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At the End of the Day: Are the West's General Stream Adjudications Relevant to Modern Water Rights Administration?

Michelle Bryan

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AT THE END OF THE DAY: ARE THE WEST’S GENERAL STREAM ADJUDICATIONS RELEVANT TO MODERN WATER RIGHTS ADMINISTRATION?

*Michelle Bryan**

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* Professor of Water Law and Co-Director, Land Use & Natural Resources Clinic, University of Montana School of Law. My thanks to Professor Jason Robison and the Wyoming Law Review for inviting my presentation of this article at the University of Wyoming Symposium 2014: “Wyoming’s Big Horn General Stream Adjudication 1977-2014” on the Wind River Reservation in Riverton, Wyoming. My thanks as well to Chief Justice Mike McGrath of the Montana Supreme Court, Chief Judge Russ McElyea of the Montana Water Court, and Director John Tubbs and Water Division Administrator Tim Davis of the Montana Department of Natural Resources & Conservation, along with many other court and agency staff, for supporting my underlying research on the water rights systems of the West, which originally appeared in a clinic report titled “*Water Rights in Montana: How Our System Works Today, How Montana Compares to Other States, and Ideas for Montana’s Future*” (UM Land Use & Natural Resources Clinic, Spring 2014). To former clinic student William Fanning, who worked tirelessly and enthusiastically on that report, particularly the states of Oregon, Utah, and Wyoming. To research assistants Ariel Overstreet-Adkins, Katelyn Hepburn, and Ross Keogh for their citation support on this article. And finally, to the many interviewees whose on-the-ground expertise made all the difference. While my students and I attempted to capture the nuances that our interviewees shared about their state’s water law, some generalization was necessary. Any errors in our summaries are solely our own, and are not attributable to the interviewees.

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INTRODUCTION

The 1952 passage of the McCarran Amendment¹ marked the opening of modern, large-scale “general stream adjudications” in the West.² Unlike the localized stream adjudications of earlier days, which tended to resolve disputes among a handful of state water users, the McCarran general stream adjudications were envisioned as comprehensive state water cases that would finally resolve all claims to all waters on a source, whether arising under state water rights claims or federal reserved rights claims held by tribes and the federal government.³ Historic water rights⁴ could be comprehensively decreed and catalogued by priority date, quantity, point of diversion, type of use, and place of use.⁵ Over a half century later, general stream adjudications are far from complete, although some states are reaching major milestones. Montana has finalized nearly all of its federal-tribal compact negotiations,⁶ and has an ambitious target date of 2028 for entering

¹ 43 U.S.C. § 666. This amendment waived federal sovereign immunity and allowed states to use joinder to address federal and Indian reserved rights claims within one comprehensive adjudication. See Pacheco, *infra* note 3.

² For an excellent summary of western adjudication proceedings, see generally John E. Thorson et al., *Dividing Western Waters: A Century of Adjudicating Rivers and Streams*, 8 U. DENV. WATER L. REV. 355 (2005).

³ Thomas H. Pacheco summarizes the purpose and nature of McCarran Act adjudications in his piece *How Big is Big? The Scope of Water Rights Suits Under the McCarran Amendment*, 15 ECOLOGY L.Q. 627 (1988).

⁴ “Historic water rights” is a shorthand way to denote water rights developed prior to modern day permitting and centralized state record keeping. Many of these rights were developed simply by putting water to a beneficial use. Other rights were noticed and documented in local courthouses. Many water rights were abandoned, while others, though documented, were never perfected. Needless to say, this system resulted in great confusion as to the actual water rights existing on a given water source.

⁵ For examples of such decrees, see the Snake River and Big Horn River final decrees referenced *infra* notes 7 and 8.

⁶ In lieu of court proceedings, Montana elected to settle all federal and Indian reserved water rights through negotiations. For a description of the compact process, and a complete list

final decrees for all its basins.⁷ Idaho recently completed the Snake River Basin Adjudication, which comprises nearly eighty-five percent of the waters of the state.⁸ And Wyoming recently celebrated the conclusion of the nearly four decade-long Big Horn River Basin general stream adjudication.⁹

Yet, for all the monumental efforts involved, adjudication is merely one piece of a larger water rights legal system that also includes permitting of new water uses, review of water use changes, and on-the-ground administration of water rights through distribution and enforcement. The integration of these processes is vitally important, because without comprehensive adjudication of historic water rights, it is difficult to determine whether water is available for new uses, whether changes may harm existing users, or whether water deliveries are correctly fulfilling legal rights to use water.

As historic adjudications such as the Big Horn River Basin adjudication reach finality, thoughts turn toward a post-adjudication world. One where emphasis shifts from determining the basic characteristics of water rights to creating nimble, predictable water rights systems that allow uses to adapt to the emerging needs of the West; one that fosters the accurate, efficient water delivery throughout complex, interconnected watersheds. And in places where adjudications are lagging (or languishing), the focus is on whether emerging lessons from these freshly-minted water decrees should trigger innovations in how future water courts approach their work. At bottom, these important and long overdue conversations center on how judicially driven water rights proceedings integrate with modern water rights permitting, record keeping, and distribution processes located predominantly within state agencies.

