963).

⁷ *Adams v. Grigsby*, 152 So. 2d 619, 620 (La. Ct. App.), writ refused, 244 La. 662, 153 So. 2d 880 (1963).

⁸ *Adams v. Grigsby*, 152 So. 2d 619, 620 (La. Ct. App.), writ refused, 244 La. 662, 153 So. 2d 880 (1963).

⁹ *Adams v. Grigsby*, 152 So. 2d 619, 623 (La. Ct. App.), writ refused, 244 La. 662, 153 So. 2d 880 (1963).

¹⁰ *Adams v. Grigsby*, 152 So. 2d 619, 623 (La. Ct. App.), writ refused, 244 La. 662, 153 So. 2d 880 (1963).

¹¹ *Adams v. Grigsby*, 152 So. 2d 619, 623 (La. Ct. App.), writ refused, 244 La. 662, 153 So. 2d 880 (1963).

¹² *Adams v. Grigsby*, 152 So. 2d 619, 624 (La. Ct. App.), writ refused, 244 La. 662, 153 So. 2d 880 (1963).

¹³ LA. STAT. ANN. § 31:10.

¹⁴ LA. REV. STAT. 38:3094.

¹⁵ LA. REV. STAT. 38:3094.

¹⁶ LA. REV. STAT. 38:3092.

¹⁷ LA. REV. STAT. 38:3094.

constitution, in Administrative Code providing for Groundwater and Water Wells Management, and by statute via the Water Resources Commission, which governs groundwater use, contamination, irrigation districts, and other special districts. These authorities are located at:

Natural Resources Policy: La. Const. Art. IX, § 1 (1974).

Statute - Public Contracts, Works and Improvements Code: Utilization of Groundwater Resources: La. Rev. Stat. Ann. 38:3091 et seq.

Regulation - Ground Water Management: La. Admin. Code Tit. 43, Pt. VI, Ch. 1 et seq.

Statute: Water Resources Commission: La. Rev. Stat. Ann. 3097.4

Statutes - Groundwater Contamination: La. Rev. Stat. Ann. 2015.1, La. Rev. Stat. Ann. 915, La. Rev. Stat. Ann. 4.1

Regulations - Water Wells: 56 La. Admin. Code Pt I, 101 et seq.

Irrigation Districts: La. Rev. Stat. Ann. § 38:2101.

Sabine River Authority: La. Rev. Stat. Ann. §§ 38:2321 et seq.

Water Conservation Districts: La. Rev. Stat. Ann. §§ 38:2501 et seq.

Soil and Water Conservation Districts: La. Rev. Stat 3:1204 et seq.

Rule of Capture: *Adams v. Grigsby*, 152 So. 2d 619 (La. Ct. App.), *writ refused*, 244 La. 662, 153 So. 2d 880 (1963).

3. Scope of Right

a. Groundwater Ownership

The Louisiana Constitution states that “(t)he natural resources of the state, including air and water, and the healthful, scenic, historic, and esthetic quality of the environment shall be protected, conserved, and replenished insofar as possible and consistent with the health, safety, and welfare of the people. The legislature shall enact laws to implement this policy.”¹⁸ The Louisiana groundwater statutory provisions provide that the utilization of groundwater resources is a matter of public interest.¹⁹ The purpose of the “Utilization of Groundwater Resources” chapter is to provide for the efficient administration and gathering data of groundwater in Louisiana.²⁰ Despite these provisions, which indicate public ownership interests in the use of groundwater resources, the ability to capture groundwater, thereby reducing it to possession and ownership, is appurtenant to surface rights: “Unless otherwise provided by law, the ownership of a tract of land carries with it the ownership of everything that is directly above or under it. The

¹⁸ LA. CONST. ANN. Art. IX, § 1.

¹⁹ LA. REV. STAT. 38:3091.

²⁰ LA. REV. STAT. 38:3091.

owner may make works on, above, or below the land as he pleases, and draw all the advantages that accrue from them, unless he is restrained by law or by rights of others.”²¹

b. Scope of Use

i. Permitted and Preferred Uses

Use for any “beneficial use”, such as the use of groundwater for domestic, municipal, industrial, agricultural, recreational or therapeutic purposes, is permitted by the Louisiana groundwater code, but this list is non-exclusive.²²

The Louisiana groundwater statutory provisions do not define a hierarchy of preferred groundwater uses, but § 38:3094 requires registration for all wells producing in excess of 50,000 gallons per day, and the Commissioner may require registration of smaller wells at his or her discretion.²³ This permit must provide the date the well was drilled, the name of the driller, the current ownership, and any other information the commissioner may reasonably require.²⁴

The Commissioner may also make reasonable rules and regulations to require that all users of groundwater within the state register with the commissioner showing the number, location, and capacity of wells owned or operated by them or solely for their benefit and designating the beneficial use or uses of groundwater by them.²⁵ The commissioner shall then classify each user as a domestic, municipal, industrial, agricultural, or recreational or therapeutic user of ground water upon the basis of registration information.²⁶

One section of Louisiana civil code addressing the use of *surface water* states a preference for agricultural or aquacultural users of water, since that type of movement “ultimately provides value to the resource in several ways as these uses provide for additional pathways for integration of the water into the hydrological cycle. Some of these value-adding processes include recharging aquifers by percolation into the groundwater (...)”²⁷ The code specifies that the state legislature finds “there is no prohibited donation by agricultural and aquacultural uses of these sorts.”²⁸ However, no section of state code addresses value-adding uses of groundwater estates.

The legislative history of the groundwater management program indicates the long-term groundwater management goals of: sustainability, preservation, consideration of economic impact on the state’s citizens and its role in interstate commerce, and efficient administration in use and management of groundwater resources.²⁹ While the state permits groundwater use for any “beneficial use,” the above principles also inform the Commissioner’s regulation and classification of groundwater uses.³⁰

²¹ LA. CIV. CODE ANN. Art. 490.

²² LA. REV. STAT. 38:3092.

²³ LA. REV. STAT. 38:3094(A)(1).

²⁴ LA. REV. STAT. 38:3094.

²⁵ LA. REV. STAT. 38:3094(2).

²⁶ LA. REV. STAT. 38:3094(2).

²⁷ LA. REV. STAT. 9:1104.

²⁸ LA. REV. STAT. 9:1104.

²⁹ LA. REV. STAT. 38:3097(A).

³⁰ LA. REV. STAT. 38:3092.

ii. Location of Use

Louisiana's rule of capture permits use of water in any extent and for any use a party legally accessing a surface estate desires, subject only to restrictions against avoidable injuries to a neighbor.³¹ However, this right is not necessarily appurtenant to ownership of the surface tract -- the rule of capture provides that percolating waters are not considered owned until reduced to the actual possession and control of the claimant with the surface right to withdraw.³² To gain a surface right to withdraw groundwater, however, actual ownership or otherwise legal access to mineral rights such as through a lease is required.³³

No Louisiana statutes address statewide standards for transport of groundwater within or outside groundwater basins. However, one section of state criminal code provides that no person, firm, or entity shall transport underground or surface water from one particular parish (St. Tammany) to any body located outside of that parish, except for persons or entities engaged in the sale of bottled water from wells within that parish.³⁴

c. Loss of water rights

No Louisiana cases discuss the loss of groundwater ownership rights, either through abandonment, forfeiture, prescription, or eminent domain. However, Louisiana law may place *use restrictions* on groundwater ownership. Pursuant to the Louisiana Ground Water Management Administrative Code, groundwater users who wish to drill certain wells (domestic, drilling, drought relief, or replacement wells) must submit notifications to the ground water commissioner, who may exempt those notification requirements for "just cause."³⁵ The commissioner may also place restrictions on the use of the well, such as fixing production quantities, designating spacing of wells, and metering the wells.³⁶ Pursuant to the Louisiana State Code, the commissioner requires registration of wells producing over 50,000 gallons per day and may require registration of smaller wells, in the commissioner's discretion.³⁷ That statutory provision allows the commissioner to require particular well owners or lessees to install control devices on free flowing water wells producing an excess of 5,000 gallons per day, to control runoff from wells, and to allow entry of state officials for data collection and inspection purposes.³⁸ The commissioner may also impose withdrawal restrictions in areas of ground water concern.³⁹ However, no section of Louisiana civil, state, or administrative code discusses wholesale loss of groundwater rights.

³¹ *Adams v. Grigsby*, 152 So. 2d 619, 623 (La. Ct. App.), writ refused, 244 La. 662, 153 So. 2d 880 (1963).

³² *Adams v. Grigsby*, 152 So. 2d 619, 621 (La. Ct. App.), writ refused, 244 La. 662, 153 So. 2d 880 (1963); see also La. Atty. Gen. Op. No. 83-522 (1983).

³³ LA. CIV. CODE ANN. Art. 490.

³⁴ LA. REV. STAT. 14:224.

³⁵ LA. ADMIN. CODE Pt. VI, 701.

³⁶ LA. ADMIN. CODE Pt. VI, 705.

³⁷ LA. REV. STAT. 38:3094.

³⁸ LA. REV. STAT. 38:3094.

³⁹ LA. REV. STAT. 38:3097.6(B).

4. Hydraulic Connection and Regulation

No section of state code or administrative regulations discuss interactions between ground and surface water. While groundwater is defined as “water suitable for any beneficial purpose percolating below the earth’s surface,” the only section of state regulatory or statutory code defining surface water defines running surface waters, for mineral management purposes, as “running waters of the state, including the waters of navigable water bodies and state owned lakes.”⁴⁰ No state case law discusses hydraulically linked surface and ground waters.

5. Regulatory Authorities

Regulatory authorities in Louisiana include the Office of Conservation within the Department of Natural Resources, the Commissioner of Conservation, the Groundwater Resources Commission Program, the Water Management Advisory Task Force, and the Soil and Water Conservation Commission.

Through enabling laws and regulations, the Office of Conservation is responsible for the protection, conservation, preservation, and sustainability of Louisiana’s aquifer systems, including management of groundwater withdrawals and monitoring and designation of Areas of Ground Water Concern.⁴¹ The state legislature also gave management and regulatory authority to the Commissioner of Conservation -- his or her duty is to evaluate notifications to drill, require water well registration, and establish Areas and Critical Areas of Ground Water Concern. The authorities granted exclusively to the Commissioner of Conservation within Act 446 of 2001 and Act 49 of 2003, combined with restrictions within Louisiana Revised Statute 36:806 (which prevents the LDNR Secretary, Deputy Secretary, and Undersecretary from exercising, reviewing, administering, or implementing the quasi-judicial, licensing, permitting, regulatory, rulemaking, or enforcement powers or decisions of the Commissioner) clearly establish the Commissioner as the state’s chief groundwater sustainability manager. The Commissioner of Conservation may determine areas of groundwater concern, designate critical areas of groundwater concern, and declare a Ground Water Emergency.⁴² The Office of Conservation and Commissioner of Conservation’s website is located at:

<http://www.dnr.louisiana.gov/index.cfm?md=pagebuilder&tmp=home&pid=46>

Act 446 of the Louisiana Legislature established the Ground Water Resources Commission (LGWRC) in 2001. The GWRC manages the state’s groundwater resources by issuing regulations and policies under statutory authority to address aquifer sustainability and groundwater withdrawal and conservation issues.⁴³ The Ground Water Resources Commission/Program is located at:

<http://www.dnr.louisiana.gov/index.cfm?md=pagebuilder&tmp=home&pid=455>

The Water Management Advisory Task Force was established by Act 446 of the Louisiana Legislature in 2001 and aids the commissioner of conservation and the water resource

⁴⁰ LA. REV. STAT. 38:3092.

⁴¹ LA. REV. STAT. 38:3097.3; 30:962(1).

⁴² 38 LSA-R.S. § 3097.3(5); 38 LSA-R.S. § 3097.6

⁴³ OFFICE OF CONSERVATION, *Ground Water Resources Program*, <http://www.dnr.louisiana.gov/index.cfm?md=pagebuilder&tmp=home&pid=455>.

commission in developing water resource management programs.⁴⁴ The Task Force’s plans “should stress conservation as the primary mechanism for the protection of the state’s ground water resources.”⁴⁵ The Water Management Advisory Task Force contact information is located at: <https://www.legis.la.gov/legis/BoardMembers.aspx?boardId=739>

Finally, created by the state legislature in 1938, the Soil and Water Conservation Commission provides general regulatory oversight of conservation district programs.⁴⁶ The Soil and Water Conservation Commission website is located at: <http://www.ldaf.state.la.us/conservation/state-soil-and-water-conservation-commission/>

a. Special Districts

In Louisiana, areas may be designated water conservation districts.⁴⁷ Areas of ground water concern may also be designated pursuant to Louisiana state code.⁴⁸

i. Designated Basins/Districts

The Louisiana state code provides a procedure through which areas may be designated water conservation districts.⁴⁹ 34 of those districts exist and are codified in the Louisiana Water Conservation Code.⁵⁰

ii. Critical Groundwater Management Areas

Areas of ground water concern are areas in which, under current use and environmental conditions, aquifer sustainability is not being maintained due to “a salt-water front, water level decline, or subsidence, resulting in unacceptable environmental, economic, social, or health impact, or causing serious adverse impact to an aquifer.”⁵¹ Those areas may be designated critical areas of ground water concern where a commissioner finds sustainability can’t be maintained without imposing withdrawal restrictions.⁵² The commissioner may impose withdrawal restrictions in areas of ground water concern where considering the following: groundwater needed for human consumptive use and public safety, uses other than human consumption and public safety, historical use, ability (including economic) of a user to utilize alternative water sources, and the user’s conservation efforts and reductions in water use.⁵³ Users may file applications with the commissioner to designate areas of ground water concern, but the state provides no complete list of designated such areas.⁵⁴

⁴⁴ LA. REV. STAT. 38:3097.7.

⁴⁵ LA. REV. STAT. 38:3097.7(1)(B).

⁴⁶ LA. REV. STAT. 3:1204.

⁴⁷ LA. REV. STAT. 3:1204.

⁴⁸ LA. REV. STAT. 38:3097.2; 38:3097.6.

⁴⁹ LA. REV. STAT. 3:1204.

⁵⁰ LA. REV. STAT. 38:2501 et seq.

⁵¹ LA. REV. STAT. 38:3097.2; 38:3097.6.

⁵² LA. REV. STAT. 38:3097.2.

⁵³ LA. REV. STAT. 38:3097.6(B).

⁵⁴ LA. ADMIN. CODE Pt. VI, 301.

Appendix H: Missouri

The state of Missouri adopted the rule of “Comparative Reasonable Use” to govern the allocation of groundwater in *Higday v. Nickolaus*.¹ The *Higday* opinion also expressly abandoned the absolute dominion rule as it pertained to groundwater in Missouri, explaining that the rule of reasonable use “recognizes that the nature of the property right is usufructuary rather than absolute as under the English rule.”² Subsequent Missouri case law has adopted the “comparative Reasonable Use” rule set forth in *Higday*, including the Missouri Supreme Court in *Heins Implement Co. v. Missouri Hwy. & Transp. Comm’n*, as well as the Missouri Court of Appeals in *City of Blue Springs v. Central Dev. Ass’n*. Legal scholars also consider the Missouri groundwater allocation system to be a representation of the reasonable use doctrine.³ See section (4)(b)(iii)(1) below for a discussion on why scholars believe that Missouri does not follow the “American Rule” for reasonable use—even though the Missouri Court of Appeals mistakenly applied the “American Rule” in *Citizens for Ground Water Prot. v. Porter*.⁴

1. Definitions, Basis for Rights, Standards, and Interactions

Definition of Groundwater: “Percolating groundwaters include all waters which pass through the ground beneath the surface of the earth without a definite channel and not shown to be supplied by a definite flowing stream. They are waters which ooze, seep, filter, and otherwise circulate through the interstices of the subsurface strata without definable channel.”⁵

Overlying landowners are entitled to withdraw groundwater. Within the application of the reasonable use rule, “a landowner may use the underlying groundwater”—pursuant to the particular individual’s overlying land ownership—“freely for any purpose incidental to his beneficial enjoyment of the land.”⁶ Overlying land ownership thus maintains the basis for the right, because “water is not severable from the land through or under which it flows.”⁷ The landowner may convey his usufructuary right to use the groundwater, but not the water itself.⁸ Nevertheless, an individual’s overlying land ownership “does not carry with it any ownership of vested rights to underlying groundwater not actually diverted and applied to beneficial use.”⁹

¹ *Higday v. Nickolaus*, 469 S.W.2d 859, 866 (Mo. App. 1971); See also 6-MO Waters and Water Rights I, Peter N. Davis, Missouri, page 3-4 of 15 (explaining that Missouri also follows the rule of comparative reasonable use previously adopted for surface watercourses under the riparian doctrine). *Higday* rejected earlier Missouri case law, from almost three-quarters of a century prior to the *Higday* decision, which suggested that the state may apply the “absolute ownership rule” to groundwater. See generally *Springfield Waterworks Co. v. Jenkins*, 62 Mo.App. 74 (1895).

² *Higday v. Nickolaus*, 469 S.W.2d 859, 866 (Mo. App. 1971);

³ Joseph W. Dellapenna, *A Primer on Groundwater Law*, 49 IDAHO L. REV. 265, 290-92 (2013). Today, the reasonable use rule is embedded in the Restatement (Second) of Torts, § (1979). Dellapenna considers Missouri to be one in about ten states that apply the reasonable use rule today.

⁴ *Citizens for Ground Water Prot. v. Porter*, 275 S.W.3d 329 (Mo. App. 2008).

⁵ *Higday v. Nickolaus*, 469 S.W.2d 859, 865 (Mo. App. 1971).

⁶ *City of Blue Springs v. Central Dev. Ass’n*, 831 S.W.2d 655, 658 (Mo.App. W.D. 1992).

⁷ *City of Blue Springs v. Central Dev. Ass’n*, 831 S.W.2d 655, 659 (Mo.App. W.D. 1992).

⁸ *City of Blue Springs v. Central Dev. Ass’n*, 831 S.W.2d 655, 659 (Mo.App. W.D. 1992).

⁹ *City of Blue Springs v. Central Dev. Ass’n*, 831 S.W.2d 655, 658 (Mo. App. W.D. 1992) (finding

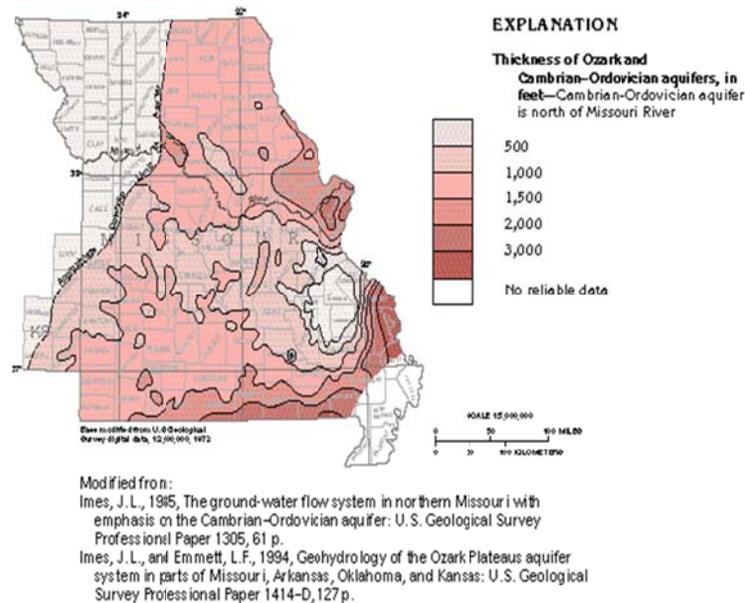


Figure 100. The Ozark aquifer averages about 1,000 feet in thickness in south-central Missouri and thickens southward and eastward. The equivalent Cambrian-Ordovician aquifer in northeastern Missouri is slightly thicker.

Fig. H.1. Groundwater Atlas of Missouri¹⁰

The standard for the right to use groundwater is reasonable use, such that landowners may use groundwater either on overlying or non-overlying land, so long as the use does not disturb a neighboring landowner of the groundwater necessary for the beneficial enjoyment of his land.¹¹ Therefore, beneficial use is a factor in the determination of reasonableness, which the Court considers on a case-by-case basis.

2. Sources of Law

Missouri Supreme Court case law, notably *Higday v. Nickolaus*, is the overarching chief source of law for groundwater allocation in Missouri. *Higday*, as well as subsequent case law enforcing *Higday* (e.g.), are the controlling source of law. Missouri is unique for the fact that it has very

persuasive an analysis regarding the migratory nature of percolating groundwater set forth by the Court in *Village of Tequesta v. Jupiter Inlet Corp.*, 371 So.2d 663 (1979)).

¹⁰ USGS, *Groundwater Atlas of the United States: Kansas, Nebraska, Missouri*, https://pubs.usgs.gov/ha/ha730/ch_d/D-text5.html.

¹¹ *Higday v. Nickolaus*, 469 S.W.2d 859 (Mo. App. 1971), *City of Blue Springs v. Central Dev. Ass'n*, 831 S.W.2d 655 (Mo. App. 1992). See generally 6-MO Waters and Water Rights I, Peter N. Davis, Missouri, page 4 of 15.

limited statutory law regarding the water rights of individual members of the public.¹² Less than a decade before the *Higday* decision, it is interesting to note that the Supreme Court of Missouri also applied the rule of reasonable use to determine the surface water rights of riparian owners.¹³

Missouri does not have a statutory permit system as a source of law for wells or diversions. However, large diversions of groundwater and surface water (i.e., averaging over 100,000 gallons per day), must be registered with the Missouri Department of Natural Resources (“MDNR”).¹⁴ The user withdrawing major quantities of water must file an official registration document with the MDNR, and include the following information: name and address, location of water source, type of water source, point in the water source from which it is proposed to withdraw, the amount in gallons of water withdrawn, as well as other requirements.¹⁵ If a user diverts more than 100,000 gallons per day of groundwater without registering, this unregistered withdrawal of groundwater may be declared a nuisance, and the director may request that the attorney general file an action in the name of the state for an injunction to stop the withdrawal.¹⁶

3. Scope of Right

a. Ownership

Although an overlying landowner has a usufructuary right to use underlying groundwater for any beneficial purpose, he does not own the water.¹⁷ This is because percolating groundwater is migratory, such that “a landowner does not own it in the absolute sense.”¹⁸ Because the landowner does not own the water, presumably this suggests that the state holds the water in trust for public use, although this notion has not been codified by statute or referenced in case law.

b. Scope of Use

i. Permitted and Preferred Uses

Higday references various types of groundwater uses that are allowable under the comparative Reasonable Use rule, including agriculture, manufacturing, irrigation, mining, municipal use, “or any purpose by which a landowner might legitimately use and enjoy his land, even though in doing so he may divert or drain the groundwater of his neighbor.”¹⁹

The conflict in *Higday* yielded a defendant municipality that sought to use powerful groundwater pumps on its own land—although this withdrawal would deprive the plaintiffs of the beneficial use of the normal water table, leading to the eventual impoverishment of their lands.²⁰ The Court did suggest that if the City were to limit its withdrawals to a quantity that would maintain the

¹² *Higday v. Nickolaus*, 469 S.W.2d 859, 869 at fn. 15 (Mo. App. 1971) (citing *Bollinger v. Henry*, Mo., 375 S.W.2d 161, 165 (1964)).

¹³ *Bollinger v. Henry*, 375 S.W.3d 1. c. 166 (Mo. 1964).

¹⁴ MO. REV. STAT. §§ 256.400-.410.

¹⁵ MO. REV. STAT. § 256.410.

¹⁶ MO. REV. STAT. § 256.415.

¹⁷ *City of Blue Springs v. Central Dev. Ass’n*, 831 S.W.2d 655, 658 (Mo.App. W.D. 1992).

¹⁸ *City of Blue Springs v. Central Dev. Ass’n*, 831 S.W.2d 655, 658 (Mo.App. W.D. 1992).

¹⁹ *Higday v. Nickolaus*, 469 S.W.2d 859, 866 (Mo. App. 1971).

²⁰ *Higday v. Nickolaus*, 469 S.W.2d 859, 870 (Mo. App. 1971).

water table, then the municipality's plan to sell water away from the premises may be an allowable use under the facts pleaded.²¹

Although there is not a statutorily imposed hierarchy for purposes of groundwater uses, case law suggests that the rule of reasonable use allows any type of groundwater use, so long as it is reasonable, and used for the beneficial enjoyment of that land. Application of this rule is founded on the determination of what constitutes reasonable use. The standard for preference is best understood against the backdrop of the reasonable use legal standard put forth by the Court in *Higday*.

Comparative reasonable use is ascertained on a case-by-case basis by an examination of many factors, such that the fundamental measure of the "overlying owner's right to use groundwater is whether it is for purposes incident to the beneficial enjoyment of the land from which it was taken."²² The factors that determine comparative reasonableness include: the persons involved, their relative positions, the nature of their uses, the comparative value of their uses, the climatic conditions²³, and other relevant factors, such as all facts and circumstances pertinent to the issues.²⁴ Missouri's reasonable use doctrine articulates a priority of uses "by which existing water resources may be allocated most *equitably* and *beneficially* among competing users, private and public."²⁵

ii. Location of Use

Landowners may use groundwater either on overlying land (on-site) or on non-overlying land (off-site), although off-site use is a factor in the determination of reasonableness.²⁶ Accordingly, Courts may decide to prohibit off-site use if the use deprives a neighboring landowner of the groundwater necessary for the beneficial enjoyment of his land.²⁷ The determination of whether groundwater can be used on non-overlying land will likely employ an analysis similar to that in *Higday* discussing the reasonableness of the transport of water by a landowner (see below at (iii).(2)). Presumably, whether groundwater can be used on non-overlying land (in addition to overlying land), depends on a comparison of the reasonableness of competing uses and a determination of whether an adjoining landowner is deprived of the beneficial enjoyment of his land. For example, if a neighboring landowner's ability to withdraw groundwater is injured by a landowner who uses his groundwater on non-overlying land, courts will consider the various *Higday* factors to determine if such a use is unreasonable because it is non-beneficial.²⁸

Because the governance of Missouri groundwater is rooted in common law, this leads to an interesting conundrum. In 2008, the Court of Appeals in *Citizens for Ground Water Prot. v.*

²¹ *Higday v. Nickolaus*, 469 S.W.2d 859, 870 (Mo. App. 1971).

²² *Higday v. Nickolaus*, 469 S.W.2d 859, 870 (Mo. App. 1971).

²³ Climatic conditions appear to include, based on further analysis in *Higday*, "[t]he movement, supply, rate of evaporation and many other physical characteristics of groundwater [that] are now readily determinable." *Higday*, 469 S.W. at 869.

²⁴ *Higday v. Nickolaus*, 469 S.W.2d 859 (Mo. App. 1971). See generally 6-MO Waters and Water Rights I, Peter N. Davis, Missouri, page 4 of 15.

²⁵ *Higday v. Nickolaus*, 469 S.W.2d 859, 869 (Mo. App. 1971).

²⁶ *Higday v. Nickolaus*, 469 S.W.2d 859 (Mo. App. 1971), *City of Blue Springs v. Central Dev. Ass'n*, 831 S.W.2d 655 (Mo. App. 1992). See generally Peter N. Davis, 6-MO Waters and Water Rights I, Missouri, 4.

²⁷ *Higday v. Nickolaus*, 469 S.W.2d 859 (Mo. App. 1971), *City of Blue Springs v. Central Dev. Ass'n*, 831 S.W.2d 655 (Mo. App. 1992). See generally Peter N. Davis, 6-MO Waters and Water Rights I, Missouri, 4.

²⁸ *Higday v. Nickolaus*, 469 S.W.2d 859, 866 (Mo. App. 1971).

Porter reasoned that Missouri follows the “American Rule of Reasonable Use,” which if correct, would require the on-site use of groundwater and forbid the export of groundwater for use on non-overlying land.²⁹ In support of the application of the “American Rule of Reasonable Use,” *Citizens for Ground Water* quoted *Higday* to hold that the export of water to an off-site ethanol plant was unlawful.³⁰ Scholars suggest, however, that the Court in *Citizens for Ground Water* incorrectly applied and misinterpreted the quote in *Higday*—primarily because the *Higday* Court was simply just describing the “American Rule of Reasonable Use.”³¹ Later in the decision, *Higday* expressly adopted the rule of “Comparative Reasonable Use,” when that Court adhered to the analogous rule of comparative reasonable use for riparian surface water users in the *Bollinger* decision.³² Peter Davis described this discrepancy, “The *Citizens* court completely overlooked this statement in *Higday* and, thus, misconstrued *Higday*’s holding and applied the wrong rule to percolating groundwater. Therefore, *Citizens* should not be cited followed in future Missouri percolating groundwater cases on this issue.”³³ At this point, legal databases (e.g., Westlaw, LexisNexis) indicate that *Citizens for Ground Water* has not yet been cited in regards to this particular issue—though this is certainly a potential source of future controversy.

Under the reasonable use rule, an overlying land owner, such as a municipality, may not withdraw groundwater and transport it for sale or other use away from the land from which it was taken—if the result of this transport impairs and injures the groundwater supply of an adjoining landowner.³⁴ In light of a thorough comparison of the reasonableness of competing uses, the impairment of other groundwater users suggests that this transport may be unreasonable because it is non-beneficial.³⁵ Peter N. Davis explained, “Diversion for off-site municipal water supply use is lawful in the absence of a present injurious interference with neighboring groundwater uses.”³⁶

c. Loss of Water Rights

Generally, the common law groundwater rights prescribed by Missouri courts have no fixed duration, although large withdrawers must report their usage annually.³⁷ Pursuant to the rule of comparative reasonable use, Missouri courts have authority to enjoin a landowner when his withdrawal of groundwater is shown to threaten the ability of adjacent landowners to procure their respective property right to the reasonable use of the groundwater underlying their land.³⁸ Thus, although an overlying landowner may not expressly lose his groundwater rights, this individual may be enjoined from exercising his rights without limitations. Injunctive relief, according to *Higday*, requires the application of the principles of equity under all circumstances.³⁹ “The relative convenience and inconvenience and the comparative injuries to the parties and to

²⁹ *Citizens for Ground Water Prot. v. Porter*, 275 S.W.3d 329 (Mo. App. 2008).

³⁰ *Citizens for Ground Water Prot. v. Porter*, 275 S.W.3d 329, 349-50 (Mo. App. 2008) (quoting *Higday*, 469 S.W.2d at 866).

³¹ Peter N. Davis, *6-MO Waters and Water Rights I*, Missouri, 4.

³² Peter N. Davis, *6-MO Waters and Water Rights I*, Missouri, 5.

³³ Peter N. Davis, *6-MO Waters and Water Rights I*, Missouri, 4.

³⁴ *Higday v. Nickolaus*, 469 S.W.2d 859, 866 (Mo. App. 1971).

³⁵ *Higday v. Nickolaus*, 469 S.W.2d 859, 866 (Mo. App. 1971).

³⁶ *Higday v. Nickolaus*, 469 S.W.2d 859 (Mo. App. 1971); *City of Blue Springs v. Central Dev. Ass’n*, 831 S.W.2d 655 (Mo. App. 1992).

³⁷ MO. REV. STAT. § 256.410.

³⁸ *Higday v. Nickolaus*, 469 S.W.2d 859, 866 (Mo. App. 1971).

³⁹ *Higday v. Nickolaus*, 469 S.W.2d 859, 871 (Mo. App. 1971).

the public should be considered in granting or refusing an injunction.”⁴⁰

Courts have the ability to enjoin the withdrawals of groundwater by major- and non-major water users, if these uses are determined to not disturb a neighboring landowner of the groundwater necessary for the beneficial enjoyment of his land.

4. Hydraulic Connection and Regulation

Groundwater and surface water resources may interact, at least judicially, when examining the relationship between the various definitions of these different water sources. Missouri divides groundwater into two classes: i.) Percolating Groundwater – water under the surface, which oozes, seeps, and filters “through the interstices of the subsurface strata,” lacking a definable channel; and ii.) Underground Streams – water that passes through or under the surface in a definite (or reasonably ascertainable) channel.⁴¹ The party seeking to establish the source as an underground stream has the burden of proof to do so—because subterranean waters are presumed to be percolating groundwater.⁴² As an example of ground/surface water interaction, the distinction between percolating groundwater and underground streams may not be as important because the same rule of comparative Reasonable Use applies to both classes of water resources.⁴³

Interestingly, the Court’s reasoning in *Higday*, which focused on the reasonable use of groundwater, relied on *Bollinger v. Henry*, another Missouri Supreme Court case that instead used reasonable pursuant to the riparian rights of surface water.⁴⁴ Because Missouri water law is unique in the fact that it relies almost solely on case law—this suggests that the seminal foundation of water law governance is rooted in analysis that may ultimately facilitate legal interaction between groundwater and surface water. In reference to Missouri’s surface water governance system set forth in *Bollinger*, the *Higday* Court explained, “We believe the same rule should apply to subterranean percolated waters... The application of such a uniform legal standard would also *give recognition to the established interrelationship between surface and groundwater* and would, therefore, bring into one classification all waters over the use of which controversy may arise.”⁴⁵

5. Regulatory Authorities

Major water users withdrawing water are required to file a registration form (Form-MO 780-2019).⁴⁶ Registration forms for major water users are to be returned to the following address:

Missouri Department of Natural Resources

⁴⁰ *Higday v. Nickolaus*, 469 S.W.2d 859, 871 (Mo. App. 1971).

⁴¹ Peter N. Davis, *6-MO Waters and Water Rights I, Missouri*, 2 (citing the definition of the two categories of subterranean waters from *Higday*, 469 S.W.2d at 865)

⁴² *Higday v. Nickolaus*, 469 S.W.2d 859, 869 (1971); *City of Blue Springs v. Central Dev. Ass’n*, 831 S.W.2d 655 (Mo. App. 1992).

⁴³ *Higday v. Nickolaus*, 469 S.W.2d 859, 869 (Mo. App. 1971); *6-MO Waters and Water Rights I*, Peter N. Davis, Missouri, page 2 of 15.

⁴⁴ *Higday v. Nickolaus*, 469 S.W.2d 859, 869-70 (Mo. App. 1971) (citing *Bollinger v. Henry*, 375 S.W. 161 (Mo. 1964)).

⁴⁵ *Higday v. Nickolaus*, 469 S.W.2d 859, 869-70 (Mo. App. 1971) (citing *Bollinger v. Henry*, 375 S.W. 161 (Mo. 1964)) (emphasis added).

⁴⁶ MO. REV. STAT. 256.410. The form for major water users can be accessed at the following website: <http://dnr.mo.gov/forms/780-2019-f.pdf>.

Water Resources Center
PO Box 250
Rolla, MO 65402
Phone: (573)-368-2175
Email: mowaters@dnr.mo.gov
<http://dnr.mo.gov/>

Aside from the authority to require major water users to register, the MDNR also has monitoring authority in some circumstances. If the state geologist is not granted permission to inspect property of a water user, the MDNR may request a court order for the purpose of inspecting any water source or withdrawal/diversion project.⁴⁷ In comparison to other states, MDNR's authority is limited, "other than inspection powers under the large diversion registration law," as Missouri does not supervise water diversions, wells, or uses.⁴⁸ In addition, water well drillers must be licensed and are subject to a variety of regulations.⁴⁹

Missouri has adopted broad legislation authorizing the state to conduct a water resources inventory and plan for groundwater use, under a groundwater monitoring program.⁵⁰

The following website has a detailed map that displays groundwater provinces and aquifers: (<http://dnr.mo.gov/env/wrc/groundwater/education/provinces/index.html>)

a. Special Districts

Missouri has employed "Soil and Water Conservation Districts" to provide technical support with the design, implementation, and maintenance of practice.⁵¹ These districts do not directly affect the quantity of groundwater allocations, as their primary duty is to promote conservation among the water-intensive agricultural industry in America's heartland. However, these districts are generally set up by county, similar to Groundwater Districts in Texas, so regional governance of groundwater in the future could assign boundaries based on these already established districts.⁵²

I. Critical Groundwater Management Areas and Other Designated Areas

Certain regions in Missouri restrict conveyances of water, such that no water user can convey water withdrawn from within the Southeast Missouri Regional Water District, created under section 256.643, when this withdrawal and subsequent conveyance to a location outside the district would interfere with the reasonable and customary activities of a major water user registered and located in such district.⁵³

⁴⁷ MO. REV. STAT. § 256.420.

⁴⁸ MO. REV. STAT. § 256.420.

⁴⁹ MO. REV. STAT. §§ 256.600-.640.

⁵⁰ MO. REV. STAT. §§ 640.400-.435.

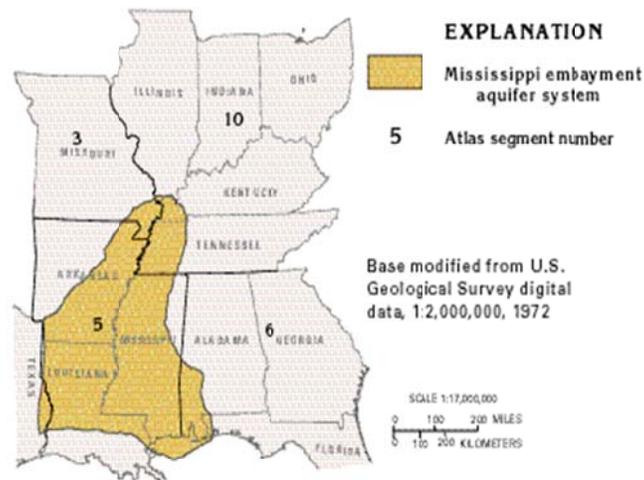
⁵¹ MISSOURI DEP'T OF NATURAL RESOURCES, *Soil and Water Conservation Districts*, <http://swcd.mo.gov/>.

⁵² 10 CSR 70-1.010, "Rules of Department of Natural Resources."

⁵³ MO. REV. STAT. § 256.433.

Appendix I: Mississippi

Before modern statutory changes, Mississippi followed the absolute ownership rule for groundwater.¹ In 1985, the state enacted the Water Resources Act, completely changing Mississippi's water management law.² Current water allocation law applies to both surface water and groundwater, and has been described as a "regulated riparian statute system."³ Similar to other regulated riparian states, Mississippi governs both surface water and groundwater by the same rules.⁴



Modified from Hosman, R.L., and Weiss, J.S., 1991, Geohydrologic units of the Mississippi embayment and Texas coastal uplands aquifer systems, south-central United States: U.S. Geological Survey Professional Paper 1416-B, 19 p.

Figure 65. The Mississippi embayment aquifer system extends over parts of 10 States and 5 segments of this Atlas and is the most widespread aquifer system in Segment 5.

Fig. I.1. Aquifer System of Mississippi⁵

¹ *Bd. of Supervisors v. Miss. Lumber Co.*, 31 So. 905 (Miss. 1902).

² Richard J. McLaughlin, *Mississippi, 6 Waters and Water Rights I* (LexisNexis 2014).

³ Richard J. McLaughlin, *Mississippi, 6 Waters and Water Rights I* (LexisNexis 2014); Joseph W. Dellapenna, *The Law of Water Allocation in the Southeastern States at the Opening of the Twenty-First Century*, 25 UALR LAW REV. 9, 78 (2002); Joseph W. Dellapenna, *A Primer on Groundwater Law*, 49 IDAHO L. REV. 265, 302 (2013).

⁴ Richard J. McLaughlin, *Mississippi, 6 Waters and Water Rights I* (LexisNexis 2014); Joseph W. Dellapenna, *A Primer on Groundwater Law*, 49 IDAHO L. REV. 265, 307 (2013).

⁵ USGS, *Groundwater Atlas of the United States*, https://pubs.usgs.gov/ha/ha730/ch_f/F-text4.html.

1. Definitions, Basis of Rights, Standards, and Interactions

The language within Mississippi code indicates that it has moved beyond the old system of absolute ownership: “Use of Mississippi state water shall not constitute absolute ownership or absolute rights of use of such waters, but such waters shall remain subject to the principle of beneficial use.”⁶

Today, unless specifically exempted, no person shall use water without having first obtained a permit.⁷ More precisely, no person may begin drilling a groundwater well until the Permit Board issues an appropriate groundwater use permit.⁸

The permitting requirement does not apply to authorized emergency situations in Rule 1.2.K or to exempted groundwater withdrawals in Rule 1.4.A.⁹ Groundwater withdrawal wells are exempted from the permitting requirements if i.) the wells are used for domestic purposes and providing water to only one household; or ii.) wells with a surface casing diameter less than six inches.¹⁰ Mississippi defines “domestic use” as the use of water for ordinary household purposes, the water of noncommercial farm livestock, poultry, and domestic animals, and the irrigation of home gardens and lawns.¹¹ Further, a permit is required for people in real estate or business who want to withdraw water from a well, regardless of surface casing diameter, if their proposed use is to maintain or enhance an impoundment of surface water for aesthetic purposes.¹²

Although the permit system controls, overlying land ownership is a factor considered by the Permit Board. In a recent Mississippi Supreme court case, the Permit Board analyzed five factors, including overlying land ownership, to determine whether groundwater withdrawal permits are reasonable.¹³ In the *Waters and Water Rights Treatise*, Professor McLaughlin notes, “Because the right to use water flows from the ownership of land overlying the water, a permit can be transferred upon a transfer of ownership of the land on which the permitted water is to be used,” so long as the new permit is modified to reflect the new owner.¹⁴

All permitted water in the state is subject to the principle of beneficial use.¹⁵ The permit system’s policy declaration notes that “the water resources of the state [are required] to be put to beneficial use to the fullest extent of which they are capable,” as the statute also prohibits waste, unreasonable use, and unreasonable methods of use.¹⁶ It is the duty of the Permit Board to approve all applications which utilize water for beneficial purposes, within reasonable limitations, provided the proposed use does not prejudicially or unreasonably affect the public interest.¹⁷ The statute’s definition of beneficial use is vague, defined as, “the application of water to a useful

⁶ MISS. CODE ANN. § 51-3-13.

⁷ MISS. CODE ANN. § 51-3-5.

⁸ 11 MISS. ADMIN. CODE Pt. 7, Ch. 1, R. 1.2.C.

⁹ 11 MISS. ADMIN. CODE Pt. 7, Ch. 1, R. 1.2.K, 1.4.A.

¹⁰ 11 MISS. ADMIN. CODE Pt. 7, Ch. 1, R. 1.4.A(1)-(2).

¹¹ 11 MISS. ADMIN. CODE Pt. 7, Ch. 1, R. 1.1.K.

¹² MISS. CODE ANN. § 51-3-7(1).

¹³ *Riverbend Util. v. Env. Quality Permit Bd.*, 130 So.3d 1096, 1105 (Miss. 2014).

¹⁴ Richard J. McLaughlin, *Mississippi, 6 Waters and Water Rights I* (LexisNexis 2014); MISS. CODE ANN. § 51-3-15.

¹⁵ MISS. CODE ANN. § 51-3-1.

¹⁶ MISS. CODE ANN. § 51-3-1.

¹⁷ MISS. CODE ANN. § 51-3-13.

purpose as determined by the commission, but excluding waste of water.”¹⁸ The Permit Board also considers “use of water,” in its determination of whether a groundwater withdrawal application is reasonable or not.¹⁹

2. Sources of Law

The 1985 Water Resources Act created a permit system to determine the right to use water.²⁰ The primary source of law for the water allocation system are the statutes under Title 51, chapter 3, of the Mississippi Code Annotated. Although a list of factors for the Permit Board to consider when determining whether to approve a groundwater withdrawal permit is not provided by statute or regulation, a recent Mississippi Supreme Court case outlined five factors that the Permit Board contemplates.²¹ These five factors include: i. ownership of land, ii. use of water, iii. amount of water, iv. well spacing, and v. drawdown of aquifer.²²

3. Scope of Right

a. Groundwater Ownership

All water, whether occurring on the surface of the ground or underneath the surface of the ground...belongs to the people of this state and is subject to regulation.²³ Therefore, both surface and groundwater are considered property of the State.²⁴ When an individual applies for the groundwater withdrawal permit, he does not necessarily receive a “water right,” but rather a “right to use water.”²⁵

b. Scope of Use

i. Permitted and Preferred Uses

Primarily, the Permit Board will approve applications for allowable types of uses that “utilize water for beneficial purposes, within reasonable limitations,” as long as the proposed use does not unreasonably affect the public interest.²⁶ The requirement to get a permit applies statewide to all non-exempted uses. Under the permit system, the Permit Board may deny a groundwater permit if the proposed use is not for a beneficial purpose, adversely interferes with existing permitted uses, or conflicts with public interest.²⁷

The Permit Board may deny a permit or issue a permit for less than the requested withdrawal rate or volume if, the use is not for a beneficial purpose, or such use would adversely interfere with existing permitted uses, or such use would conflict with the public interest.²⁸ The Permit Board

¹⁸ MISS. CODE ANN. § 51-3-3.

¹⁹ *Riverbend Util. v. Env. Quality Permit Bd.*, 130 So.3d 1096, 1105 (Miss. 2014).

²⁰ Richard J. McLaughlin, *Mississippi, 6 Waters and Water Rights I* (LexisNexis 2014).

²¹ *Riverbend Util. v. Env. Quality Permit Bd.*, 130 So.3d 1096, 1102-03 (Miss. 2014).

²² *Riverbend Util. v. Env. Quality Permit Bd.*, 130 So.3d 1096, 1105 (Miss. 2014).

²³ MISS. CODE ANN. § 51-3-1.

²⁴ Richard J. McLaughlin, *Mississippi, 6 Waters and Water Rights I* (part 4) (LexisNexis 2014).

²⁵ MISS. CODE ANN. § 51-3-13; Richard J. McLaughlin, *Mississippi, 6 Waters and Water Rights I* (part 4) (LexisNexis 2014).

²⁶ MISS. CODE ANN. § 51-3-13.

²⁷ MISS. CODE ANN. § 51-3-13.

²⁸ 11 MISS. ADMIN. CODE Pt. 7, Ch. 1, R. 1.2.E.

may issue a permit for a beneficial use that constitutes the mining of an aquifer only if it finds that such use is essential to the safety of human life and property; or if the landowner provides written assurance the use is temporary, or submits a viable plan for acquiring the required water from another source, or demonstrates financial ability to develop the proposed alternate water supply.²⁹

In areas where conflicts exist between competing interests or demands for groundwater supplies, or where there is potential for such conflicts in the future, Mississippi outlines a hierarchy for purposes of use. Utmost priority is given to the beneficial use of public supply in permitting decisions.³⁰ Public supply includes municipal supplies, rural water systems, private wells, and institutional uses.³¹ The beneficial uses for agricultural use, industrial use, livestock use, and commercial use are given equal standing in permitting decisions; and each applicant may be required to explore options involving the conjunctive use of surface water.³² Use for livestock includes water for commercial cattle, hogs, and other animal operations.³³ Commercial use includes water for hotels, restaurants, water bottling companies, casinos, and other similar uses.³⁴ Groundwater permit applications for the enhancement of wildlife habitat and other recreational uses, including water to enhance waterfowl management, maintain the lowest priority level and are lower than public supply, agricultural, industrial, livestock, and commercial uses.³⁵

Beneficial use appears to be the primary standard for preference of use; however, reasonable use language qualifies the standard. Mississippi state law encourages the conjunctive use of groundwater and surface water “for the reasonable and beneficial use of all water resources of the state.”³⁶ Further, Mississippi groundwater must be put to beneficial use to the fullest extent, thus prohibiting waste, unreasonable use, or unreasonable method of use.³⁷

As previously mentioned, a permit is required for the right to use water for a beneficial purpose.³⁸ Pursuant to this chapter, the Permit board has the duty to approve all applications based on the “utilizations of water for beneficial purposes, within reasonable limitations, provided the proposed use does not prejudicially and unreasonably affect the public interest.”³⁹

The regulations provide several examples of what does not constitute beneficial use.⁴⁰ First, the use of large volumes of groundwater for “once-through, non-contract cooling purposes” is not a beneficial use of groundwater, as the regulation prohibits the use of more than 20,000 gallons per day for this purpose.⁴¹ Mississippi also prohibits the use continuous discharge of groundwater

²⁹ 11 MISS. ADMIN. CODE Pt. 7, Ch. 1, R. 1.2.E(1)-(3).

³⁰ 11 MISS. ADMIN. CODE Pt. 7, Ch. 1, R. 1.4.B(1); *Riverbend Util. v. Env. Quality Permit Bd.*, 130 So.3d 1096, 1105 (Miss. 2014).

³¹ 11 MISS. ADMIN. CODE Pt. 7, Ch. 1, R. 1.4.B(1).

³² 11 MISS. ADMIN. CODE Pt. 7, Ch. 1, R. 1.4.B(2)(a)-(d).

³³ 11 MISS. ADMIN. CODE Pt. 7, Ch. 1, R. 1.4.B(2)(c).

³⁴ 11 MISS. ADMIN. CODE Pt. 7, Ch. 1, R. 1.4.B(2)(d).

³⁵ 11 MISS. ADMIN. CODE Pt. 7, Ch. 1, R. 1.4.B(3).

³⁶ MISS. CODE ANN. § 51-3-1.

³⁷ MISS. CODE ANN. § 51-3-1.

³⁸ MISS. CODE ANN. § 51-3-13; Richard J. McLaughlin, *Mississippi, 6 Waters and Water Rights I* (LexisNexis 2014).

³⁹ MISS. CODE ANN. § 51-3-13.

⁴⁰ 11 MISS. ADMIN. CODE Pt. 7, Ch. 1, R. 1.4.D.

⁴¹ 11 MISS. ADMIN. CODE Pt. 7, Ch. 1, R. 1.4.D(1).

from “uncontrolled free-flowing wells,” as this constitutes waste and may be prohibited by the permit board, regardless of the size of the well.⁴² The Permit Board also maintains the right to deny permits if they determine that other withdrawals are not beneficial uses.⁴³

Unless otherwise exempted, permit applications must include: maximum volume of water required, estimated dates for initial use of the water, estimated withdrawal rate, maps of location of well, and a fee of ten dollars.⁴⁴ Additionally, any change in withdrawal or change in use of water requires an application for a temporary or permanent change.⁴⁵

ii. Location of Use

Aside from considering “ownership of the overlying land,” in the Permit Board’s decision process, Mississippi does not seem to prohibit the location of groundwater use to overlying land.⁴⁶ However, I cannot find any statutes or regulations that authorize the transfer of water. Because the Permit Board considers withdrawal applications on a case-by-case basis, they may consider location of use in the permit application process, along with the other factors.⁴⁷

Professor McLaughlin, in *Waters and Water Rights*, notes one exception to the rule that water must be used on overlying land. Water withdraw from an aquifer by a governmental agency or nonprofit water association (to supply water for household, industrial, commercial needs) does not have to use water on overlying or adjoining land.⁴⁸

The statutory system does not explicitly prohibit the transport of water, however, the statutes also do not authorize any transports. According to one secondary source, intrabasin transfers in Mississippi are authorized, however this source did not cite a statute or regulation acknowledging this claim.⁴⁹

Additionally, Mississippi is currently engaged in litigation with the state of Tennessee. Mississippi alleges Tennessee utilities have pumped groundwater from a shared aquifer that would otherwise be subject to Mississippi’s ownership and control.⁵⁰ Mississippi alleges Tennessee’s pumping has created a depression in the water table altering the direction the groundwater travels, pulling water that would otherwise stay beneath Mississippi’s state lines into Tennessee.⁵¹ Mississippi seeks around \$1 billion in damages.⁵² The United States Supreme Court has original jurisdiction over the matter and has ordered a Special Master to take evidence and submit reports to the Court.⁵³

⁴² 11 MISS. ADMIN. CODE Pt. 7, Ch. 1, R. 1.4.D(2).

⁴³ 11 MISS. ADMIN. CODE Pt. 7, Ch. 1, R. 1.4.D(4).

⁴⁴ 11 MISS. ADMIN. CODE Pt. 7, Ch. 1, R. 1.2.D(1)-(2).

⁴⁵ MISS. CODE ANN. § 51-3-45.

⁴⁶ *Riverbend Utilities v. Env. Quality Permit Bd.*, 130 So. 3d 1096, 1105 (Miss 2014).

⁴⁷ *Id.*

⁴⁸ Richard J. McLaughlin, *Mississippi, 6 Waters and Water Rights I* (LexisNexis 2014).

⁴⁹ Margaret Myszekski, Don R. Christy, and James E. Kundell. *A Comparison of Groundwater Laws and Regulations from Southeastern States*, 8 (March 2005, University of Georgia, Athens, Georgia).

⁵⁰ Brief for United States as Amicus Curiae, *State of Mississippi v. State of Tennessee*, May 2015, at 2.

⁵¹ Brief for United States as Amicus Curiae, *State of Mississippi v. State of Tennessee*, May 2015, at 4.

⁵² Brief for United States as Amicus Curiae, *State of Mississippi v. State of Tennessee*, May 2015, at 6.

⁵³ SCOTUSBLOG, *Case File: Mississippi v. Tennessee*, <http://www.scotusblog.com/case-files/cases/mississippi-v-tennessee/>; 6th Circuit Court of Appeals, *Mississippi v. Tennessee Special Master*

c. Loss of water rights

The Permit Board may not issue a water use permits for longer than a ten-year period.⁵⁴ If the permit holder fails to submit an application for reissuance prior to the expiration of the permit, the water right will automatically terminate upon the expiration date.⁵⁵ Six months prior to the final date of the ten-year period, the Permit Board shall mail actual written notice to the permit holder.⁵⁶

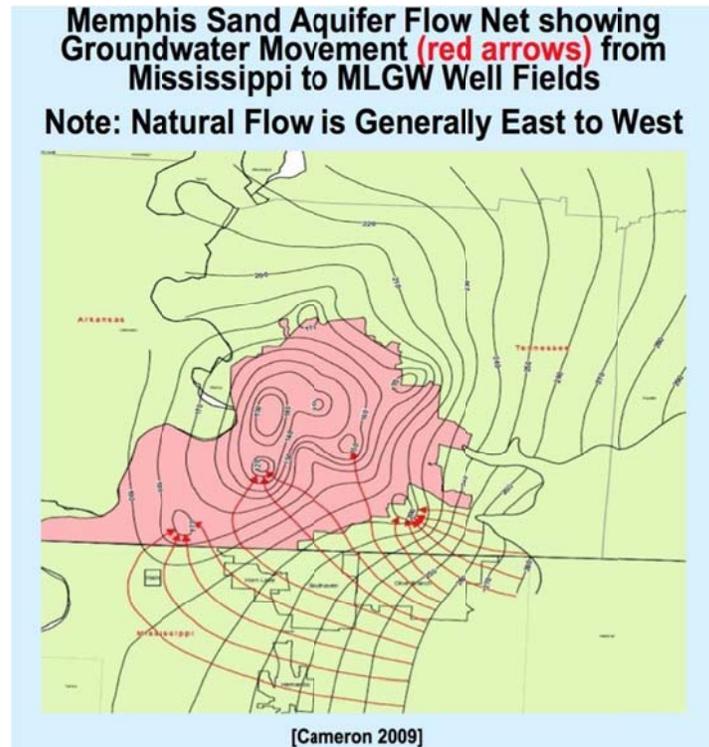


Fig. I.2. Groundwater Flow in Memphis Sand Aquifer⁵⁷

The Permit Board may revoke the right to use water, though the Board normally gives the permit holder at least sixty days notice prior to taking final action.⁵⁸ Several conditions may result in the revocation of a permit, including i.) noncompliance with conditions in the permit; ii.) failure by the landowner/permit holder/applicant to disclose all relevant facts during the application and permitting process, and iii.) using the water resources of the state in a manner deemed contrary to public interest.⁵⁹

Documents, <http://www.ca6.uscourts.gov/special-master>.

⁵⁴ 11 MISS. ADMIN. CODE Pt. 7, Ch. 1, R. 1.2.F(2).

⁵⁵ 11 MISS. ADMIN. CODE Pt. 7, Ch. 1, R. 1.2.F(3)(c).

⁵⁶ MISS. CODE ANN. § 51-3-9.

⁵⁷ Michael Campana, *Grand Theft Groundwater? Legal Landmark? SCOTUS Tackles Groundwater Dispute Between Mississippi and Tennessee/Memphis*, WATER WIRED (July 2015).

⁵⁸ 11 MISS. ADMIN. CODE Pt. 7, Ch. 1, R. 1.2.H.

⁵⁹ 11 MISS. ADMIN. CODE Pt. 7, Ch. 1, R. 1.2.H(1)-(3).

Any person aggrieved by the action of the Permit Board to issue, deny, transfer, modify, or revoke a permit may request an evidentiary hearing before the Permit Board.⁶⁰ Procedures for these hearings and further appeals of decisions are set forth in Miss. Code. Ann. § 49-17-29. Applicants may also appeal the decision of the Permit Board, which was the issue in the recent Mississippi Supreme Court case.⁶¹

4. Hydraulic Connection and Regulation

Water withdrawal and use provisions apply to all water, both surface and groundwater. The controlling statute maintains, “The policies, regulations and public laws of Mississippi shall be interpreted and administered so that, to the fullest extent possible, the ground and surface water resources within the state shall be integrated in their use, storage, allocation, and management.”⁶² The policy of the Legislature is that conjunctive use of groundwater and surface water shall be encouraged for the reasonable and beneficial use of all water resources of the state.⁶³ Although the provisions apply to both surface and groundwater, they do not mention priority among users of hydraulically linked waters, aside from suggesting that all waters are managed the same. When assessing interference with permitted water rights, the Permit Board considers “whether the wells will be spaced in a manner to avoid interference with existing wells,” in the permit application process.⁶⁴

5. Regulatory Authorities

The Mississippi Commission on Environmental Quality (MCEQ) is appointed to set water use policy and protection regulations.⁶⁵ The MCEQ sets state policy, adopts rules, and hears enforcement cases.⁶⁶ The Mississippi Commission of Environmental Quality also has regulatory power regarding groundwater. The Commission has the power to adopt, enforce, repeal, or modify rules and regulations, and to make exceptions and grant exemptions based on enumerated provisions, such as minimizing waste, well design/standards, protection against saltwater encroachment.⁶⁷ Along with enforcement authority, the MCEQ also has the authority to impose a civil penalty for offenses (not more than \$25,000 for each offense).⁶⁸

The Environmental Permit Board (Permit Board) issues water use permits, but may also delegate its authority to act on permit applications to the MCEQ’s Executive Director.⁶⁹ The Permit Board is composed of the heads of various health and natural resources agencies.⁷⁰ The Permit Board’s authority primarily involves permitting decisions. The Permit Board has the authority to issue or

⁶⁰ MISS. CODE ANN. § 51-3-49 (2014); 11 MISS. ADMIN. CODE Pt. 7, Ch. 1, R. 1.2.I.

⁶¹ *Riverbend Utilities v. Env. Quality Permit Bd.*, 130 So. 3d 1096, 1101 (Miss 2014).

⁶² MISS. CODE ANN. § 51-3-1.

⁶³ MISS. CODE ANN. § 51-3-1.

⁶⁴ *Riverbend Utilities v. Env. Quality Permit Bd.*, 130 So. 3d 1096, 1104-05 (Miss 2014).

⁶⁵ MISS. CODE ANN. § 51-3-16.

⁶⁶ MISS. CODE ANN. § 51-3-25.

⁶⁷ MISS. CODE ANN. § 51-3-25.

⁶⁸ MISS. CODE ANN. § 51-3-55.

⁶⁹ MISS. CODE ANN. § 51-3-15.

⁷⁰ MISS. CODE ANN. § 49-17-28.

reissue any permit based on the regulations of the Commission.⁷¹ It may also issue or reissue any temporary permit; may modify or revoke any permit for failure to adhere to permit conditions; or deny the issuance, reissuance, or modification of any permit if the proposed use is found to be contrary to the public interest.⁷² Therefore, Permit board has the authority, whether operating in “special water use areas” or not, to deny permits found to be contrary to the public interest or to attach conditions to issued permits.⁷³

The Department on Environmental Quality (DEQ) is the regulatory agency charged with implementing policy set by the MCEQ. The DEQ’s Office of Land and Water Resources is charged with coordinating a comprehensive state water management plan.⁷⁴ Within the DEQ is an Office of Land and Water Resources (OLWR), which regulates water supply. Its website is available at:

http://www.deq.state.ms.us/mdeq.nsf/page/legal_ENVIRONMENTALREGULATIONSEffectiveAugust262013?OpenDocument.

a. Special Districts

When existing groundwater resources are inadequate to meet present or reasonably foreseeable needs, or if mining of an aquifer is occurring, the Commission has the authority to issue a “water use warning” or delineate a “water use caution area.”⁷⁵ The Commission’s decision to issue a “water use warning” or declare a “water use caution area,” must be made pursuant to the criterion and standards in Miss. Code Ann. § 51-3-11(2)(a)-(3)(a). The Commission usually designates offers an initial “water use warning,” which involves the public and stakeholders, in an effort to resolve the problem voluntarily.⁷⁶

Upon issuing a “water caution area,” the Commission has the authority take several steps to protect the water resources within the designated area. These actions include declaring a moratorium on processing new groundwater withdrawal applications, modifying and reducing volumes of water of existing permits, and requiring metering and water use reporting for all wells in the area.⁷⁷

⁷¹ MISS. CODE ANN. § 51-3-15.

⁷² MISS. CODE ANN. § 51-3-15.

⁷³ 11 MISS. ADMIN. CODE Pt. 7, Ch. 1, R. 1.2.A.

⁷⁴ MISS. CODE ANN. § 51-3-21

⁷⁵ 11 MISS. ADMIN. CODE Pt. 7, Ch. 1, R. 1.2.B.

⁷⁶ 11 MISS. ADMIN. CODE Pt. 7, Ch. 1, R. 1.2.B.

⁷⁷ 11 MISS. ADMIN. CODE Pt. 7, Ch. 1, R. 1.2.B(2)(b)-(d).

Appendix J: Oregon

Since 1955, the State of Oregon has comprehensively applied the prior appropriation doctrine to allocating groundwater, administered through a permit system with the modification of a permit system, under which rights to use state-owned groundwater are perfected and recognized by the state.¹ In general, both surface and groundwater permits are handled through the same permit system by the Oregon Water Resources Department (WRD). As with all prior appropriation regimes, groundwater users with earlier priority dates are given priority of use when groundwater availability becomes limited.²

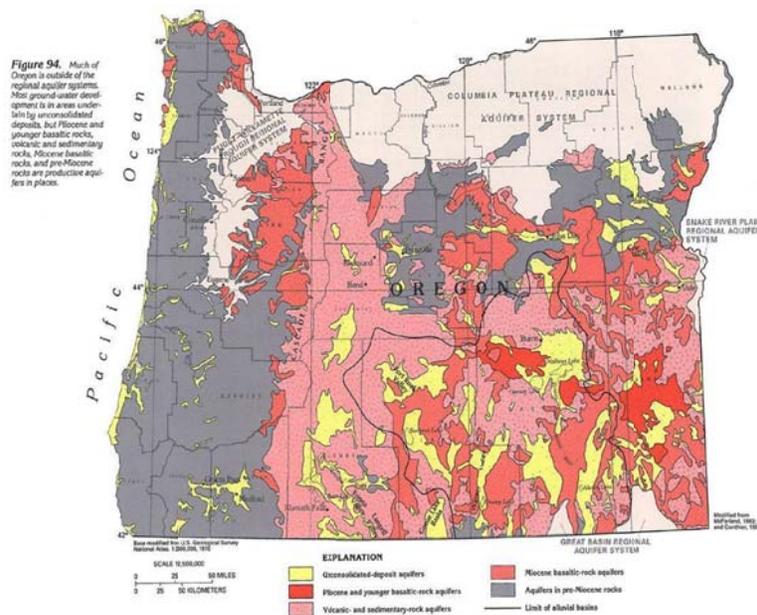


Fig. J.1. Groundwater Atlas of Oregon³

¹ OREGON WATER RESOURCES DEPARTMENT, *Water Rights in Oregon: An introduction to Oregon's Water Laws*, 5 (August 2013).

² OREGON WATER RESOURCES DEPARTMENT, *Water Rights in Oregon: An Introduction to Oregon's Water Laws*, 5 (August 2013). Historically, rights to groundwater were determined under different doctrines—common law reasonable use and correlative sharing doctrines were applied to groundwater that was thought to flow in “underground streams,” while “percolating” groundwater was subject to use by the overlying owner. In 1927, a permit requirement was instituted east of the Cascade Mountains, and in 1955, the permit requirement was expanded statewide. Appropriators who claim pre-code rights to use groundwater were required to register their claims in 1958 to preserve them as vested and to lay the foundation for eventual adjudications of groundwater basins.

³ USGS, *Groundwater Atlas of the United States: Idaho, Oregon, Washington*, https://pubs.usgs.gov/ha/ha730/ch_h/H-other_areas.html.

1. Definitions, Basis of Rights, Standards, and Interactions

The state of Oregon statutorily defines groundwater as “any water, except capillary moisture, beneath the land surface or beneath the bed of any stream, lake, reservoir or other body of surface water within the boundaries of this state, whatever may be the geologic formation or structure in which such water stands, flows, percolates, or otherwise moves.”⁴ A person can gain the right to use state-owned groundwater by filing a permit with the WRD. Unless a certain use falls within statutorily recognized exceptions, any person or entity who desires to use water in Oregon must obtain a water right, which is gained through the acquisition of a water-use permit. Permits are given priority by the date which they are received by the WRD.⁵ Subsequently, the permit must be perfected into a water right to be protected from junior users. The steps for perfecting a groundwater right are as follows:

1) Request Water-use Permit from Oregon Department of Water Resources

An application for a groundwater permit must be complete, not defective, and include the fees required by the WRD. If the application is satisfactory, the WRD will grant the applicant priority based upon the date the WRD received the application. The use of groundwater is not limited to an overlying landowner, and the overlying landowner is not the only one who can gain a permit to their land. A permit may be requested for use by anyone on any land, but applicants must provide WRD with proof of landowner permission to place and access the well.⁶

Once the WRD determines an application to be complete, the WRD evaluates whether the use requested in the application violates a statute or agency rule, (including any applicable basin division programs), whether or not the quantity of groundwater requested is available at the times of year the applicant requires the water, whether the proposed use will harm existing rights, or whether the groundwater request is restricted due to its location in a critical groundwater area.⁷ Also, “[w]hen an application discloses the probability of wasteful use or undue interference with existing wells or that any proposed use or well will impair or substantially interfere with existing rights to appropriate surface water by others . . . the Water Resources Department may impose conditions or limitations in the permit to prevent the same or reject the same”⁸ If those initial review criteria are satisfied, the permit application is presumed to be in the public interest.⁹ Then, WRD considers a variety of factors to determine if that presumption is overcome.¹⁰ Additionally, the WRD must give public notice of the permit application, so as to receive public comments from interested parties.¹¹

2) Construct wells and diversions systems and put water to beneficial use.

Upon the issuance of a permit, the water user is given a certain amount of time (as stipulated in the permit) to “prosecute the construction of a well or other means of developing and securing the

⁴ OR. REV. STAT. § 537.515(5).

⁵ OR. REV. STAT. § 537.620(2).

⁶ OAR 690-310-0040(G).

⁷ OR. REV. STAT. § 537.620(4)(a-b).

⁸ OR. REV. STAT. § 537.629(1).

⁹ Or. Rev. Stat. § 537.621(2)

¹⁰ Ore Rev. Stat. § 537.170(8)

¹¹ Or. Rev. Stat. § 537.620(5)

ground water with reasonable diligence and complete the construction within a reasonable time” not exceeding five years from the approval date, or 20 years for municipalities.¹² Extensions are allowed in certain circumstances.¹³

3) Prove water use to receive water right certificate.

To perfect a groundwater right after putting the water to use as allowed by the permit, the permittee must hire a certified water right surveyor to map, examine, and submit a “certificate of beneficial use” that proves up the water use.¹⁴ After a satisfactory review of this information, WRD will issue a water right certificate to the water user¹⁵ At this point, the water right is considered perfected and vested.¹⁶

In regards to what constitutes a valid use under Oregon law, the statutes provide that “[b]eneficial use shall be the basis, the measure and the limit of all rights to the use of water in this state.”¹⁷ The standard of “beneficial use” applies to all water use, including groundwater. Despite the importance of this standard, a specific definition of “beneficial use” does not appear in Oregon statutes, other than it be “without waste.”¹⁸ However, certain uses have been noted as beneficial and desirable, such as “existing and contemplated needs and uses of water for domestic, municipal, irrigation, power development, industrial, mining, recreation, wildlife, and fish life uses and for pollution abatement”¹⁹ Another statutorily recognized beneficial use is that of recharging aquifers.²⁰ Uses related to those just previously enumerated might be found to be beneficial as well. For example, the use of water to leach boron from soils was found to be a beneficial use because it increased crop productivity.²¹

2. Sources of Law

Groundwater law in Oregon is derived primarily from statutes. Oregon adopted its Water Code in 1909, which codified the prior appropriation system and created an administrative permit system. However, the code initially applied only to surface water. Groundwater east of the Cascades (the arid part of the state) was subjected to a permit system in 1926. The Groundwater Act of 1955 adopted comprehensive groundwater regulation and extended the permit requirement statewide. The statutes specific to groundwater are found at Or. Rev. Stat § 537.505-.746, although the statutes incorporate many of the same provisions that apply to surface water. Ambiguities or conflicts are clarified or resolved through the courts when need be.

¹² OR. REV. STAT. §§ 537.630(1); 537.630(2).

¹³ OR. REV. STAT. §§ 537.630(1); 539.010(2).

¹⁴ OR. REV. STAT. § 537.630(4).

¹⁵ OR. REV. STAT. § 537.630(5).

¹⁶ OR. REV. STAT. § 537.150(2).

¹⁷ OR. REV. STAT. § 540.610; See also *In Re Waters of Deschutes River*, 134 Or. 623 (1930).

¹⁸ OREGON WATER RESOURCES DEPARTMENT, *Water Rights in Oregon: An introduction to Oregon’s Water Laws*, 6 (August 2013).

¹⁹ OR. REV. STAT. § 536.300.

²⁰ OR. REV. STAT. § 537.135(1).

²¹ See *Benz v. Water Resources Com’n*, 94 Or. App. 73 (1988).

3. Scope of Right

a. Groundwater Ownership

The state of Oregon owns surface and groundwater within its jurisdiction, and water users can gain only a usufructuary right to use the water, but not to own it.²² Although a water right is only a use right, it is recognized as a form of property right under state law, as the holder of the water right possess an "ownership interest" in the right itself.²³

b. Scope of Use

i. Permitted and Preferred Uses

Generally, the state of Oregon allows non-wasteful, beneficial use as specified in the water-use permit issued to the water user. Additionally, several uses of groundwater are explicitly allowed as exempt from the permitting process, including: water for stock watering purposes; watering any lawn or non-commercial garden not exceeding one-half acre in area; watering lawns, grounds, and fields not exceeding 10 acres in area; watering of schools located within a critical groundwater area; single or group domestic purposes in an amount not exceeding 15,000 gallons per day; single industrial or commercial purpose not exceeding 5,000 gallons per day and which do not include irrigation or watering to promote plant growth; and watering for down-hole heat exchange purposes.²⁴ If it is necessary that WRD regulate the use or distribution of ground water, even exempt uses, WRD will use the date that groundwater use began as the priority date for that exempt use.²⁵

A use cannot violate a statute or agency rule, and a use cannot infringe on the water rights of other water users. Additionally, "overdraft" of an aquifer is not supported by Oregon law, and actions by government agencies, absent voluntary agreements by area groundwater users, to curb groundwater use and prevent excessive aquifer depletion are legitimate.²⁶ Overdraft is similar to the common term "aquifer mining," as it refers to drawing groundwater from an aquifer at such a rate as to exceed the "sustained yield" of a groundwater basin. "Sustained yield" is "the amount of water that can be withdrawn from [the groundwater basin] annually without exceeding the long-term mean annual water supply to the reservoir. Withdrawals exceeding this supply must come from storage within the reservoir which results in long-term water level declines."²⁷

Because Oregon law mandates that water be used in a non-wasteful way, water users can only use the amount of water needed for the purpose described in their permit, and not more.²⁸ As will be described in a following section, failure to beneficially use an allotment of water will result in

²² OR. REV. STAT. § 537.525.

²³ See *Fort Vannoy Irr. Dist. v. Water Resources Com'n*, 345 Or. 56, 188 P.3d 277 (2008).

²⁴ OR. REV. STAT. § 537.545(1).

²⁵ OR. REV. STAT. § 537.545(4).

²⁶ *Doherty v. Oregon Water Resources Director*, 308 Ore. 543 (1989); see OR. REV. STAT. § 537.745; see also OR. REV. STAT. § 537.525(9).

²⁷ *Doherty v. Oregon Water Resources Director*, 308 Ore. 543, 550 (1989).

²⁸ OREGON WATER RESOURCES DEPARTMENT, *Water Rights in Oregon: An introduction to Oregon's Water Laws*, 20 (August 2013).

cancellation proceedings for all or part of the water right. Unfortunately, this “use it or lose it” system does not encourage efficiency in water use. However, if less water is used to accomplish the beneficial use allowed by the water right, the right might not be cancelled if the user has a facility capable of processing the entire water right and the user is otherwise ready, willing, and able to utilize their full allotment of water.²⁹

Generally, Oregon law does not provide a preference for one kind of use over another. If there is a conflict between users, the date of priority determines who may use the available water. If the rights in conflict have the same date of priority, then the law indicates domestic use and livestock watering have preference over other uses. Additionally, if a drought is declared by the Governor, WRD can give preference during the drought to stock watering and household consumptive purposes, regardless of the priority dates.³⁰

ii. Location of Use

Water rights in Oregon are appurtenant to the land on which the rights are perfected.³¹ This means that the water right is perpetually tied to the land on which the water is used, even if the land’s ownership changes, so long as it is continually used and not forfeited.³² The water can be used on non-overlying land, but the location of use must be designated in the water-use permit, and the location of, and purpose of, the use must comply with that permit, or else the user might forfeit their right.³³ A groundwater right holder may only change the place or type of use (or point of “diversion”) with approval by the WRD in a “transfer” proceeding in which WRD will review the requested change for injury to other water right holders or enlargement of the water right.³⁴ Municipalities, however, have been granted some flexibility by statute, and water may be used on non-appurtenant lands not described in the approved permit if the rate and use originally allowed is not exceeded, the water continues to be used for municipal purposes, and other vested water rights are not impeded.³⁵

Groundwater may be transferred outside of its basin of origin, but consent by the Oregon legislature is required to do so if the transfer is above 50 cfs.³⁶ An application to move groundwater outside of its own basin must include an analysis of a variety of factors, such as the amount of water available in the originating basin, projected future groundwater needs in the originating basin, any harm that will be done to surface and groundwater resources, any correlation between the groundwater to be appropriated and surface water within the originating basin, adverse effects on existing water rights and uses, and whether there are any alternatives to transferring groundwater out of its original basin.³⁷ Municipalities are exempted from these requirements if they have historically transported water from one basin to another for the purpose

²⁹ Or. Rev. Stat. § 540.610(3).

³⁰ OREGON WATER RESOURCES DEPARTMENT, *Water Rights in Oregon: An introduction to Oregon’s Water Laws*, 6 (August 2013).

³¹ OR. REV. STAT. § 537.705

³² OR. REV. STAT. § 537.705

³³ OREGON WATER RESOURCES DEPARTMENT, *Water Rights in Oregon: An introduction to Oregon’s Water Laws*, 35 (August 2013); see subsection (c) of this section for more on forfeiture.

³⁴ OR. REV. STAT. §§ 537.705; 540.520; 540.530.

³⁵ OR. REV. STAT. § 540.510(3).

³⁶ OR. REV. STAT. § 537.810(1).

³⁷ OR. REV. STAT. § 537.803(1).

of supplying a regional water service.³⁸ In order to ensure that water supplies are sufficient within a particular water basin, “the Water Resources Commission shall reserve an amount of water adequate for future needs in the basin of origin, including an amount sufficient to protect public uses, and subordinate the out-of-basin use to that reservation.”³⁹

c. Loss of Water Rights

All water rights in Oregon are considered perpetual unless they are forfeited according to either Ore. Rev. Stat. § 540.610 or Ore. Rev. Stat. § 537.720. When a water user “fails to use all or part of the water appropriated for a period of five successive years, the failure to use shall establish a rebuttable presumption of forfeiture of all or part of the water right.”⁴⁰ A water right may also be abandoned by the owner by announcing, under oath, an intent to abandon the water right, after which that right is cancelled by the WRD.⁴¹ Failure to perfect a permit or record transfers and/or beneficial use within the allotted time can result in the permit’s cancellation.⁴² In addition, a violation of the terms of an approved permit or certificate may cause the right to be cancelled.⁴³

The WRD must give written notice by certified mail to the legal owner of property to which the right is appurtenant.⁴⁴ Subsequently, the landowner has 60 days to protest the decision to cancel the water right on that land. If there is no protest by the end of the 60 day period, the right is cancelled by the WRD.⁴⁵ If a protest is filed, the WRD must hold a hearing and the landowner or water appropriator must rebut the presumption of forfeiture or else show that the water included in the right at issue was in fact used to its full extent.⁴⁶

A water user may rebut the forfeiture by showing one or more of the following: that they are a municipality that would be harmed by forfeiting the rights, the rights holder is unable to use the water due to economic hardship, the land in question was withdrawn from water use by an act of Congress, the use of the water is suspended by a state agency, the non-use was as a result of using reclaimed or re-used water as a substitute for appropriated water, water was not used because it was not available, water use was not necessary due to climate (so long as rights holder was and is able and willing to use their appropriated water), or the water in the right in question was included in a pending transfer application.⁴⁷ Additionally, if the WRD fails to begin cancellation proceedings within 15 years of the alleged forfeiture, the right cannot be cancelled due to that particular non-use.⁴⁸

³⁸ OR. REV. STAT. § 537.810(4).

³⁹ OR. REV. STAT. § 537.809.

⁴⁰ OR. REV. STAT. § 540.610(1).

⁴¹ OR. REV. STAT. § 540.621.

⁴² See *Green v. Wheeler*, 254 Ore. 424 (1969) (holding that landowners’ failure to record water permit transfer as well as failure to record construction of well was grounds for cancellation of water permit after repeated timely notices of the problem by state agency).

⁴³ OR. REV. STAT. § 537.720.

⁴⁴ OR. REV. STAT. § 540.631

⁴⁵ OR. REV. STAT. § 540.641(1).

⁴⁶ OR. REV. STAT. § 540.641(2).

⁴⁷ OR. REV. STAT. § 540.610(2)(a)-(n).

⁴⁸ OR. REV. STAT. § 540.610(2)(f).

4. Hydraulic Connection and Regulation

Oregon law recognizes the connection between surface and groundwater in several ways. In certain circumstances where groundwater appropriation and use affects or would affect in-stream flows, that appropriation must be rejected or moderated to avoid the depletion, or else introduce mitigation measures to offset the depletion and avoid harm to other water rights. Groundwater users may act voluntarily and in coordination with WRC to reduce or prevent damage to surface rights or flows, as Oregon law provides that when “impairment of or interference with existing rights to appropriate surface water . . . exists or impends, controlled use of the ground water concerned be authorized and imposed under voluntary joint action by the Water Resources Commission and the ground water users concerned whenever possible, but by the commission . . . when such voluntary joint action is not taken or is ineffective.”⁴⁹

Basin Divisions may protect surface water flows from hydraulically connected groundwater use by adopting such policies and rules in their Basin Programs (Basin Divisions and Programs discussed below in “Special Districts”). For example, the Willamette Basin Division presumes groundwater in an unconfined aquifer within ¼ mile of the bank of a river to be hydraulically connected to the surface flows, and new permits for that groundwater are only issued upon the release of storage water to maintain in-stream flows.⁵⁰

In Critical Groundwater Areas and Scenic Waterways, WRD must evaluate whether instream flows and rights will be affected by groundwater appropriation. WRD may determine the effects of groundwater pumping either through the distance of the well from the river at issue or from approved hydrologic modeling.⁵¹ If a well is wasteful or defective, WRD may also use distance or approved hydrologic modeling to determine if the defective well is hydraulically connected to a river.⁵² Also, in addition to private or municipal appropriators, elements of the Oregon state government can apply to obtain in-stream water rights for an amount of water determined to be necessary for the health of the river and public use, and those rights are given a priority date and protected like any other water right from both surface and groundwater users.⁵³ Additionally, certain rivers can be designated as “scenic waterways,” which declares the “best use” of that waterway to be for recreation or wildlife, mandates the “free-flowing character” be maintained, and affords protection from the negative effects of groundwater appropriation.⁵⁴ The waterway cannot be depleted so as to affect the waterway’s flows or ability to sustain wildlife, and “moderation” of depletion is not an adequate measure under Oregon law.⁵⁵ Additionally, the WRD cannot “experiment” with the effects between groundwater and surface water, in that sufficient knowledge is needed on how groundwater pumping will affect hydraulically connected aquifers and protected rivers before permits are granted.⁵⁶ As the Oregon appellate court held, “[t]he fact that there is a complex relationship between groundwater appropriations and surface flows that is difficult to measure does not excuse compliance with the statutory requirement that

⁴⁹ Or. Rev. Stat. § 537.525(9).

⁵⁰ OAR 690-502-0020(d); OAR 690-502-0240.

⁵¹ OAR 690-009-0040

⁵² OAR 690-009-0040

⁵³ OR. REV. STAT. § 537.336.

⁵⁴ OR. REV. STAT. § 390.835.

⁵⁵ *Waterwatch of Oregon, Inc. v. Water Res. Comm’n*, 199 Ore. App. 598, 616 (2005).

⁵⁶ *Waterwatch of Oregon, Inc. v. Water Res. Comm’n*, 199 Ore. App. 598, 612-14 (2005); *see also Diack v. City of Portland*, 306 Ore. 287 (1988).

flows be maintained.”⁵⁷ WRC may also designate an area as a Critical Groundwater Area if they find a pattern of substantial interference between groundwater wells and surface water flows so that senior surface water rights are affected.⁵⁸

In addition, Oregon law provides a special program in the Deschutes Basin, where surface water is fully appropriated and the connection between groundwater and surface water is well understood. New groundwater rights are only available with mitigation for the impact of additional groundwater withdrawals on surface water. In order to receive a new groundwater permit, an applicant must undertake a mitigation project or must purchase mitigation credits from designated credit banks.⁵⁹ Through these banks, new allocators may purchase temporary or long-term mitigation credits to compensate for their water use. A temporary credit, made available to the banks primarily by water users who lease their consumptive water rights instream for one to five year terms, must be purchased annually to maintain a water right in the basin.⁶⁰ Groundwater appropriators may also purchase permanent credits, which are made available through consumptive uses that have been permanently transferred to instream water rights and which do not expire.⁶¹

In regards to priority of water sources, Oregon law generally seeks to protect surface water appropriations from groundwater interference or impediment; however, in some circumstances, an in-stream or surface right must have a senior appropriation date to be protected from groundwater uses.⁶² While related surface and groundwater is regulated through maintenance of water rights and minimum instream flows, water shortages might lead to preference for some out of stream uses over in-stream minimum flows. During a drought, groundwater appropriators may have to curb their use if in-stream flows in a hydraulically linked gaining stream get too low, and their groundwater use is determined to be what is lowering the flows.⁶³ However, the governor can allow certain uses to continue during a drought despite the low flows.⁶⁴ In regards to a designated scenic waterway, however, the highest and best use is statutorily declared to be recreation and fish and wildlife use.⁶⁵ This prioritization of water in a designated waterway provides stringent protection from the negative effects of other uses, and places environmental health of the waterway above all other priorities.

⁵⁷ *Waterwatch of Oregon, Inc. v. Water Res. Comm'n*, 199 Ore. App. 598, 615 (2005).

⁵⁸ 537.730(d)

⁵⁹ OR. REV. STAT. § 537.746; See DESCHUTES RIVER CONSERVANCY, *Groundwater Mitigation in Central Oregon*, <http://www.deschutesriver.org/what-we-do/streamflow-restoration-programs/groundwater-mitigation-bank/>.

⁶⁰ DESCHUTES RIVER CONSERVANCY, *Temporary Mitigation vs. Permanent Mitigation*, http://www.deschutesriver.org/Temp_vs_Perm%20Mit%202016.pdf.

⁶¹ DESCHUTES RIVER CONSERVANCY, *Temporary Mitigation vs. Permanent Mitigation*, http://www.deschutesriver.org/Temp_vs_Perm%20Mit%202016.pdf.

⁶² Or. Rev. Stat. 537.525(9); but see OAR 690-008-0001(8); Or. Rev. Stat. 537.730(d)

⁶³ OR. REV. STAT. § 536.310

⁶⁴ OREGON WATER RESOURCES DEPARTMENT, *Water Rights in Oregon: An introduction to Oregon's Water Laws*, 21 (August 2013)

⁶⁵ OR. REV. STAT. § 390.835(1).

5. Regulatory Authorities

In Oregon, the water authorities include the Water Resources Commission (WRC) and Water Resources Department (WRD). Further information, including contact information, can be found at the following links:

WRD: <http://www.oregon.gov/OWRD/pages/index.aspx>

WRC - <https://www.oregon.gov/owrd/Pages/commis/index.aspx>

The WRD “is the state agency charged with administration of the laws governing surface water and groundwater resources. The Department is organized into five divisions - Field Services, Technical Services, Water Rights Services, Administrative Services, and the Director’s Office - all operating under the immediate authority of the Director.”⁶⁶

The WRC was “established by statute to set water policy for the state and oversee activities of the Water Resources Department in accordance with state law.”⁶⁷ The commission members are unpaid citizens appointed to staggered terms by the Governor. A representative is selected from each of the administrative basins recognized by WRD, as well as one representative from each side of the Cascade mountain range. The WRC is one of many citizen oversight boards and commissions established under Oregon law to provide citizen policy guidance for administrative agencies.

a. Special Districts

Oregon identifies basins as “basin divisions” where management, such as resource objectives, preferences among uses, water reservations, restrictions on new uses, protection of hydraulically connected surface water, and other policy tools are designed basin-by-basin in Basin Programs.⁶⁸ Also, certain rivers are designated part of a “scenic waterway area,” where, as previously discussed, groundwater pumping is restricted or limited relative to minimum in-stream flows necessary to sustain the free flowing character of the waterway as well as wildlife and recreation.⁶⁹ In addition, Oregon designates certain basins as Critical Ground Water Management Areas where groundwater production, both future and current, must be limited to prevent overdrawing and protect fragile aquifer levels.⁷⁰ The WRD can also designate “groundwater limited areas” which allow for statutorily exempt groundwater use but halt any other new appropriations.⁷¹

⁶⁶ OREGON WATER RESOURCES DEPARTMENT, *Water Rights in Oregon: An introduction to Oregon’s Water Laws*, 3 (August 2013).

⁶⁷ OREGON WATER RESOURCES DEPARTMENT, *Water Rights in Oregon: An introduction to Oregon’s Water Laws*, 5 (August 2013).

⁶⁸ OREGON WATER RESOURCES DEPARTMENT, *Water Rights in Oregon: An introduction to Oregon’s Water Laws*, 13 (August 2013); OAR 690-500-0010; See OAR 690-502-0020.

⁶⁹ OR. REV. STAT. § 390.835(1).

⁷⁰ OR. REV. STAT. § 537.525; see *Doherty v. Oregon Water Resources Director*, 308 Or. 543 (1989).

⁷¹ OR. REV. STAT. § 537.525; OREGON WATER RESOURCES DEPARTMENT, *Water Rights in Oregon: An Introduction to Oregon’s Water Laws*, 12 (August 2013).

i. Designated Basins/Districts

The designated Basin Divisions include the following:

North Coast Basin; Willamette Basin; Sandy Basin; Hood Basin; Deschutes Basin; John Day Basin; Umatilla Basin; Grand Ronde Basin; Powder Basin; Malheur—Owyhee Basin; Goose and Summer Lakes Basin; Rogue Basin; Umpqua Basin; South Coast Basin; Mid Coast Basin; Columbia River Basin; Middle Snake River Basin.⁷²

ii. Critical Groundwater Management Areas and Other Designated Areas

Critical Groundwater Management Areas include the following:

Cow Valley near Vale; The Dalles in Wasco County; Cooper Mountain-Bull Mountain in Washington County; and the Butter Creek, Ordnance (alluvial and basalt) and Stage Gulch areas in Morrow and Umatilla Counties.

Groundwater Limited Areas include the following:

Sandy-Boring; Damascus, Glad Tidings; Kingston, Mt. Angel; Sherwood-Dammasch-Wilsonville; Stayton-Sublimity; Parrett Mountain; Chehalem Mountain; Eola Hills; South Salem Hills; and Amity Hills-Walnut Hill.⁷³

Designated Scenic Waterways include the following:

Clackamas River; Deschutes River; Elk River; Grande Ronde River; Illinois River; John Day River; Klamath River; McKenzie River; Metolius River; Minam River; Nestucca River; North Fork of Middle Fork of Willamette River; Owyhee River; Rogue River; Sandy River; North Santiam River; North Umpqua River; Walker Creek; Wallowa River; Waldo Lake; Molalla River; Chetco River.⁷⁴

⁷² OAR 690-500-0010(3)(a)-(q).

⁷³ OREGON WATER RESOURCES DEPARTMENT, *Water Rights in Oregon: An Introduction to Oregon's Water Laws*, 12 (August 2013).

⁷⁴ OREGON PARKS AND RECREATION DEPARTMENT, *Oregon's Scenic Waterways*, <https://www.oregon.gov/oprd/NATRES/scenicwaterways/Pages/waterways.aspx>.

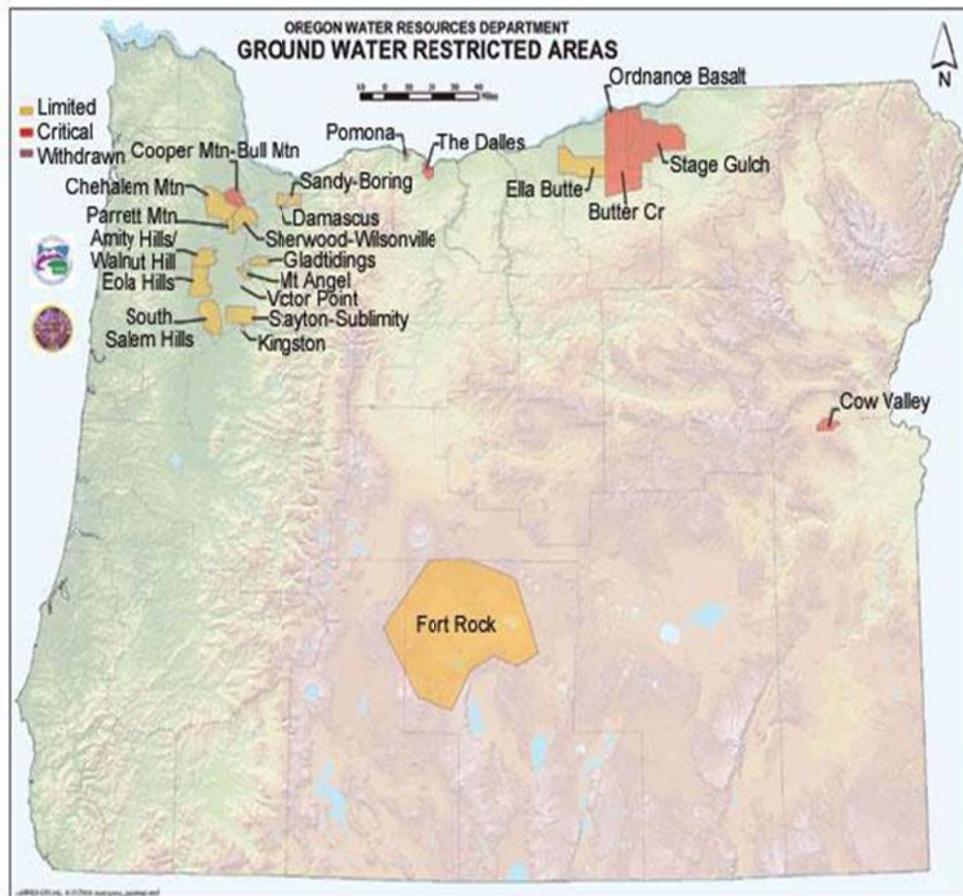


Fig. J.2. Groundwater Restricted Areas⁷⁵

⁷⁵ OREGON PARKS AND RECREATION DEPARTMENT, *Groundwater Critical Allocations*, https://www.oregon.gov/owrd/pages/gw/gw_critical_allocations.aspx.

Appendix K: Tennessee

Tennessee defines all waters, both surface and ground, as any and all waters, public or private, that are contained within, flow through, or border on Tennessee or any portion thereof.¹

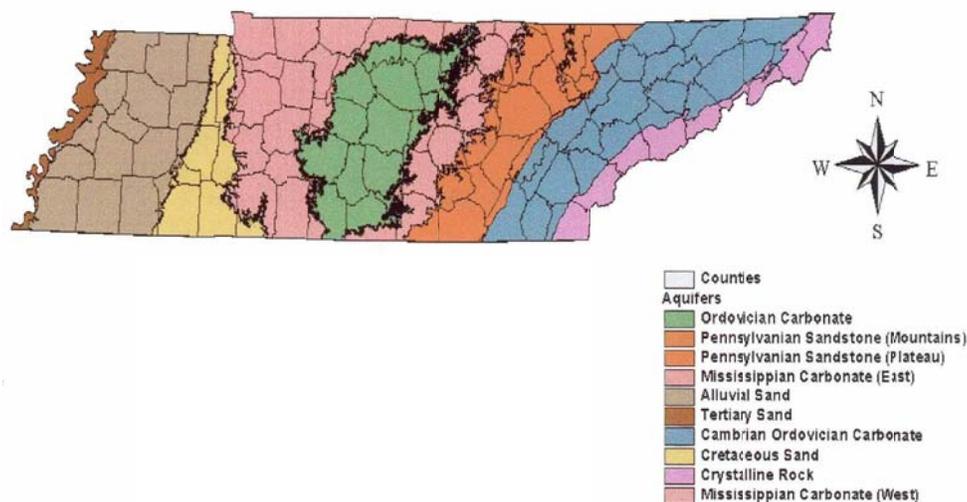


Fig. K.1. Tennessee Aquifers²

1. Definitions, Basis of Rights, Standards, and Interactions

Tennessee's groundwater governance system is described as following the correlative rights doctrine.³ Although the court in Tennessee's seminal groundwater case, *Nashville, C. & St. L. Ry. v. Rickert*, referred to the rule of reasonable use,⁴ scholars note that this description more closely resembled the correlative rights doctrine.⁵ The correlative rights doctrine limits landowners' groundwater rights to a reasonable share in view of similar rights of others.

In general, Tennessee case law suggests that overlying land ownership includes the acquisition of corresponding groundwater rights.⁶ Regarding groundwater law, most Tennessee cases involve conflicts between property owners without elaborating on the basis of the groundwater right.

¹ TENN. CODE ANN. § 69-3-103.

² MIDDLE TENNESSEE STATE UNIVERSITY, *Tennessee Groundwater 305b Water Quality Report* (November 2002), <http://www.mtsu.edu/glade-center/karst.php>.

³ Margaret Myszewski, Dan R. Christy, and James E. Kendell, *A Comparison of Groundwater Laws and Regulations from Southeastern States*, Univ. of Georgia. Carl Vinson Institute of Government; Robert M. Steele, *Tennessee Water Laws and Regulations*, Tennessee Bar Association (Sept. 27, 2011), <http://www.tba.org/news/tennessee-water-laws-and-regulations>.

⁴ *Nashville, C. & St. L. Ry.*, 89 S.W.2d 889 (1935).

⁵ Alan M. Leiserson, *6-TN Waters and Water Rights I Treatise* (LexisNexis 2014).

⁶ Alan M. Leiserson, *6-TN Waters and Water Rights I Treatise* (LexisNexis 2014) (citing *Nashville, C. & St. L. Ry. v. Rickert*, 89 S.W.2d 889 (1935)).

Nashville, C. & St. L. Ry. v. Rickert established ownership of real property also includes the groundwater rights, such that after the conveyance of property, a seller cannot interfere with or deprive the purchaser of the water rights that are a valuable incident of the property.⁷

For example, Tennessee's Supreme Court noted that a reservation and grant to a spring carries with it the land that the spring occupies.⁸ A grant to use an underground water source includes what is "reasonably necessary to the enjoyment of the thing granted, and appurtenant thereto."⁹ Where plaintiff alleged that his grant to a spring included a tree that formed part of the spring wall and provided useful shade to his appurtenant mill site, the court found the tree was not "reasonably necessary" to plaintiff's enjoyment and use of the stream because the roots were not material to the walls of the spring and its shade was merely incidental to plaintiff's use.¹⁰

In another case, the abandonment and scope of use of an easement containing a groundwater-fed spring was at issue.¹¹ The easement holders historically used buckets to move water from the spring, and owners of the underlying estate objected when the easement holders installed modern piping, alleging the alteration exceeded the easement's scope.¹² The court found that the modern method was reasonable under the circumstances and added no burden to the servient estate.¹³ The court noted that the deed to the easement controls the water's primary use.¹⁴ In this case, the deed specified the water was to be used for domestic purposes and the servient estate was granted the remainder; the new diversion method did not exceed the easement's scope of use.¹⁵ The court also noted that abandonment requires "clear, unequivocal evidence of an intent to abandon," and irregular but continuing use did not point towards abandonment of the property right.¹⁶

An exception to the rule of reasonable use pursuant to ownership occurs if a user withdraws over 10,000 gallons of ground or surface water, in which case the commissioner of the Tennessee Department of Environment and Conservation (TDEC) requires registration of the withdrawal.¹⁷ The Tennessee Water Resources Information Act recognizes that because withdrawals have caused the groundwater table to lower in other states, there is potential for withdrawals to impact water uses in Tennessee.¹⁸ Registration's purpose is to obtain the necessary information to both document current water demand and project future water demand.¹⁹ After initially registering proposed withdrawals, annual registration of subsequent groundwater withdrawals of 10,000 gallons or more per day are required.²⁰ There are several exemptions to this provision, as a person withdrawing water for either "emergencies involving human health and safety" or "agricultural purposes" may withdraw water without having registered the withdrawal.²¹

⁷ *Nashville, C. & St. L. Ry.*, 89 S.W.2d 889; *Miller v. Street*, 663 S.W.2d 797 (Tenn. Ct. App. 1983).

⁸ *Lucas v. Bishop*, 83 Tenn. 165, 167 (1885).

⁹ *Lucas v. Bishop*, 83 Tenn. 165, 167 (1885).

¹⁰ *Lucas v. Bishop*, 83 Tenn. 165, 167 (1885).

¹¹ *Miller v. Street*, 663 S.W.2d 797, 799 (Tenn. Ct. App. 1983).

¹² *Miller v. Street*, 663 S.W.2d 797, 799 (Tenn. Ct. App. 1983).

¹³ *Miller v. Street*, 663 S.W.2d 797, 799 (Tenn. Ct. App. 1983).

¹⁴ *Miller v. Street*, 663 S.W.2d 797, 799 (Tenn. Ct. App. 1983).

¹⁵ *Miller v. Street*, 663 S.W.2d 797, 799 (Tenn. Ct. App. 1983).

¹⁶ *Miller v. Street*, 663 S.W.2d 797, 798-799 (Tenn. Ct. App. 1983).

¹⁷ TENN. CODE ANN. § 69-7-304(a).

¹⁸ TENN. CODE ANN. § 69-7-302.

¹⁹ TENN. CODE ANN. § 69-7-302.

²⁰ TENN. CODE ANN. § 69-7-304(a)-(b).

²¹ TENN. CODE ANN. § 69-7-304(c)-(d). For purpose of this section, the statute defines groundwater use for

The precedential value of *Rickert* is uncertain because it is the only Tennessee case that has explicitly considered the state’s groundwater governance system. Nevertheless, *Rickert* could presumably “stand for the proposition that an overlying owner does not have a right to a certain water level or pressure if another owner is making a *reasonable use* of the water.”²²

In *Rickert*, plaintiff alleged that a defendant pumped a common underground pool dry, that the water was not used “for any purpose, but (was pumped) out on the ground,” and that defendant’s rate of use deprived plaintiff of use of its own spring.²³ Defendant alleged in response that plaintiff and defendant’s groundwater sources were not directly connected, that defendant planned to use the waters for permissible purposes (a recreational swimming pool and sold to a municipality), and that plaintiff’s use of the stream waters was wasteful.²⁴ The court found that the plaintiff had purchased the property for its appurtenant spring, that defendant’s rate of pumping caused plaintiff’s spring to run dry, and that defendant could pump a considerable quantity from his own well without materially reducing plaintiff’s spring flow.²⁵ The court explicitly considered numerous doctrines of reasonable use, then decided that under related principles of equity, defendant’s use of his groundwater supply should be enjoined to the extent necessary to prevent impairing plaintiff’s right to its own supply.²⁶ Because defendant sold plaintiff the property containing the spring knowing that plaintiff intended to use a particular amount of groundwater towards its commercial purpose, the court’s decision indicates that in this case, “reasonableness” of use may depend on the nature and scope of the underlying property right.²⁷

The court in *Rickert* notes that reasonable use principle is based on English common law rules allowing landowners to collect subterranean waters as they pleased, but the “modern rule and ‘the better rule’” is that reasonable use implies correlative enjoyment rights.²⁸ Correlative use rights allow one landowner to use accessible groundwater so as not to injure others with similar rights.²⁹

2. Sources of Law

Common law generally governs Tennessee groundwater rights, although the common law doctrine is modified by several statutory enactments that affect groundwater use, including the Tennessee Water Resources Information Act,³⁰ the Inter-Basin Water Transfer Act,³¹ and the Water Quality Control Act.³² The Water Resources Information Act’s purpose is to institute a system of registration so that adequate information is available to document the demand for water

“agricultural purposes” as “use in production or harvesting of an agricultural product, including, but not limited to, irrigation of crops, nursery stock production as defined at § 43-1-112, and watering of poultry or livestock.” *Id.* § 69-7-304(d).

²² Alan M. Leiserson, *6-TN Waters and Water Rights I Treatise* (LexisNexis 2014) (emphasis added).

²³ *Nashville, C. & St. L. Ry.*, 89 S.W.2d 889, 892 (1935).

²⁴ *Nashville, C. & St. L. Ry.*, 89 S.W.2d 889, 892 (1935).

²⁵ *Nashville, C. & St. L. Ry.*, 89 S.W.2d 889, 897 (1935).

²⁶ *Nashville, C. & St. L. Ry.*, 89 S.W.2d 889, 897 (1935).

²⁷ *Nashville, C. & St. L. Ry.*, 89 S.W.2d 889, 897 (1935).

²⁸ *Nashville, C. & St. L. Ry.*, 89 S.W.2d 889, 896 (1935).

²⁹ *Nashville, C. & St. L. Ry.*, 89 S.W.2d 889, 896 (1935).

³⁰ TENN. CODE ANN. §§ 69-7-301--309.

³¹ TENN. CODE ANN. §§ 69-7-201--212.

³² TENN. CODE ANN. §§ 69-3-101--148.

and project growth, especially in light of groundwater withdrawal's potential to lower water tables and impact state water uses.³³ The Resources Information Act requires surface or ground water withdrawals exceeding 10,000 gallons daily to register with the state.³⁴ The Inter-Basin Water Transfer Act requires entities with state-granted eminent domain powers to obtain permits for transfers of surface water outside basins of origin; and requires the same for groundwater transfers that have the potential to significantly, adversely affect state surface waters.³⁵ The Water Quality Control Act empowers a Board and Commission to set and enforce water quality standards for both ground and surface water.³⁶ Tennessee has not adopted a statewide permitting system, and disputes between groundwater users are handled through the courts.

3. Scope of Right

a. Groundwater Ownership

The waters of the state of Tennessee “are the property of the state and held in public trust for the benefit of its citizens,”³⁷ such that the citizens of Tennessee “have a right to both an adequate quantity and quality of drinking water” and a right to “unpolluted waters.”³⁸ This statute defines “waters” as all water, public or private, on or *beneath the surface of the ground* within Tennessee, unless the body of water is isolated and confined to a single private property and does not “effect a junction” with surface water or groundwater.³⁹ Additionally, because the waters are held in public trust for the use of the people of Tennessee, the government of Tennessee has “an obligation to take all prudent steps to secure, protect, and preserve this right.”⁴⁰

b. Scope of Use

i. Permitted and Preferred Uses

Other than the requirements of correlative, reasonable use, Tennessee statutes and case law are silent on allowable types of groundwater use. Rather, state courts have generally interpreted the scope of groundwater use in relation to the underlying property rights of landowners.

While Tennessee courts have relied on a reasonable use principle implying correlative rights, no state court has further described the types or hierarchy of uses that are reasonable.⁴¹ Tennessee law has demonstrated a narrow preference for high volume groundwater uses for human health and safety or agricultural purposes. These uses may withdraw groundwater in excess of 10,000 without registration.⁴² “Agricultural purposes” is defined as “use in production or harvesting of an

³³ TENN. CODE ANN. § 69-7-302.

³⁴ TENN. CODE ANN. § 69-7-304.

³⁵ TENN. CODE ANN. §§ 69-7-201--212.

³⁶ TENN. CODE ANN. §§ 69-3-101--148.

³⁷ TENN. CODE ANN. §§ 68-221-702; 69-3-102.

³⁸ TENN. CODE ANN. § 68-221-702, the Safe Drinking Water Act, and § 69-3-102, the Water Quality Control Act, respectively.

³⁹ TENN. CODE ANN. § 68-221-703(24). The provision further defines “ground water” as the “water beneath the surface of the ground, whether or not flowing through known or definite channels.” *Id.* § 68-221-703(13). *See also Id.* § 69-3-103(44).

⁴⁰ TENN. CODE ANN. § 69-3-102(a).

⁴¹ *Nashville, C. & St. L. Ry.*, 89 S.W.2d 889, 896 (1935).

⁴² TENN. CODE ANN. § 69-7-304(c)-(d).

agricultural product, including, but not limited to, irrigation of crops, nursery stock production as defined at § 43-1-112, and watering of poultry or livestock.”⁴³ High volume, unregistered withdrawals for human health and safety are permissible so long as not regularly recurring.⁴⁴

Tennessee law permits any type of groundwater use by a property owner that is reasonable in light of the correlative rights of other, similar property owners. In the state’s primary case governing groundwater, the court notes that only an unreasonable use or useless waste would sustain injunction against pumping from a shared groundwater source, even though that pumping might temporarily decrease availability of groundwater for other users.⁴⁵

ii. Location of use

In Tennessee, rights to groundwater accrue to the owner of overlying lands, though they may be contracted or leased to others.⁴⁶ Tennessee courts have also held that where a subterranean stream flows in distinct and well-defined channels, it is governed by the same rules applicable to natural, surface watercourses.⁴⁷ Owners of land under which groundwater streams flow have the same rights as do above-ground riparian owners.⁴⁸

When deciding whether plaintiffs own a groundwater right, Tennessee courts look at whether the plaintiff was in actual possession of the property.⁴⁹ Where an appellate court held that plaintiffs must show either title to the property, or actual possession by enclosure, the state Supreme Court found that a plaintiff in actual possession and use of a spring-fed mill for twenty years had obtained possessory right to the property despite inability to establish title.⁵⁰

No Tennessee case law discusses transport of groundwater outside of its basin of origin. However, the Inter-Basin Water Transfer Act requires public water providers with rights secured by eminent domain follow a permitting procedure for certain surface or ground water withdrawals diverting water outside of a basin of origin.⁵¹ The permits are issued by the Commissioner of Environment and Conservation.⁵² Regarding groundwater withdrawal, permitting is only required if the loss of groundwater has a “significant potential to adversely affect the flow of a Tennessee surface water.”⁵³

Additionally, Tennessee is currently engaged in litigation with neighboring state Mississippi, which alleges Tennessee utilities have pumped groundwater from a shared aquifer that would otherwise be subject to Mississippi’s ownership and control.⁵⁴ Mississippi alleges Tennessee’s pumping has created a depression in the water table altering the direction the groundwater travels,

⁴³ TENN. CODE ANN. § 69-7-304(c)-(d).

⁴⁴ TENN. CODE ANN. § 69-7-304(c)-(d).

⁴⁵ *Nashville, C. & St. L. Ry.*, 89 S.W.2d 889, 894 (1935).

⁴⁶ *Nashville, C. & St. L. Ry.*, 89 S.W.2d 889 (1935).

⁴⁷ *Tennessee Elec. Power Co. v. Van Dodson*, 14 Tenn. App. 54 (1931).

⁴⁸ *Tennessee Elec. Power Co. v. Van Dodson*, 14 Tenn. App. 54 (1931).

⁴⁹ *Allen v. McCorkle*, 40 Tenn. 181, 183 (1859).

⁵⁰ *Allen v. McCorkle*, 40 Tenn. 181, 183 (1859), *noting*: “A spring, or ford, is often susceptible of no other possession than that of ordinary use and enjoyment.”

⁵¹ TENN. CODE ANN. § 69-7-204.

⁵² TENN. CODE ANN. § 69-7-204(a)(2).

⁵³ TENN. CODE ANN. § 69-7-204(a)(2).

⁵⁴ Brief for United States as Amicus Curiae, *State of Mississippi v. State of Tennessee*, May 2015, at 2.

pulling water that would otherwise stay beneath Mississippi's state lines into Tennessee.⁵⁵ Mississippi seeks around \$1 billion in damages.⁵⁶ The United States Supreme Court has original jurisdiction over the matter and has ordered a Special Master to take evidence and submit reports to the Court.⁵⁷

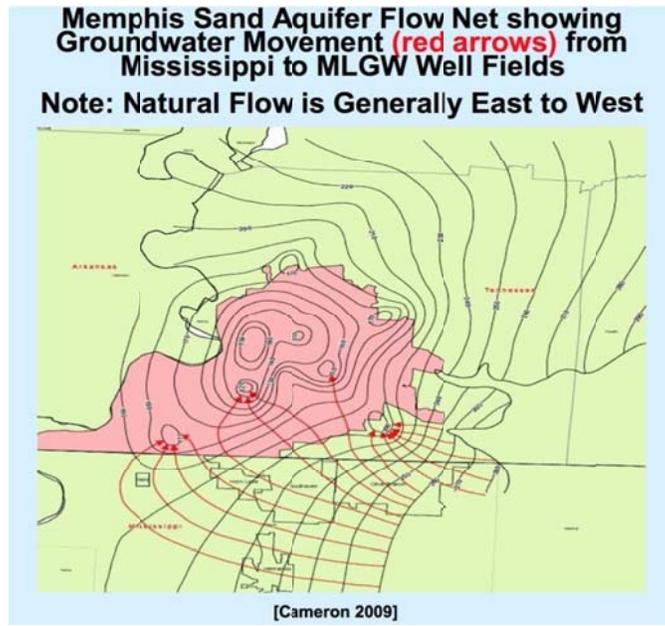


Fig. K.2. Tennessee-Mississippi Groundwater Flow⁵⁸

c. Loss of water rights

Groundwater rights may be lost where the underlying property right is lost; and curtailed where permitting is required but not performed, or where the scope of reasonable use is exceeded and injury results to other property owners.

Tennessee case law demonstrates that rights to groundwater established by easements may be lost where the property right is abandoned or the use violates the easement's scope.⁵⁹ Rights to use excess of 10,000 gallons of groundwater may be curtailed, but not wholly lost by statute where the water commissioner has reason to believe a person is withdrawing water without a valid registration, where one is required.⁶⁰ In *Rickert*, the court enjoined defendant's use of his

⁵⁵ Brief for United States as Amicus Curiae, *State of Mississippi v. State of Tennessee*, May 2015, at 4.

⁵⁶ Brief for United States as Amicus Curiae, *State of Mississippi v. State of Tennessee*, May 2015, at 6.

⁵⁷ SCOTUSBLOG, *Case Files: Mississippi v. Tennessee*, <http://www.scotusblog.com/case-files/cases/mississippi-v-tennessee/>; 6th Court of Appeals, *Mississippi v. Tennessee Special Master documents*, <http://www.ca6.uscourts.gov/special-master>.

⁵⁸ Michael Campana, *Grand Theft Groundwater? Legal Landmark? SCOTUS Tackles Groundwater Dispute Between Mississippi and Tennessee/Memphis*, WATER WIRED (July 2015).

⁵⁹ *Miller v. Street*, 663 S.W.2d 797, 799 (Tenn. Ct. App. 1983).

⁶⁰ TENN. CODE ANN. § 69-7-307.

groundwater to the extent necessary to allow plaintiff reasonable use of a connected spring.⁶¹

Groundwater easements may be lost pursuant to court decision where a finding of abandonment is made.⁶² Where registration requirements for high-volume uses have been violated, water commissioners may subject violators to civil penalties, but may not wholly remove the groundwater use rights appurtenant to surface ownership.⁶³ Courts may issue injunctions curtailing groundwater rights in relation to the correlated rights of other groundwater owners.⁶⁴

4. Hydraulic Connection and Regulation

Tennessee case law follows a regime that classifies underground water as either percolating water or an underground stream. This classification is significant because different governance systems and permitting requirements apply to withdrawal of surface water and groundwater. However, most existing state law does not recognize nor regulate the interaction between the two systems. In cases of entities granted state powers to acquire water rights by eminent domain or condemnation, a hydraulic connection between surface and groundwater that has the potential to significantly, adversely affect surface waters of Tennessee require permitting before withdrawal.⁶⁵ No cases interpret the terms of this requirement. Additionally, no Tennessee case or statute clarifies the priority of use between users of hydraulically linked surface and ground waters.

Public nuisance rules regarding unreasonable interference with the rights and safety of the general public apply where groundwater has been contaminated. Where a showing of groundwater contamination is made, unreasonably interfering with the owner or public's use of groundwater, the terms of the Tennessee Water Quality Control Act apply. Violations may include denial of work permits and civil penalties.⁶⁶

5. Regulatory Authorities

The Tennessee Department of Environment and Conservation issues permits for groundwater removal in excess of 10,000 gallons per day.⁶⁷ The Board of Water Quality, Oil, & Gas, a division of the Department of Environment and Conservation, governs development permitting that affects surface or groundwater of the state.⁶⁸

The Department of Environment and Conservation issues permits for use in excess of 10,000 gallons of groundwater per day, but lists no monitoring or inspection requirements.⁶⁹ The Department of Environment and Conservation's website is located at: <http://www.tennessee.gov/environment/>. The Board of Water Quality, Oil, & Gas issues development permits and licenses for projects likely to impact water quality, and requires

⁶¹ *Nashville, C. & St. L. Ry.*, 89 S.W.2d 889, 897 (1935).

⁶² *Miller v. Street*, 663 S.W.2d 797, 799 (Tenn. Ct. App. 1983).

⁶³ TENN. CODE ANN. § 69-7-307.

⁶⁴ *Nashville, C. & St. L. Ry.*, 89 S.W.2d 889, 897 (1935).

⁶⁵ TENN. CODE ANN. § 69-7-204(a)(2).

⁶⁶ TENN. CODE ANN. § 69-3-115.

⁶⁷ TENN. CODE ANN. § 69-7-307.

⁶⁸ TENN. CODE ANN. § 69-3-115.

⁶⁹ TENN. CODE ANN. § 69-7-307.

compliance with undefined monitoring, recording, reporting, and inspection requirements to avoid permit revocation or suspension.⁷⁰ The Board of Water Quality, Oil, & Gas website is located at:

<http://www.tennessee.gov/environment/article/board-tennessee-board-of-water-quality-oil-and-gas>

a. Special Districts

Tennessee permits Watershed Districts, which are board-governed entities that may purchase and sell land with the purpose to conserve soil and water, prevent floods, and develop district water resources.⁷¹ Tennessee also allows Soil Conservation districts, similar corporate entities, to carry out, maintain, and operate improvements for flood prevention, conservation development, utilization, and disposal of water.⁷²

i. Designated Basins/Districts

A map of designated Watershed Districts is available on the state website. As of 2010, there were 55 such districts in the state, but more recent information is unavailable.⁷³

ii. Critical Groundwater Management Areas and Other Designated Areas

Tennessee currently has no areas designated as Critical Groundwater Management Areas.

⁷⁰ TENN. CODE ANN. § 69-3-108.

⁷¹ TENN. CODE ANN. § 69-6-118.

⁷² TENN. CODE ANN. § 43-14-218.

⁷³ TENNESSEE DEP'T OF ENVIRONMENT AND CONSERVATION, *A Guide to Traveling Tennessee's Watersheds*, <http://www.tennessee.gov/assets/entities/environment/attachments/watershed-guide.pdf>.

Appendix L: Texas

Texas adopted the common law rule of capture system subject to modification and regulation by the Texas legislature. As stated by the Texas Supreme Court, “The rule of capture essentially allows, with some limited exceptions, a landowner to pump as much groundwater as the landowner chooses.”¹ Following the English Common Law rule of absolute ownership, the Texas Supreme Court embraced the rule of capture in *Houston & T. C. Ry. Co. v. East* in 1904, and reaffirmed it in *Sipriano v. Great Spring Waters of Am., Inc.* in 1999.² While the purest form of the rule of capture allows nearly unlimited groundwater pumping, the state of Texas recognizes causes of action against groundwater pumping which negligently causes land subsidence, willful waste, or malicious injury to neighboring wells.³ While the rule of capture remains the law of groundwater in Texas, it is subject to regulation through legislation and local regulatory districts known as “groundwater conservation districts” (GCDs). In *Barshop v. Medina County Underground Water District*, the Supreme Court of Texas upheld the constitutionality of legislatively created GCDs, holding that “water regulation is essentially a legislative function . . . Grandfathering of existing users, the caps on water withdrawals, and the regional powers of the Authority, are all rationally related to legitimate state purposes in managing and regulating this vital resource.”⁴ The court in *Barshop* pointed to the Conservation Amendment of the Texas constitution, which states “the conservation of all . . . natural resources of the state are . . . public rights and duties; and the legislature may pass all such laws which may be appropriate thereto.”⁵ The power of the legislature and groundwater districts to regulate groundwater was also affirmed in *Sipriano*, where the court affirmed that the “responsibility for the regulation of natural resources, including groundwater, rests in the hands of the Legislature.”⁶

¹ *Sipriano v. Great Springs Waters of Am., Inc.*, 1 S.W.3d 75 (Tex. 1999).

² *Sipriano v. Great Springs Waters of Am., Inc.*, 1 S.W.3d 75, 79.

³ See Section 1 and 3(b) of this Texas survey.

⁴ *Barshop v. Medina County Underground Water District*, 925 S.W.2d 618, 633 (Tex. 1996).

⁵ TEX. CONST. ART. XVI, § 59(a)

⁶ *Sipriano v. Great Springs Waters of Am., Inc.*, 1 S.W.3d 75, 77 (Tex. 1999).

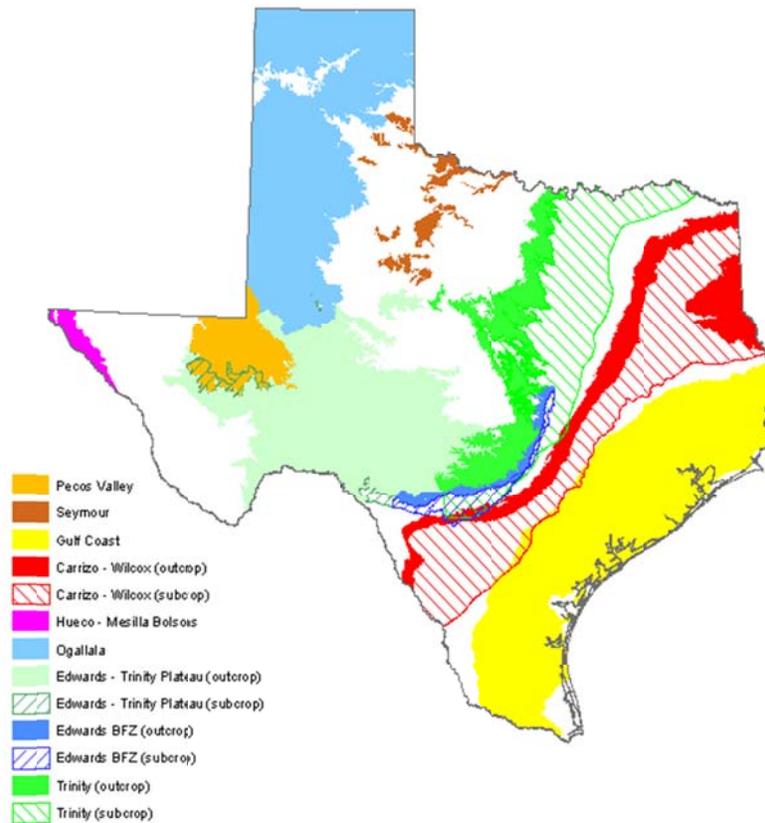


Fig. L.1. Texas Aquifers⁷

1. Definitions, Basis of Rights, Standards, and Interactions

The Supreme Court of Texas has defined groundwater as “underground waters percolating, oozing, or filtrating through the earth.”⁸ A similar definition of groundwater has been codified in the Texas Water Code, which states that groundwater “means water percolating below the surface of the earth.”⁹ Additionally, Texas law does not appear to differentiate between underground freshwater and saline water in terms of overlying landowner ownership. This lack of distinction was found and affirmed in several cases, including *FPL Farming Ltd. v. Environmental Processing Systems, L.C.*, in which the court held that “saltwater is not treated any differently than freshwater . . . a distinction is not supported by the Texas Water Code.”¹⁰ The court drew its conclusion from a Texas Supreme Court case, *Robinson v. Robbins Petroleum Corp., Inc.*, in which the court held that “water is never absolutely pure unless it is treated in a laboratory . . .

⁷ TEXAS WATER DEVELOPMENT BOARD, *Aquifers of Texas*, <https://www.twdb.texas.gov/groundwater/aquifer/>.

⁸ *Houston & T. C. Ry. Co. v. East*, 81 S.W. 279, 280 (Tex. 1904); *Sipriano v. Great Spring Waters of Am., Inc.*, 1 S.W.3d 75, 79 (Tex. 1999).

⁹ TEX. WATER CODE § 36.001(5).

¹⁰ *FPL Farming Ltd. v. Environmental Processing Systems, L.C.*, 383 S.W.3d 274, 281 (Tex App.--Beaumont 2012).

the saline content has no consequence upon ownership.”¹¹ In 2015, the Texas legislature passed HB 30, which directed the Texas Department of Water Development Board to study brackish aquifers around the state and designate Brackish Groundwater Production Zones.¹²

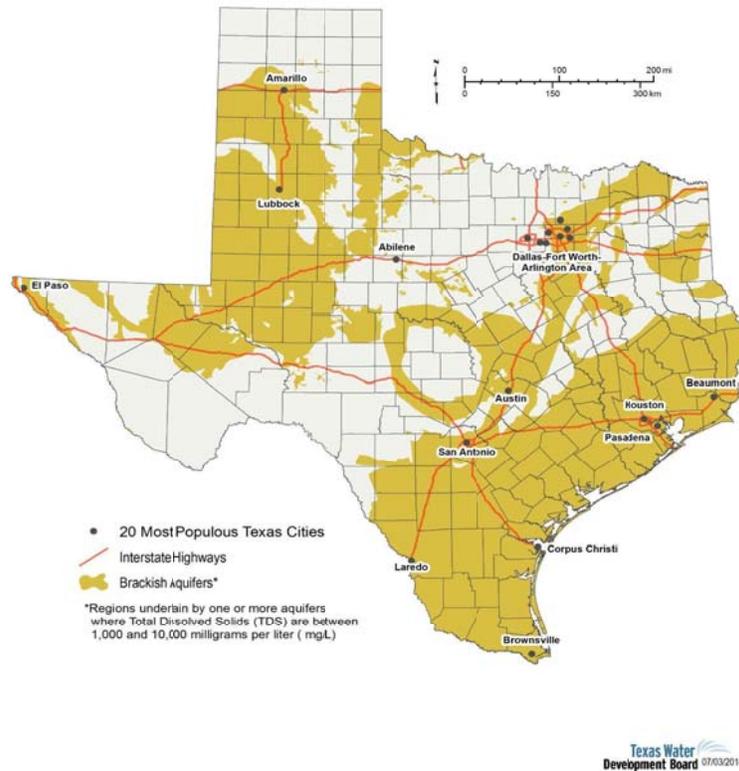


Fig. L.2. Brackish Aquifers of Texas¹³

The basis for the rule of capture is derived from English Common Law, which holds that an overlying landowner holds the right to capture the water below their land.¹⁴ While the rule of capture reigns in Texas, this right has been modified through GCDs, which issue permits and regulate groundwater use within their jurisdictions. Additionally, the use of groundwater must be non-wasteful and lawful, with non-wasteful use including the standard of “beneficial use.”¹⁵ There is no standard pertaining to “reasonable use” as would be seen in a correlative rights regime, because the rule of capture does not recognize causes of action for groundwater use that affects neighboring wells, with the exceptions of malice, willful waste, or negligent subsidence.

¹¹ *Robinson v. Robbins Petroleum Corp., Inc.*, 501 S.W.2d 865, 867 (1973).

¹² Texas Water Development Board, House Bill 30 Projects (2017), <http://www.twdb.texas.gov/innovativewater/bracs/HB30.asp>.

¹³ TWDB, *Brackish Aquifers of Texas*, <http://www.twdb.texas.gov/innovativewater/desal/maps.asp>.

¹⁴ *Houston & T. C. Ry. Co. v. East*, 81 S.W. 279, 280 (Tex. 1904); *Sipriano v. Great Spring Waters of Am., Inc.*, 1 S.W.3d 75, 79 (Tex. 1999).

¹⁵ TEX WATER CODE § 36.002(b)(1).

The rule of capture is the only groundwater regime in Texas and can only be modified through the state legislature.

2. Source of Law

Texas groundwater law is a combination of case law, state statutes, and regulations by individual groundwater districts. Some of the seminal Texas Supreme Court cases related to groundwater law and groundwater districts include *East*, *Sipriano*, *Day*, *Bragg*, and *Barshop*. Collectively, these cases affirmed the rule of capture in Texas while recognizing the state legislature's ability and duty to regulate groundwater pumping and use, primarily through Groundwater Conservation Districts. While the courts play a vital role in defining, enforcing and arbitrating groundwater rights and groundwater disputes, the primary authority to issue groundwater regulations lies with the Texas Legislature, which has delegated much of the regulatory task to GCDs. The legislature derives this authority from the Conservation Amendment of 1917, and has since enacted a Water Code in which groundwater is addressed.¹⁶ Groundwater Districts, which regulate groundwater pumping at the local level, are created through either the Texas Legislature itself or a petitioning process by area residents.¹⁷

3. Scope of Right

a. Ownership

An ownership right in groundwater is vested in the owner of the overlying land. The Texas legislature has statutorily recognized that “a landowner owns the groundwater below the surface of the landowner's land as real property.”¹⁸ In *Edwards Aquifer Authority v. Day*, the Texas Supreme Court asserted further: “In *Elliff*, we restated the law regarding ownership of oil and gas in place . . . We now hold that this correctly states the common law regarding the ownership of groundwater *in place*.”¹⁹ Notwithstanding these ownership rights, landowner extractions of underlying groundwater can be restricted to prevent subsidence of neighboring land or malicious injury to another landowner, or on evidence of willful waste. In addition, these rights do not “prohibit a district from limiting or prohibiting the drilling of a well by a landowner for failure or inability to comply with minimum well spacing or tract size requirements . . . affect the ability of a district to regulate groundwater production . . . or require that a rule adopted by a district allocate to each landowner a proportionate share of available groundwater for production from the aquifer based on the number of acres owned by the landowner.”²⁰

Additionally, in *Day*, the Texas Supreme Court held that because landowner's have a property interest in groundwater beneath their land, those landowners may have a cause of action for a takings claim under the Texas and U.S. constitutions if a regulatory authority is deemed to go “too far.” A takings claim for groundwater is reviewed based on federal jurisprudence in this area, which, among other factors, includes assessing the character of the governmental action and the extent to which the authority's actions impact the owner's investment-backed expectations.²¹

¹⁶ See TEX. WATER CODE §35.001 *et. seq.*; TEX. WATER CODE § 36.001 *et. seq.*

¹⁷ See 6(a-c) of this survey.

¹⁸ TEX. WATER CODE § 36.002(a).

¹⁹ *Edwards Aquifer Authority v. Day*, 369 S.W.3d 814, 831-32 (Tex. 2012) (Emphasis Added).

²⁰ TEX. WATER CODE § 36.002(d)1-3.

²¹ *Edwards Aquifer Authority v. Day*, 369 S.W.3d 814, 838-840 (Tex. 2012).

Regarding takings by GCDs, the Texas Supreme Court ruled in *Bragg v. Edwards Aquifer Authority* that “the Edwards Aquifer Authority need not prepare a TIA [Takings Impact Assessment] before adopting well-permitting rules pursuant to its statutory authority under the Edwards Aquifer Act. We further conclude that the TIA requirement does not apply to the Authority's enforcement of its rules by permitting actions,”²² While this appears to be a small “victory” in favor of GCDs, similar parties were awarded damages for uncompensated “takings” of their water through reductions of their water production, which affected how much of their lands could be used for pecan orchards.²³ The court held that damages “should be valued with reference to the value of the commercial-grade pecan orchards immediately before and immediately after the provisions of the Act were implemented or applied”²⁴

b. Scope of Use: Permitted and Preferred Uses

Landowners with a vested right in the water below their land are entitled to drill for, and produce, groundwater for lawful and non-wasteful use.²⁵ The definition of waste includes pumping water at a rate which causes un-usable water to infiltrate the groundwater reservoir, pumping water for non-beneficial use, pollution of groundwater, or willful or negligent allowance of produced water to flow into creek, rivers, lakes, or land other than the well-owner's (absent a permit).²⁶ Additionally, groundwater can be used on overlying land or transported elsewhere. GCDs cannot restrict a landowner from selling or transporting their groundwater off of their property, but may require permitting for out of district transfers.²⁷ It is worth noting that the Texas Supreme Court did not find the use of a waterway to transport groundwater as wasteful, despite the fact that the mode of transport resulted in losses of up to 75%, because the use itself was for a lawful and beneficial purpose.²⁸

As previously stated, waste includes non-beneficial groundwater use. Accordingly, the statutory definition of “beneficial use” is provided as “agricultural, gardening, domestic, stock raising, municipal, mining, manufacturing, industrial, commercial, recreational, or pleasure purposes . . . exploring for, producing, handling, or treating oil, gas, sulphur, or other minerals; or . . . any other purpose that is useful and beneficial to the user.”²⁹ While this definition seems quite broad, GCDs are allowed to narrow the definition of “beneficial use” within their jurisdictions.³⁰ For example, in the Edwards Aquifer Authority, water pumped from a groundwater source, stored in a lake, and then used primarily for recreational purposes was not a beneficial use for groundwater district permitting purposes.³¹

While this right is otherwise fairly unlimited absent groundwater district regulations, there are several overarching restrictions recognized by the Texas courts and Legislature. When the Texas Supreme Court adopted the rule of capture in 1904, it left open the possibility that legal actions

²² *Bragg v. Edwards Aquifer Auth.*, 71 S.W.3d 729, 738 (Tex. 2002).

²³ *Edwards Aquifer Auth. v. Bragg*, 421 S.W.3d 118, 131 (Tex. App.--San Antonio 2013)

²⁴ *Edwards Aquifer Auth. v. Bragg*, 421 S.W.3d 118, 152 (Tex. App.--San Antonio 2013).

²⁵ TEX. WATER CODE § 36.002(b)(1).

²⁶ TEX. WATER CODE § 36.001(8)(A-F)

²⁷ TEX. WATER CODE § 36.122(c); TEX. WATER CODE § 36.122(e).

²⁸ *City of Corpus Christi v. City of Pleasanton*, 276 S.W.2d 798 (Tex. 1955).

²⁹ TEX. WATER CODE § 36.001(9)(A-C).

³⁰ TEX. WATER CODE § 36.052(a), noting that “any special law governing a specific district shall prevail.”

³¹ *Edwards Aquifer Authority v. Day*, 369 S.W.3d 814, 822 (Tex. 2012).

could be made for malice or willful and wanton waste.³² In *Friendsworth Development Company v. Smith*, several such causes of action were indeed judicially recognized. These causes of action assign liability for groundwater pumping where there is 1) malicious intention to injure neighboring land 2) willful waste of groundwater resources, or 3) negligent use that proximately causes the subsidence of neighboring land.³³ These restrictions are also recognized in the Texas Water Code.³⁴

While GCDs cannot expressly prioritize certain uses over others, they can create exemptions for certain uses and use historical use as a measure for permitting. The Texas Water Code requires certain uses to be exempt from GCD permitting rules, such as wells used solely for domestic or livestock purposes and located on tracts that are 10 acres or larger and wells used solely for oil and gas rigs engaged in exploration and properly permitted by the Texas Railroad Commission.³⁵ In addition, GCDs can exempt uses from permits required by the Texas Water Code or the GCD's own requirements.³⁶ GCDs can also preserve existing and historic uses to the “maximum extent practicable” and allowable under Texas law.³⁷ For example, the Edwards Aquifer Authority Act, which established the Edwards Aquifer Authority (a GCD), provides that an existing groundwater user is entitled to “an amount of water equal to the user's maximum beneficial use of water without waste during any one calendar year of the historical period, unless the aggregate total of such use throughout the aquifer exceeds [a pre-determined cap].”³⁸ Additionally, if water levels dictate that less water be used from the Edwards Aquifer, the EAA provides that “an existing irrigation user must receive a permit of not less than two acre-feet a year for each acre of land the user actually irrigated in any one calendar year during the historical period; and . . . an existing user who operated a well for three or more years during the historical period must receive a permit for at least the average amount of water withdrawn annually during the historical period.”³⁹

c. Loss of Water Rights

Under the rule of capture, groundwater rights cannot be lost. However, the amount of water that is allowed to be used may be restricted by GCD regulations. Water rights can be severed from surface estate, and under the doctrine of accommodation the user of the groundwater estate is entitled to use the surface estate in order to produce groundwater.⁴⁰ The doctrine of accommodation provides that the mineral (or water) estate can use the land surface in the course of its operations, but the mineral or water estate owner must make reasonable accommodations to avoid interfering with existing uses of the surface estate.⁴¹

³² *Houston & T. C. Ry. Co. v. East*, 81 S.W. 279, 280 (Tex. 1904).

³³ *Friendsworth Development Company v. Smith*, 576 S.W.2d 21, 30 (1978)

³⁴ TEX. WATER CODE § 36.002(b)(1).

³⁵ Tex Water Code § 36.117(b)(1)

³⁶ Tex. Water Code § 36.117(a).

³⁷ Tex. Water Code § 36.116(b); See also § 36.113(e) (“The district may impose more restrictive permit conditions on new permit applications and permit amendment applications to increase use by historic users.”)

³⁸ *Edwards Aquifer Authority v. Bragg*, 421 S.W.3d 118, 124-126 (Tex. App.--San Antonio 2013).

³⁹ *Edwards Aquifer Authority v. Bragg*, 421 S.W.3d 118, 124-126 (Tex. App.--San Antonio 2013).

⁴⁰ *Coyote Lake Ranch, L.L.C., v. City of Lubbock*, 498 S.W.3d 53, 64-65 (Tex. 2016).

⁴¹ See *Getty Oil Company v. Jones*, 470 S.W.2d 618 (Tex. 1971).

4. Hydraulic Connection and Regulation

Texas law does not recognize a connection between groundwater and surface water and affords no liability between groundwater and surface water users. In *Pecos Co. Water Control & Imp. Dist. No. 1 v. Williams*, the court held that “the landowner owns the percolating water under his land and that he can make a non-wasteful use thereof . . .”⁴² Even though the wells at issue in that case contributed to drying up the Comanche Springs, the landowners could not be stopped from using the groundwater under their land because they owned that water. The court seemed to leave open the possibility of legislation or regulations regarding the issue when it referenced administrative rules in the oil and gas industry and pointed out that “the lands here concerned are not presently included in a statutory water district.”⁴³ The appeals court in Austin issued a similar holding in *Denis v. Kickapoo Land Co.*, where the court stated “it is immaterial that the springs so supplied with water were the sources of a stream or surface water course upon which riparian rights had vested, provided that the water was intercepted while it was still percolating through the soil before it had reached the surface of the ground at the springs.”⁴⁴ One possible exception might be when groundwater levels affect spring flow and endangered species are present, but this is not a claim between landowners, and such a situation involves federal laws and agencies.⁴⁵

5. Regulatory Authorities

As mentioned in previous sections of this survey, Groundwater Conservation Districts are authorized to manage groundwater resources in Texas. These districts are the preferred method of groundwater regulation for the state. The districts are given broad authority to impose regulations designed to protect aquifers and avoid water shortages, groundwater contamination, and land subsidence in a fair way using the best science available to them.⁴⁶ A more detailed discussion of the GCDs themselves is found below.

GCDs can be created directly through legislation, or under the authority of the Texas Commission on Environmental Quality (TCEQ). TCEQ facilitates a petition process for landowners who want to create a GCD. A groundwater planning and assessment team within TCEQ evaluates these petitions and assists landowners in creating a GCD and also evaluates and provides advice on proposals to create GCDs in the Texas legislature. Petitions to create GCDs are approved or rejected by the TCEQ, and the GCDs are then created with local voter approval.⁴⁷ The TCEQ also provides limited oversight and technical assistance to GCDs.⁴⁸ The Texas legislature may, through statute, modify the boundaries of existing GCDs or create new GCDs as needed.⁴⁹

The Texas Water Development Board (TWDB) does not substantively regulate groundwater or

⁴² *Pecos Co. Water Control & Imp. Dist. No. 1 v. Williams*, 271 S.W.2d 503, 505–06 (Tex. Civ. App.—El Paso 1954, writ ref’d n.r.e.).

⁴³ *Pecos Co. Water Control & Imp. Dist. No. 1 v. Williams*, 271 S.W.2d 503, 507 (Tex. Civ. App.—El Paso 1954, writ ref’d n.r.e.).

⁴⁴ *Denis v. Kickapoo Land Co.*, 771 S.W.2d 235, 238-39 (Tex. App. – Austin 1989, writ denied).

⁴⁵ *Sierra Club v. Lujan*, MO-91-CA-069, 1993 WL 151353, at *3 (W.D. Tex. Feb. 1, 1993).

⁴⁶ TEX. WATER CODE § 36.0015(b).

⁴⁷ TEX. WATER CODE § 36.013-015.

⁴⁸ TEXAS COMMISSION ON ENVIRONMENTAL QUALITY, *Groundwater Conservation Districts*, www.tceq.texas.gov/groundwater/districts.html.

⁴⁹ TCEQ, *Priority Groundwater Management Areas and Groundwater Conservation Districts* (2013).

GCDs, but, in conjunction with the TCEQ, the TWDB designates groundwater management areas overlying known aquifers in which GCDs can be formed.⁵⁰ Additionally, every five years, GCDs must submit management plans for approval by the TWDB.⁵¹ The TWDB and TCEQ also work together to designate “priority groundwater management areas” (PGMAs) which are expected to face significant supply challenges in the future.⁵² The TCEQ may be obligated to create or modify GCDs within these PGMAs.⁵³

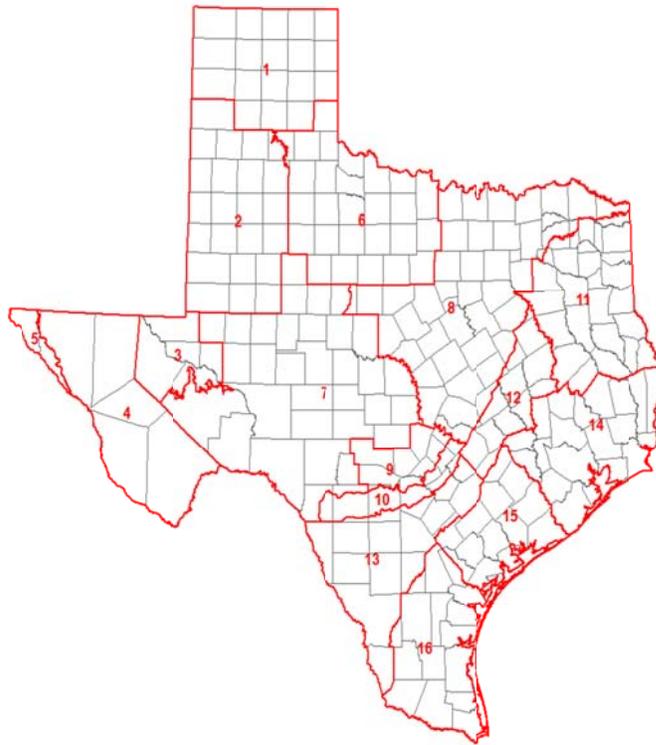


Fig. L.3. Groundwater Management Areas⁵⁴

The primary goal of GCDs is “to provide for the conservation, preservation, protection, recharging, and prevention of waste of groundwater, and of groundwater reservoirs or their subdivisions, and to control subsidence caused by withdrawal of water from those groundwater reservoirs or their subdivisions”⁵⁵ GCDs have the power to levy taxes for the maintenance of the district, but are subject to voter approval by residents within the district.⁵⁶ Likewise, members of each GCD board must be voted upon by district residents.⁵⁷ GCDs may regulate the spacing of

⁵⁰ TEX. WATER CODE § 35.004.

⁵¹ TEX. WATER CODE § 36.1072.

⁵² TEX. WATER CODE § 35.007.

⁵³ TEX. WATER CODE § 36.016; 35.012.

⁵⁴ Texas Water Development Board, *Groundwater Management Areas*, https://www.twdb.texas.gov/groundwater/management_areas/.

⁵⁵ TEX. WATER CODE § 36.015(b).

⁵⁶ TEX. WATER CODE § 36.0171

⁵⁷ *Id.*

wells according to property boundaries, strength or capacity of wells, and other similar factors determined by the board of the GCD. GCDs may also regulate and restrict the amount of water that can be produced from a well, which can be based on tract size or the historical beneficial use of groundwater by a property.⁵⁸ It is important to recall, however, that Texas courts have recently found that certain groundwater production restrictions can result in a regulatory taking. This makes it unclear to what extent GCDs can or should limit or prohibit groundwater production.

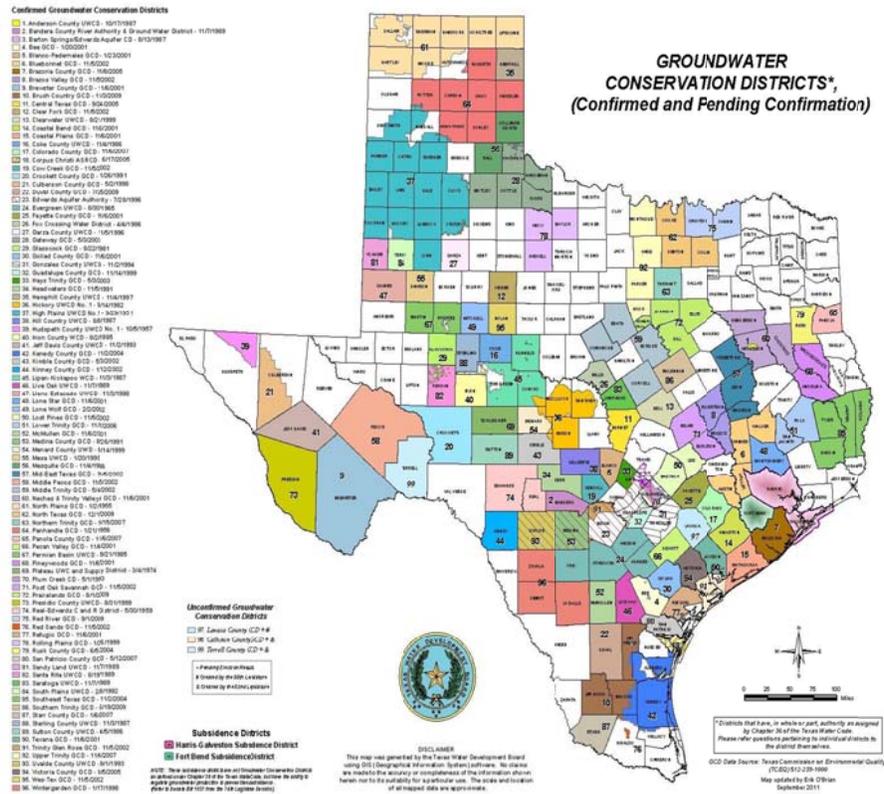


Fig. L.4. Groundwater Conservation Districts⁵⁹

In addition to their own plans, groundwater districts within the same Groundwater Management Area must complete joint planning to determine the desired future conditions of the aquifer shared by the districts. Based on this goal, GCDs must plan their permitting to ensure this goal is met.⁶⁰ While there are no “special districts” in Texas, various GCDs within the same Groundwater Management Area have formed “alliances” to better manage water and plan for the

⁵⁸ See TEX. WATER CODE §§ 36.116(a-b); 36.101; see also *Guitar Holding Co., L.P. v. Hudspeth County Underground Water Conservation District No. 1*, 263 S.W.3d 910 (Tex. 2008), holding “the amount of groundwater withdrawn and its purpose are both relevant when identifying an existing or historic use to be preserved.”

⁵⁹ TEXAS WATER DEVELOPMENT BOARD, *Groundwater Conservation Districts*, <http://www.centraltexasgcd.org/maps-2/>.

⁶⁰ TEX. WATER CODE § 36.108

future. Additionally, multiple Priority Management Areas have been designated, but special powers or authorities are not present in these areas.

There currently are 16 Groundwater Management Areas in Texas designated for planning purposes. Among these management areas, there are six “regional alliances” made up of GCDs sharing the same Groundwater Management Area. These regional alliances are: West Texas Regional Groundwater Alliance; Far West Texas Alliance of Groundwater Districts; Carrizo-Wilcox Aquifer Alliance; South Texas Regional Groundwater Alliance; Hill Country Groundwater Conservation District Alliance; and Southern Ogallala Regional Ground Water Alliance. In total, there are currently 99 separate GDCs in the state of Texas.⁶¹ As of January, 2016, there were 8 Priority Groundwater Management Areas in the state of Texas. These are: Hill Country PGMA; Reagan, Upton, and Midland Counties PGMA; Briscoe, Hale, and Swisher Counties PGMA; Dallam County PGMA; El Paso County PGMA; Central Texas – Trinity Aquifer – PGMA; and the North-Central Texas – Trinity and Woodbine Aquifers – PGMA.⁶²

⁶¹ TEXAS WATER DEVELOPMENT BOARD, *Groundwater Conservation District FAQs*, https://www.twdb.texas.gov/groundwater/management_areas/index.asp.

⁶² TEXAS COMMISSION ON ENVIRONMENTAL QUALITY, *Summary Description of PGMA's*, https://www.tceq.texas.gov/assets/public/permitting/watersupply/groundwater/maps/pgma_text.pdf.

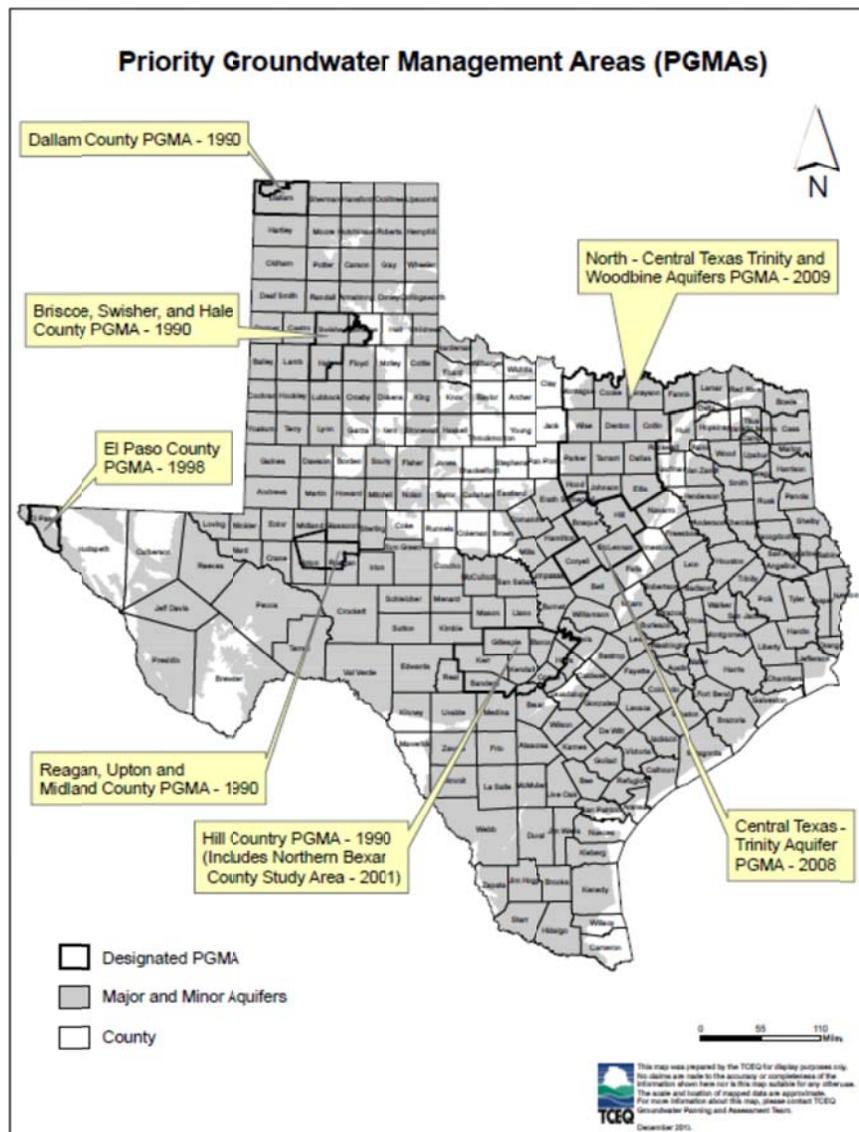


Fig. L.5. Priority Groundwater Management Areas⁶³

⁶³ TEXAS COMMISSION ON ENVIRONMENTAL QUALITY, *PGMAS*, <https://www.tceq.texas.gov/groundwater/pgma.html>.

Appendix M: Washington

Washington did not adopt a comprehensive water management code until 1917, before which time common law and territorial and state statutes governed water rights.

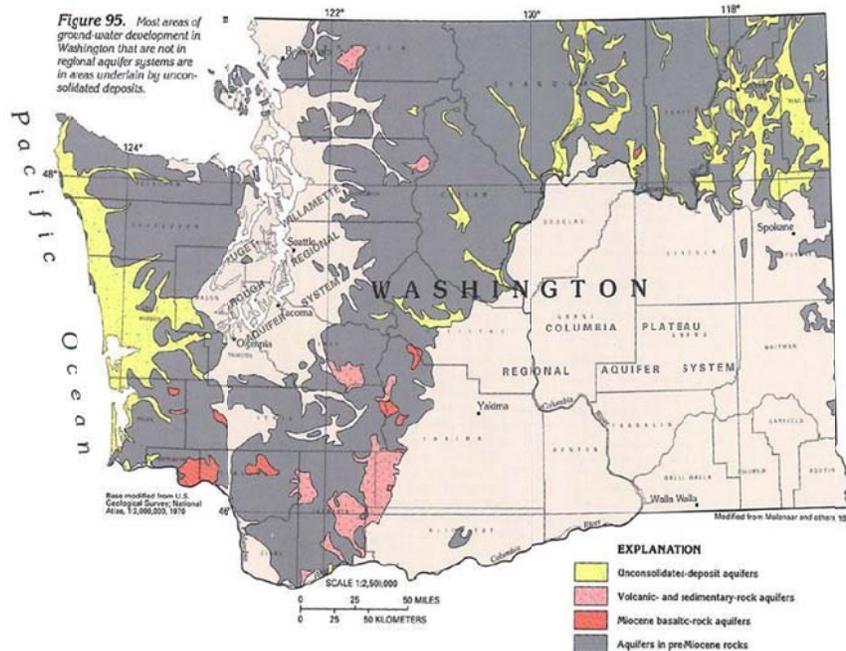


Fig. M.1. Groundwater Atlas of Washington¹

1. Definitions, Basis of Rights, Standards, and Interactions

The 1917 water code established prior appropriation as the dominant water law in Washington.² Before the code was adopted, common law along with territorial and state statutes governed Washington water rights.³ Courts recognized both riparian and prior appropriation systems of water law.⁴ Territorial courts recognized and enforced “community custom” as supporting principles of prior appropriation.⁵ After 1917, new surface water rights may be acquired only through compliance with the permit system, managed by the Department of Ecology, and existing water rights not put to beneficial use are relinquished.⁶ The permit system, modified over time to require a permit for all water put to beneficial use, allows the state to efficiently implement the

¹ USGS, *Groundwater Atlas of the United States: Idaho, Washington, Oregon*, https://pubs.usgs.gov/ha/ha730/ch_h/H-other_areas.html.

² WASH. REV. CODE. ANN. § 90.03.010.

³ *Id.*

⁴ *Id.*

⁵ *Id.*

⁶ *Department of Ecology v. Abbott*, 694 P.2d 1071, 1072 (Wash. 1985).

state water policy⁷ It is the policy of the state of Washington to promote the use of the public waters in a way which provides for obtaining maximum net benefits arising from both diversionary uses of the state's public waters and the retention of waters within streams and lakes in sufficient quantity and quality to protect in-stream and natural values and rights.⁸ This policy and system of appropriating a water right, instead of an absolute ownership of water applies not only to surface waters but to groundwater as well.⁹

Groundwater continued to be governed separately from surface water by common law until 1945.¹⁰ "Underground streams" were governed by the same principles as surface waters, and "percolating" groundwater was governed by common law.¹¹ Presumably, this meant that after 1917, the provisions of the Water Code would apply to underground streams, and any user would be required to comply with permitting and claims registration processes.¹² In *Evans v. City of Seattle*, however, the Washington State Supreme Court defined an "underground stream" as one that flows in a permanent, defined, and well-known channel.¹³ The Court further established a presumption that groundwater was "percolating" rather than classifying it as an "underground stream."¹⁴ The burden for rebutting this presumption (by clear and convincing evidence) was essentially impossible to meet because the terms did not have any connection to hydrologic reality; "underground streams," as contemplated by the court, do not exist.¹⁵

In 1945, the state legislature passed a groundwater code that extended the 1917 Water Code's permit system to groundwater.¹⁶ The permitting requirement provides:

After June 6, 1945, no withdrawal of public groundwaters of the state shall be begun, nor shall any well or other works for such withdrawal be constructed, unless an application to appropriate such waters has been made to the department and a permit has been granted by it as herein provided:

EXCEPT, HOWEVER, That any withdrawal of public groundwaters for stock-watering purposes, or for the watering of a lawn or of a noncommercial garden not exceeding one-half acre in area, or for single or group domestic uses in an amount not exceeding five thousand gallons a day, or as provided in RCW 90.44.050, or for an industrial purpose in an amount not exceeding five thousand gallons a day, is and shall be exempt from the provisions of this section, but, to the extent that it is regularly used beneficially, shall be entitled to a right equal to that established by a permit issued under the provisions of this chapter . . .

¹⁷ *The groundwater code excepts four significant classes of groundwater use

⁷ WASH. REV. CODE. ANN. § 90.03.010; *Department of Ecology v. Abbott*, 694 P.2d 1071, 1072 (Wash. 1985).

⁸ WASH. REV. CODE. ANN. § 90.03.005; *Department of Ecology v. Abbott*, 694 P.2d 1071, 1072 (Wash. 1985).

⁹ WASH. REV. CODE. ANN. § 90.44.020.

¹⁰ Lieb, *supra* note 1, 65.

¹¹ *Id.* at 66.

¹² *Id.*

¹³ *Id.*

¹⁴ *Id.*

¹⁵ *Id.*

¹⁶ *Id.*

¹⁷ *Id.*

from permitting requirements: (1) stock watering, (2) watering a lawn or noncommercial garden not exceeding one-half acre in area, (3) single or group domestic use not exceeding 5000 gallons per day, and (4) industrial purposes not exceeding 5000 gallons per day.¹⁸ Though exempt from permitting, these excepted uses are still subject to all other substantive provisions of the groundwater code, including both the beneficial use requirement and the priority system.¹⁹

A “first in time, first in right” rule is followed for appropriations of both groundwater and surface water²⁰ However, this is modified by the Washington State Department of Ecology permitting proves that issues permits to those who want to gain a water usage right of public waters that were deemed public water when the state Water Rights Act was enacted in the 1910’s.²¹ Further, the “first in time, first in right” doctrine may is subjected to condemnation proceedings set forth in WASH. REV. CODE. ANN. § 90.03.040 and a formal adjudication process set forth in §§ 90.03.110-240.²² Priorities of right to withdraw public groundwater shall be established separately for each groundwater area, subarea, or zone and, as between such rights, the first in time shall be the superior in right. The priority of the right acquired under a certificate of groundwater right shall be the date of filing of the original application for a withdrawal with the department, or the date or approximate date of the earliest beneficial use of water as set forth in a certificate of a vested groundwater right, under the provisions of RCW 90.44.090.²³

For groundwater rights that existed prior to 1945, any person, firm or corporation claiming a vested right to withdraw public ground waters of the state by virtue of prior beneficial use of such water shall, within three years after June 6, 1945, be entitled to receive from the department a certificate of groundwater right to that effect: PROVIDED,²⁴ That the issuance by the department of any such certificate of vested right shall be contingent on a declaration by the claimant in a form prescribed by the department, which declaration shall set forth: (1) the beneficial use for which such withdrawal has been made; (2) the date or approximate date of the earliest beneficial use of the water so withdrawn, and the continuity of such beneficial use; (3) the amount of water claimed; (4) if the beneficial use has been for irrigation, the description of the land to which such water has been applied and the name of the owner thereof; and (5) so far as it may be available, descriptive information concerning each well or other works for the withdrawal of public groundwater, as required of original permittees under the provisions of RCW 90.44.080: PROVIDED, HOWEVER, That in case of failure to comply with the provisions of this section within the three years allotted, the claimant may apply to the department for a reasonable extension of time, which shall not exceed two additional years and which shall be granted only upon a showing of good cause for such failure.²⁵

¹⁸ *Id.* at 67.

¹⁹ *Id.*

²⁰ *Rettowski v. Department of Ecology*, 858 P.2d 232, 236 (Wash. 1993) (citing WASH. REV. CODE. ANN. § 90.03.010).

²¹ WASHINGTON STATE DEPARTMENT OF ECOLOGY, *Water Rights*, <http://www.ecy.wa.gov/programs/wr/rights/water-right-home.html>

²² WASH. REV. CODE. ANN. § 90.03.010.

²³ WASH. REV. CODE. ANN. § 90.44.130.

²⁴ WASH. REV. CODE. ANN. § 90.44.090.

²⁵ WASH. REV. CODE. ANN. § 90.44.090.

Before a groundwater permit may be issued to a private party seeking to appropriate groundwater, Ecology must investigate and affirmatively find (1) that water is available, (2) for a beneficial use, and that (3) an appropriation will not impair existing rights or (4) be detrimental to the public welfare.²⁶ Ecology's decision whether to grant a permit to withdraw public **groundwater** is within the exercise of its discretion.²⁷

The major standard for use of groundwater is beneficial use -- defined as uses of water for domestic, stock watering, industrial, commercial, agricultural, irrigation, hydroelectric power production, mining, fish and wildlife maintenance and enhancement, recreational, and thermal power production purposes, and preservation of environmental and aesthetic values, and all other uses compatible with the enjoyment of the public waters of the state, are declared to be beneficial.²⁸ There are certain uses that are defined as beneficial but are exempt from the permitting process, they are listed above.²⁹ Beneficial use involves the application of a reasonable quantity of water to a non-wasteful use, such as irrigation, domestic water supply, or power generation, to name a few.³⁰

As noted above, the primary system for acquiring water usage rights in Washington is prior appropriation, but with a few exceptions. Therefore, although the basis for a water right is first in time first in right, an applicant for a water right must show that their use of the water must be beneficial in order to be considered for a permit.³¹

2. Sources of Law

The major sources of law for Washington groundwater are:

- Chapter 90.44 - Regulation of Public Groundwaters
- Chapter 90.03 – Washington Water Code

3. Scope of Right

a. Groundwater Ownership

Subject to existing rights, all natural groundwaters of the state defines in WASH. REV. CODE. ANN. § 90.44.035, also all artificial groundwaters that have been abandoned or forfeited, are declared to be public groundwaters and to belong to the public and are subject to appropriation for beneficial use.³²

²⁶ *State v. Campbell Gwin, LLC*, 43 P.3d 4, 8 (Wash. 2002)(en banc); WASH. REV. CODE. ANN. § 90.03.290.

²⁷ *Hills v. State, Dept of Ecology*, 932 P.2d 139, 145 (Wash. 1997) (en banc).

²⁸ WASH. REV. CODE. ANN. § 90.54.020(1).

²⁹ WASH. REV. CODE. ANN. § 90.44.050.

³⁰ WASHINGTON STATE DEPARTMENT OF ECOLOGY, *Water Rights*, <http://www.ecy.wa.gov/programs/wr/rights/water-right-home.html>.

³¹ See WASH. REV. CODE. ANN. § 90.44.090 & 90.54.020.

³² WASH. REV. CODE. ANN. § 90.44.040.

b. Scope of Use

i. Permitted Use

Uses of water for domestic, stock watering, industrial, commercial, agricultural, irrigation, hydroelectric power production, mining, fish and wildlife maintenance and enhancement, recreational, and thermal power production purposes, and preservation of environmental and aesthetic values, and all other uses compatible with the enjoyment of the public waters of the state, are declared to be beneficial.³³

ii. Preference of Use

To determine which use is first in priority for purposes of obtaining a groundwater right in Washington it is absolutely critical to understand that throughout the history of the state more than one system of obtaining water rights have been used, pre 1945 (riparian system modified by common law and post 1945 (permitting system based on prior appropriation).³⁴ Therefore because the groundwater code states that right to use public waters after 1945 are granted subject to existing rights, it can be inferred that those uses and rights acquired before 1945 are superior to those acquired after 1945.³⁵ However, riparian rights may be limited. Furthermore, because the 1945 groundwater code exempts certain uses from the permitting process it can be inferred that those uses are superior to those uses that require a permit.³⁶

Decisions to grant a groundwater application generally lie in the Department of Ecology's discretion, though it must deny an application if there is no unappropriated water available, if withdrawal will conflict with or impair existing rights, or if withdrawal will detrimentally affect the public interest.³⁷

In order to protect the quality of groundwater, assurance of quality, and efficient management of water resource the Department of ecology has promulgated rules that created different groundwater zones that establish the priorities of right to withdraw groundwater for each groundwater zone/area separately.³⁸ The extent of protection provided by the Washington groundwater code for appropriators depends upon a site specific factual inquiry and technical analysis that takes into consideration both the geohydraulic characteristics of the aquifer and the state of pump and well construction technology.³⁹

Allocation of waters among potential uses and users shall be based generally on the securing of the maximum net benefits for the people of the state. Maximum net benefits shall constitute total benefits less costs including opportunities lost.⁴⁰

³³ WASH. REV. CODE. ANN. § 90.54.020(1).

³⁴ See WASH. REV. CODE. ANN. § 90.44.035; see also, WASHINGTON STATE DEPARTMENT OF ECOLOGY, *Water Rights*, <http://www.ecy.wa.gov/programs/wr/rights/water-right-home.html>.

³⁵ WASH. REV. CODE. ANN. § 90.44.035.

³⁶ WASH. REV. CODE. ANN. § 90.44.050.

³⁷ *Postema v. Pollution Control Hearing Board*, 11 P.3d 726, 745 (Wash. 2000) (en banc).

³⁸ Office of the Attorney General, *An Introduction to Washington Groundwater Law*, V:13-V:14 (January 2000).

³⁹ *Id.* at V:16.

⁴⁰ WASH. REV. CODE. ANN. § 90.54.020(2).

iii. Location of use

Water banking as a function of the trust water [rights] program and as authorized by this chapter can provide an effective means to facilitate the voluntary transfer of water rights established through conservation, purchase, lease, or donation, to preserve water rights and provide water for presently unmet and future needs; and to achieve a variety of water resource management objectives throughout the state, including drought response, improving streamflows on a voluntary basis, providing water mitigation, or reserving water supply for future uses.⁴¹ Water banking is permitted for waters not a part of a water trust.

c. Loss of water rights

The legislature found that a need existed to develop and test a means to facilitate the voluntary transfer of water and water rights.⁴² A water right is a vested property interest to the extent that an appropriator diverts and applies the water to a beneficial use. As a vested property interest a water right cannot be taken away without the due process protections afforded by the Constitution.⁴³ A water right remains a valid property interest only if the holder of the right actively, maintains the right by continuously putting the water to an actual beneficial use, also known as the “use it, or lose it rule.”⁴⁴

A water right may be lost in whole or in part by nonuse under statutory forfeiture provisions or common law abandonment.⁴⁵ The principle of “use it or lose it” is grounded in two fundamental concepts of water law: maximizing beneficial use and providing certainty of water rights.⁴⁶ The Washington legislature has recognized and acknowledged the principle of maximizing the use of water as a fundamental element of the water law in the state by stating that:

It is the policy of the state to promote the use of public waters in a fashion which provides for obtaining *maximum net benefits* arising from both diversionary uses of the state’s public waters and the retention of waters within streams and lake in sufficient quantity and quality to protect instream and natural values and rights.⁴⁷

This policy was furthered by the Legislature’s passage of the Registration and Relinquishment Act of 1967 which states, “a strong beneficial use requirement as a condition precedent to the *continued* ownership of a right to withdraw or divert water is essential to the orderly development of the state,” and “enforcement of the state’s beneficial use policy is required by the state’s public growth.”⁴⁸

In Washington, both common law principles and statutory provisions the requirement of a

⁴¹ WASH. REV. CODE. ANN. § 90.42.005.

⁴² WASH. REV. CODE. ANN. § 90.42.010.

⁴³ *Id.*

⁴⁴ *Id.*

⁴⁵ *Id.* At VI:2.

⁴⁶ *Id.*

⁴⁷ *Id.* (quoting Wash. Rev. Code §90.03.005).

⁴⁸ *Id.* (quoting Wash. Rev. Code 90.14.020).

beneficial use standard is enforced as a condition to maintain a right.⁴⁹ The Washington Supreme Court has also consistently upheld the principle of maximizing the use of the water and the loss of rights for failure to do so.⁵⁰ The Washington Supreme Court has held that all riparian water rights, those rights acquired before the 1917 Water Code, not beneficially used by 1935 may be terminated.⁵¹ Furthermore, a reversion of the unused riparian water use rights to the state was a valid use of the state's police power and did not exact an unconstitutional taking without compensation.⁵² Neither the Legislature nor courts have eliminated riparian rights, as other states have. Consumptive, recreational and aesthetic riparian rights are considered to be vested property rights.⁵³ They may not be taken by inverse condemnation or by zoning.⁵⁴ Riparian rights may be limited, however, in order to further state policy encouraging beneficial use.⁵⁵

Water rights may also be lost through forfeiture, a statutory provision to terminate water rights if they are not used continuously within a prescribed period of time.⁵⁶ Statutory forfeiture relinquishes a water right for the voluntary failure to continuously use water for five or more consecutive years unless sufficient cause is shown.⁵⁷ This provision applies to water rights established prior to the enactment of the 1917 and 1945 Water Codes, riparian rights, and appropriative rights established by codes under the permitting system.⁵⁸ There must be proof of nonuse, by clear and convincing evidence but, unlike common law abandonment, statutory forfeiture does not require proof of intent to abandon.⁵⁹ Once the right is lost, the water reverts back to public ownership and becomes available for appropriation in accordance with state provisions.⁶⁰ The relinquishment of a water right does not require just compensation within the meaning of the Fifth Amendment because the property right embodied in a water right exists only to the extent of continuing beneficial use.⁶¹

Statutory forfeiture occurs when a water right holder does not continuously and beneficially use the water for five or more consecutive years unless sufficient cause is shown.⁶² "Sufficient cause" is defined in Wash. Rev. Code § 90.14.140 as nonuse due to drought, active service in the armed forces, municipal water supplies, and legal proceedings, but other uses are declared to be "sufficient cause" to prevent the relinquishment of a vested water right.⁶³ The Water Codes of

⁴⁹ *Id.* (collecting cases).

⁵⁰ *Id.* At VI:3 (collecting cases).

⁵¹ Office of the Attorney General, *An Introduction to Washington Groundwater Law*, V:19 (January 2000) (quoting *Department of Ecology v. Abbott*, 394 P.2d 1071 (Wash. 1985)).

⁵² *Id.*

⁵³ *Matter of Deadman Creek Drainage Basin in Spokane County*, 694 P.2d 1071, 1077 (Wash. 1985) (en banc); *Department of Ecology v. Acquavella*, 100 Wash.2d 651, 674 P.2d 160 (1983); *Bach v. Sarich*, 74 Wash.2d 575, 445 P.2d 648 (1968); *In re Clinton Water Dist.*, 36 Wash.2d 284, 218 P.2d 309 (1950).

⁵⁴ *Id.*; see, e.g., *Bach v. Sarich*, *supra*.

⁵⁵ *Id.*; *State ex rel. South Fork Log Driving Co. v. Superior Court*, *supra*.

⁵⁶ Office of the Attorney General, *An Introduction to Washington Groundwater Law*, VI:3 (January 2000) (citing WASH. REV. CODE 90.14.130-.230).

⁵⁷ Office of the Attorney General, *An Introduction to Washington Groundwater Law*, VI:3 (January 2000) (citing WASH. REV. CODE 90.14.160-.180).

⁵⁸ *Id.*

⁵⁹ *Id.* At VI:-VI:4; see A. Dan Tarlock, *Law of Water Rights and Resources* 5.18[2]

⁶⁰ *Id.* (citing WASH. REV. CODE § 90.14.160).

⁶¹ *Id.*

⁶² *Id.* (citing WASH. REV. CODE § 90.14.160-180).

⁶³ *Id.* (citing WASH. REV. CODE § 90.14.140).

Washington also provide for exceptions to the relinquishment rule that make certain uses not subject to statutory forfeiture.⁶⁴ These uses include water rights for power development purposes, for standby or reserve water supply for use in times of drought, for claims of a future determined development, and for claims for municipal water supply purposes, with only few of the exceptions/exemptions being interpreted by the courts.⁶⁵

The statutory forfeiture statute specifically recognizes that water right permits are not affected by the forfeiture statutes.⁶⁶ The permits are subject to the authority of the Department of Ecology to either cancel the permit for lack of diligence in putting water to use or to grant extensions of time to put water to beneficial use.⁶⁷ The Washington Supreme Court further held that a permit holder's right under a permit is an inchoate right, which is "an incomplete appropriative right in good standing . . . so long as the requirements of law are being fulfilled."⁶⁸ When a permit holder fails to put water to a beneficial use with due diligence, the permit is "administratively" cancelled by the Department of Ecology without following the statutory procedures for abandonment.⁶⁹

Courts in Washington may also find that water rights have been lost even where no statutory forfeiture proceeding has occurred, employing the common law doctrine of abandonment.⁷⁰ Common law abandonment occurs when there is intentional nonuse of the water or voluntary relinquishment of a water right.⁷¹ The intent to abandon may be shown by explicit declarations or inferred by the parties' Conduct.⁷² The burden of proving abandonment rests with the party alleging abandonment.⁷³ Moreover, the standard of proof is especially high when dealing with water.⁷⁴ While the use of water for municipal purposes is exempt from statutory forfeiture, the same is not true under common law abandonment.⁷⁵

Water rights may be lost through exercise of eminent domain. Statute declares that beneficial use of water is a public use, and any person may exercise the right of eminent domain to acquire any property or rights now or hereafter existing when found necessary for the storage of water for, or the application of water to, any beneficial use, including the right to enlarge existing structures employed for the public purposes mentioned in this chapter and use the same in common with the former owner, and including the right and power to condemn an inferior use of water for a superior use.⁷⁶ The United States is also granted the right to exercise eminent domain rights for any waters owned by the State.⁷⁷ In condemnation proceedings the court shall determine what use will be for the greatest public benefit, and that use shall be deemed a superior one: provided, that no property right in water or the use of water shall be acquired hereunder by condemnation for

⁶⁴ *Id.* At VI-VI.

⁶⁵ *Id.* At VI.

⁶⁶ *Id.* At VI:8 (citing WASH. REV. CODE. § 90.14.150).

⁶⁷ *Id.* II (citing WASH. REV. CODE § 90.03.320).

⁶⁸ *Id.* At VI:8-VI:9 (quoting *R.D. Merrill Co v. Pollution Control Hearings Board*, 137 Wash. 2d 118, 969 P.2d 458, 130 (1999)).

⁶⁹ *Id.* at VI:9 (citing WASH. REV. CODE § 90.03.320).

⁷⁰ *Id.*

⁷¹ *Id.* (citing *Jensen v. Department of Ecology*, 102 Wash. 2d 109, 115, 685 P.2d 1068 (1984)).

⁷² *Id.* at VI:9-VI:10.

⁷³ *Id.* (citations omitted).

⁷⁴ *Id.* (citations omitted).

⁷⁵ *Id.* at VI:11.

⁷⁶ WASH. REV. CODE. ANN. § 90.03.040.

⁷⁷ WASH. REV. CODE. ANN. § 90.40.010.

irrigation purposes, which shall deprive any person of such quantity of water as may be reasonably necessary for the irrigation of his or her land then under irrigation to the full extent of the soil, by the most economical method of artificial irrigation applicable to such land according to the usual methods of artificial irrigation employed in the vicinity where such land is situated. In any case, the court shall determine what is the most economical method of irrigation.⁷⁸ Such property or rights shall be acquired in the manner provided by law for the taking of private property for public use by private corporations.⁷⁹

Water rights may also be affected by prescriptive land rights. Early Washington courts held that a right to use water could be acquired through prescription, or adverse possession, if the person claiming the right could show that their possession was open, notorious, exclusive, and continuous and hostile for a period of ten years.⁸⁰ However, in 1967, the Washington Legislature no longer allowed the acquisition of water rights through prescription by promulgating Wash. Rev. Code § 90.14.220, which states: “No rights to the use of surface or ground waters of the state affecting appropriated or unappropriated waters thereof may be acquired by prescription or adverse use.”⁸¹

Water rights may also be lost by means of estoppel and laches.⁸² To establish a claim of estoppel a person must prove: (1) an admission, statement, or act inconsistent with a claim later asserted; (2) reasonable reliance on that admission, statement, or act by the other party; and (3) injury to the relying party if the court permits the first party to contradict or repudiate the admission, statement, or act.⁸³ Equitable estoppel is not favored when used against the government.⁸⁴ Therefore, when equitable estoppel is used against the government, it must be necessary to prevent a manifest injustice, and the existence of government functions must not be impaired as result of the equitable estoppel.⁸⁵

Water rights established prior to the enactment of the both the surface and ground water codes, 1917 and 1945 respectively, may be extinguished through statutory forfeiture, abandonment, eminent domain, and prescription but, however, they may also be lost for failure to follow statutory procedures prescribed by the Legislature to identify and preserve such claimed rights.⁸⁶ For example, because of the incomplete and uncertain records for water rights, the Washington Legislature enacted the Water Right Claims Registration Act in 1967 that directed the Water Resources Department to record the amount and location of the pre-code water rights by authorizing the state to accept and register water rights claims.⁸⁷ The Washington Legislature has subsequently passed statutes in 1979, 1985, and 1997 to prevent the forfeiture of certain pre-code water rights and to bring contested water claims to an end, even though state law formerly held

⁷⁸ WASH. REV. CODE. ANN. § 90.03.040.

⁷⁹ WASH. REV. CODE. ANN. § 90.03.040.

⁸⁰ *Id.* at VI:12.

⁸¹ *Id.* at VI:13.

⁸² *Id.*

⁸³ *Id.* at VI:13-VI:14 (citing *Department of Ecology v. Theodoras*, 135 Wash. 1d 582, 599, 957 P.2d 1241 (1998) (citation omitted)).

⁸⁴ *Id.* at VI:14-VI:15.

⁸⁵ *Id.* at VI:15.

⁸⁶ *Id.*

⁸⁷ *Id.* at VI:16.

that such claims were deemed to be waived and relinquished if not filed by 1974.⁸⁸ The most recent Washington registration Act is codified as Wash. Rev. Code § 90.14.068(1) which states:

[A]ny person claiming under state law a right to withdraw and beneficially use ground water under a right that was established before the effective date of the ground water code established by chapter 263, Laws of 1945, shall register the claim with the department [Department of ecology] during the filing period unless the claim has been filed in the state water rights registry before July 27, 1997. A person who claims such a right and fails to register the claim as required is conclusively deemed to have waived and relinquished any right, title, or interest in the right.⁸⁹

Washington statute also defines use of groundwater outside of its basin of origin. For water rights transfers under the water banking system, the department shall transfer a water right or portion thereof being administered for water banking purposes from the trust water [rights] program to a third party upon occurrence of all of the following: (1) the department receives a request for transfer of a water right or portion thereof currently administered by the department for water banking purposes; (2) the request is consistent with any previous review under RCW 90.03.380 of the water right and future temporary or permanent beneficial uses; (3) The request is consistent with any condition, limitation, or agreement affecting the water right, including but not limited to any trust water right transfer agreement executed at the time the water right was transferred to the trust water rights program; and (4) the request is accompanied by and is consistent with an assignment of interest or portion thereof from a person or entity retaining an interest in the trust water right or portion thereof to the party requesting transfer of the water right or portion thereof.⁹⁰ The department shall issue documentation for that water right or portion thereof to the new water right holder based on the requirements applicable to the transfer of other water rights from the trust water rights program.⁹¹ Such documentation shall include a description of the property to which the water right will be appurtenant after the water right or portion thereof is transferred from the trust water [rights] program to a third party. The department's decision on the transfer of a water right or portion thereof from the trust water [rights] program for water banking purposes may be appealed to the pollution control hearings board under RCW 43.21B.230, or to a superior court conducting a general adjudication under RCW 90.03.210.⁹²

4. Hydraulic Connection and Regulation

This chapter regulating and controlling groundwaters of the state of Washington is supplemental to chapter 90.03 RCW, which regulates the surface waters of the state, and is enacted for the purpose of extending the application of such surface water statutes to the appropriation and beneficial use of groundwaters within the state.⁹³

⁸⁸ *Id.* (citing Reed D. Benson, *Maintaining the Status Quo: Protecting Established Water uses in the Pacific Northwest, Despite the Rules of Prior Appropriation*, 28 ENVTL. L. 881, 897 (1998); 1979 WASH. LAWS ch. 216; WASH. REV. CODE 90.14.043, .044; House Bill Report on House Bill 1118, 55th Leg. Reg. Sess. (Wash. 1997), at 1-3; WASH. REV. CODE 90.14.071).

⁸⁹ *Id.* at VI:17.

⁹⁰ WASH. REV. CODE ANN. § 90.42.120.

⁹¹ WASH. REV. CODE ANN. § 90.42.120.

⁹² WASH. REV. CODE ANN. § 90.42.120.

⁹³ WASH. REV. CODE ANN. § 90.44.020.

The rights to appropriate the surface waters of the state and the rights acquired by the appropriation and use of surface waters shall not be affected or impaired by any of the provisions of this supplementary chapter and, to the extent that any underground water is part of or tributary to the source of any surface stream or lake, or that the withdrawal of groundwater may affect the flow of any spring, water course, lake, or other body of surface water, the right of an appropriator and owner of surface water shall be superior to any subsequent right hereby authorized to be acquired in or to groundwater.⁹⁴ Statute governing surface water appropriators' and ground water appropriators' rights does not provide that surface water rights are automatically superior to ground water rights; statute merely emphasizes potential connections between groundwater and surface water and makes evident legislature's intent that ground water rights be considered a part of overall water appropriation scheme, subject to paramount rule of first in time, first in right.⁹⁵ The Court observed that if Ecology finds significant hydraulic continuity between surface water subject to minimum in-stream flows and a proposed groundwater source, a subsequent application for a groundwater rights permit for that source may either be denied by the Department of Ecology or subjected to conditions to protect the established levels.⁹⁶

Under limited circumstances groundwater withdrawals in conflict with instream base flows of surface waters may be authorized where it is clear that overriding considerations of the public interest will be served.⁹⁷ Additionally, the Department of Ecology has the authority to condition all surface water allocations to preserve the minimum instream flows established by the regulation for each river basin.⁹⁸

Groundwater interference penalties in Washington allow the department to consider the seriousness of the violation, whether the violation is repeated or continuous after notice of the violation is given, and whether any damage has occurred to the health or property of other persons in determining the penalty for interference. Except as provided in RCW 43.05.060 through 43.05.080 and 43.05.150, the Department of Ecology may levy civil penalties ranging from one hundred dollars to five thousand dollars per day for violation of any of the provisions of this chapter and chapters 43.83B, 90.22, and 90.44 RCW, and rules, permits, and similar documents and regulatory orders of the Department of Ecology adopted or issued pursuant to such chapters. The procedures of RCW 90.48.144 shall be applicable to all phases of the levying of a penalty as well as review and appeal of the same.⁹⁹

Additionally, in *Hubbard v. Department of Ecology*, the Washington Appellate Court upheld the decision of the Department of Ecology to restrict groundwater withdrawal in order to protect instream flows given the significant hydraulic continuity between an aquifer and a river.¹⁰⁰

⁹⁴ WASH. REV. CODE. ANN. § 90.44.030.

⁹⁵ *Rettowski v. Department of Ecology*, 858 P.2d 232, 244, n.1 (Wash. 1993) (cited in *Hubbard v. State*, 936 P.2d 27).

⁹⁶ *Hubbard v. State*, 936 P.2d 27 (Wash. App. Div. 3 1997).

⁹⁷ Office of the Attorney General, *An Introduction to Washington Groundwater Law*, V:29-V:30 (January 2000) (citing Wash. Rev. Code. Ann. § 90.54.020(3)(a)).

⁹⁸ *Id.* At V:30 (citing WASH. REV. CODE. ANN. § 9003.247).

⁹⁹ WASH. REV. CODE. ANN. § 90.03.060.

¹⁰⁰ Office of the Attorney General, *An Introduction to Washington Groundwater Law*, V:30 (January 2000) (citing *Hubbard v. Department of Ecology*, 936 P.2d 27) (Wash. App. 1977)).

5. Regulatory Authorities

The Department of Ecology statutory authority is defined in Washington Code Section 43.¹⁰¹ Its website is at: <http://www.ecy.wa.gov/water/groundwater.html>

The Department's regulatory purview includes: supervision of all public waters, inspecting construction of all water project (e.g. dams and power plants), regulation and control of water diversions, determining the discharge of streams and springs and other sources of water supply, and assessing the capacities of lakes and of reservoirs whose waters are being or may be utilized for beneficial purposes.¹⁰²

d. Are there any special districts present?

The department of ecology, in cooperation with other state agencies, local government, and user groups, shall identify probable groundwater management areas or sub-areas. The department shall also prepare a general schedule for the development of groundwater management programs that recognizes the available local or state agency staff and financial resources to carry out the intent of RCW 90.44.400 through 90.44.420. The department shall also provide the option for locally initiated studies and for local government to assume the lead agency role in developing the groundwater management program and in implementing the provisions of RCW 90.44.400 through 90.44.420. The criteria to guide identification of the groundwater areas or sub-areas shall include but not be limited to, the following:

- (a) Aquifer systems that are declining due to restricted recharge or over-utilization;
 - (b) Aquifer systems in which over-appropriation may have occurred and adjudication of water rights has not yet been completed;
 - (c) Aquifer systems currently being considered for water supply reservation under chapter 90.54 RCW for future beneficial uses;
 - (d) Aquifers identified as the primary source of supply for public water supply systems;
 - (e) Aquifers designated as a sole source aquifer by the federal environmental protection agency; and
 - (f) Geographical areas where land use may result in contamination or degradation of the groundwater quality.
- (3) In developing the groundwater management programs, priority shall be given to areas or sub-areas where water quality is imminently threatened.¹⁰³

¹⁰¹ WASH. REV. CODE. ANN. § 43.21A.064.

¹⁰² WASH. REV. CODE. ANN. § 43.21A.064.

¹⁰³ WASH. REV. CODE. ANN. § 90.44.400.

Appendix N: State Laws/Regulations Questionnaire

States Groundwater Rights - Laws and Regulations Questionnaire**

1. Name of State:

2. Overview of groundwater governance system

Definition of Groundwater:

a. Definition of groundwater, underground water, aquifer, and other relevant terms

b. Characterize system (e.g., Prior Appropriation, Reasonable Use, Absolute Ownership, Correlative Rights, Restatement, or a Combination)

c. Briefly describe basis for right

i. First in time, overlying land ownership, permit, etc.

ii. Standards for right (e.g., beneficial use, reasonable use, etc.)

iii. If a combination of systems, describe interactions

3. Identify the source(s) of law for the allocation system (e.g., chief case(s), statute(s), etc.)

4. What is the scope of the right?

a. Who “owns” the water? (Is GW owned by individuals, but held in trust by state? Does the public own groundwater or the right to use it?)

b. Scope of limitations on use

i. Allowable types of use

ii. Preference of use (if any)

1) Hierarchy for purposes of use (e.g., domestic, agriculture, industrial, mining, municipal, etc.)?

2) Standards for preference (beneficial use, reasonable use, etc.)

iii. Location of use

1) Overlying vs. non-overlying land

2) Transport of water (e.g., within a basin, outside a basin)

c. Loss of water rights

i. Can water rights be lost?

*** For all questions, please include complete citations for case law, statutes, etc., wherever possible*

ii. If yes, under what circumstances can right be lost? (e.g., abandonment, forfeiture, prescription, eminent domain)

iii. What is the legal procedure for loss?

5. Does state law regulate the Ground/Surface Water Interaction?

a. If so, how?

b. Is there a priority among users of hydraulically linked surface and ground waters?

c. What is the liability for interference?

6. List the permitting authorities for groundwater in the state

a. Who is/are the Agency/Department(s)

b. List contact information (website)

c. What is the scope of authority/responsibility? (permitting, monitoring, etc.)

d. Are there any special districts present?

i. Designated Basins/Districts

ii. Critical Ground Water management Areas

*** For all questions, please include complete citations for case law, statutes, etc., wherever possible*

Appendix O: Research Protocol

U.S. GROUNDWATER LAW SURVEY – RESEARCH PROTOCOL

TEXAS A&M UNIVERSITY SCHOOL OF LAW / ST. MARY'S UNIVERSITY SCHOOL OF LAW

Brief Synopsis: We are compiling a comprehensive survey of the various U.S. groundwater law regimes. This research will allow Professors Eckstein and Hardberger to analyze both regional and state comparisons, while also identifying parallels among the different legal regimes. Given the nature of the research, this will provide an expansive audience with a tool that provides laws and regulations for specific states, while also allowing for intra-state comparisons.

Each state differs in the amount of available law that is applicable to groundwater. Some states are rather innovative, while others hardly have a governance structure. Outlined below is a general approach and protocol, to provide guidance and facilitate our efforts to compile a final product that is uniform and consistent throughout.

A. Guidelines Before Starting Research

I. SEE COMPLETED STATE SURVEYS FOR A MODEL GUIDE BEFORE ANSWERING SURVEY QUESTIONS –

- Our shared Google Drive, in folder #1, contains completed state surveys completed. Please read these before beginning your first state survey, as our primary goal is to have a uniform product that represents all fifty states.
- If you cannot respond to one or more of the questions in the questionnaire, or you feel the information is not conclusive, please make note of this in your survey answers as the lack of laws in particular instances can also be significant.
- Different sources (i.e., cases, treatises, articles) may not agree on the classification of a groundwater legal regime. This is important in itself, so please mention it in the appropriate section.
- The sources will not explicitly yield an answer for every question, so do your best to reach the second level of analysis.

II. FOOTNOTES (BLUEBOOK RULES) –

- Provide footnotes for each referenced source and apply citation rules set out in the most recent version of the Bluebook.
- Please use pincites if quoting a case or citing a law review article. We want to make it as easy as possible for the Professors to edit the material, and other researchers to find the sources used.
- Do not use in-text citations for sources, *always use footnotes*
- Also, cite the full source for each citation, rather than using Id.'s. We want to make it as easy as possible to edit the final drafts. At that point, we can clean up and finalize the footnotes.

B. Groundwater Law Research Process

I. WATERS & WATER RIGHTS TREATISE (LEXISNEXIS) –

- Begin your research with this document, which provides an informative outline of water rights for each state. This information, however, is only a starting point, and the material contained in the treatise should be cross-referenced and verified by the actual case or statute.
- The Treatise will give clues to whether the groundwater law for the state is based on statutes or common law, or some derivative of both
- Before reviewing statutes or cases, review the Treatise to identify the particular sources of law for each state. You may cite the Treatise author’s analysis if you find it informative and necessary (e.g., you cannot find any primary sources providing the same information).
- Upon reading this source as background, it will be more efficient to locate the relevant statutes and case law.
- To Access the Treatise, make sure you are logged in on Lexis and go to: <https://advance.lexis.com/api/permalink/74077129-7464-4de0-a09d-504447e75cf7/?context=1000516>. On the drop down menu, click on Part XI – River Basin and State Surveys, then click on the respective state and navigate to the appropriate section with groundwater law.

II. LAW REVIEW ARTICLES –

- Various scholars have written law review articles about state groundwater law. A quick Westlaw/Lexis search is advantageous. However, please be judicious in assessing whether to use such articles in your research, taking into account the experience and knowledge of the authors.
- If you come across law review articles that are reliable and relevant to your assignment or another state, please upload them to the “Misc. Groundwater Resources” folder in our Google Drive.

III. STATUTES (WESTLAW) –

- Westlaw is often the easiest database to use because you can save a range of statutes at a time.
- Each state is different, but when you locate the water law section, go to the right level, and you can save approximately twenty statutes at a time, which will make your research much more efficient
- To Access Ranges of Statutes: On the WestlawNext homepage, click on Statutes & Court Rules, click on the respective State & Title, on the page that lists the Statutes. Then click on the Select Delivery Method in top right (green arrow), Click Layout and Limits tab, then select desired range.

IV. REGULATIONS (WESTLAW) –

- This is an important aspect of the survey, because these rules often aren’t mentioned in the Water Rights Treatise and the administrative regulations may have a direct effect on our target audience.
- These are the codification of the statutes and provide more details regarding the various state agencies’ authority.
- To Access State Admin. Codes: On WestlawNext homepage, click on Regulations, then

select respective state. Find the relevant state agency (e.g., Alabama Dept. of Natural Resources) and download regulations the same as Statutes.

V. CASE LAW –

- Save a pdf of each case referenced in your survey in our Google Drive within the individual state folder.
- Rather than summarizing opinions and risking the misinterpretation of particular intricacies, consider directly quoting significant rules, holdings, etc.
- Generally, case law should come after statutes and regulations, particularly if the court is interpreting various groundwater regulations and statutes.

VI. STATE AGENCY WEBSITE –

- A quick google search should take you to the particular agency (or agencies) that is in charge of each state.
- You can find the address here, along with related information
- These agency websites also have information on special districts, though many times the state has the authority to create districts, but has not chosen to do so.
- If you find any useful maps, charts, or other images on these websites, especially if they are in high resolutions, please save them to in our Google Drive within the individual state folder. Make sure to provide (either in your state survey or a separate text document) the web address where you found the image.



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