This article provides a modest starting place for exploring how adjudications in various western states function together with modern permitting and administration of water rights. By locating adjudication within a state's broader

of Montana compacts, see Montana Department of Natural Resources & Conservation, *Reserved Water Rights Compact Commission*, <http://dnrc.mt.gov/divisions/reserved-water-rights-compact-commission> (last visited June 24, 2015).

⁷ Montana Legislative Audit Division, *Performance Audit: Water Rights Adjudication* (June 2010), available at <http://leg.mt.gov/content/Publications/Audit/Summary/09P-09-summary.pdf>. The 2028 target is calibrated to the Montana Department of Natural Resources & Conservation's legislatively mandated completion of all claims examinations in all basins by 2015. MONT. CODE ANN. § 85-2-282 (2015).

⁸ *In re Snake River Basin Adjudication*, Final Unified Decree (Idaho Fifth Jud. Dist., Aug. 26, 2014), available at <http://www.srba.state.id.us/Images/2014-08/0039576XX09020.pdf>.

⁹ *In re The General Adjudication of All Right to Use Water in the Big Horn River System and All Other Sources*, State of Wyoming, Phase III Order Re: Notice of Signing Final Decree Big Horn River Adjudication (Wyo. Fifth Jud. Dist., Nov. 13, 2014) [hereinafter Phase III Order], available at <http://bhrac.washakiecounty.net/DocumentCenter/BHCR/9-29-14c.PDF>. The Big Horn adjudication spanned 1977–2014. *Id.*

water rights system, the hope is to elevate in our water law discourse the question of whether, at the end of the day, adjudication proceedings are meaningful in the day-to-day world of water use. Part I summarizes in broad strokes the way various western states approach the interrelated functions of adjudication, permitting, and administration. Part II then highlights some common, emerging issues among state water systems as well as some emerging ideas for integrating judicial and agency water rights functions. This article concludes that the time has come to design the next generation of water rights systems so that adjudication and regulation speak a common language and function more seamlessly to best meet the water use needs of the West.

I. SURVEY OF STATE SYSTEMS¹⁰

This first part provides a basic summary of how each western state has organized its water rights legal system, touching on adjudication, permitting and change review, record keeping, and distribution and enforcement functions. Among the states, variations on common themes emerge, including:

- ▶ adoption of water codes that modernized how water rights are created;
- ▶ creation of statutory processes for reviewing changes to water rights, based in large part on evidence of how those rights were used in the past;
- ▶ initiation of general stream adjudications to resolve pre-code water rights, including federal and Indian rights to water;
- ▶ rules for determining rights that are abandoned or forfeited;
- ▶ centralized and modernized record keeping for water rights;
- ▶ development of modern technology to map and measure water systems;
- ▶ designating individuals for delivering water to users pursuant to court decrees; and
- ▶ processes for enforcing against illegal water uses.

¹⁰ Interviews with private water attorneys, agency personnel, and water court judges and staff were integral to these state summaries. Not surprisingly, these individuals often hold differing viewpoints on the law of their state. While an effort was made to reconcile competing views, I also wish to note that interviewees may not agree with all statements made in a state summary. Their views are attributable only to those statements where they are identified as a source.

Particular attention is paid to how each state integrates agency permitting and change review with court adjudication proceedings, how far a state “looks back” at historical evidence during change review, how decrees and records are kept current in light of agency permitting and change authorization, and how states are effectively monitoring and enforcing both decreed and permitted rights on the large-scale envisioned by general stream adjudications.

A. Arizona

Overview. Arizona has a complex water law system, with separate administration of surface water and groundwater, and heavy reliance on federally driven management of Colorado River waters.¹¹ On June 12, 1919, Arizona enacted its Public Water Code, which required a permit before appropriating surface water.¹² Before that time, water users in Arizona, as in other western states, were allowed to develop water rights by simply putting water to a beneficial use without seeking state approval in advance.¹³ Thus, Arizona’s adjudications have focused largely on clarifying pre-1919 state water rights claims, along with determining the reserved rights of Indian tribes and federal lands located within the state. This adjudication process, however, has been made more difficult because of Arizona’s separate treatment of surface water and groundwater.

Adjudication. The state’s primary adjudications commenced on the Gila River in 1974, and the Little Colorado River in 1978, which together comprise the majority of the state’s waters outside of the mainstem of the Colorado River.¹⁴ The superior courts of Maricopa County and Apache County are conducting these adjudications, which remain ongoing today.¹⁵ These superior courts rely

¹¹ ARIZONA DEPT. OF WATER RESOURCES, ARIZONA’S NEXT CENTURY: A STRATEGIC VISION FOR WATER SUPPLY SUSTAINABILITY 15–16 (Jan. 2014), available at http://www.azwater.gov/AzDWR/Arizonas_Strategic_Vision/documents/ArizonaStrategicVisionforWaterResourcesSustainability_May2014.pdf.

¹² *Summary of Arizona Water Law and Management*, ARIZONA WATER ATLAS, VOL. 1, App. C, 123, available at http://www.azwater.gov/AzDWR/StatewidePlanning/WaterAtlas/documents/appendix_c.pdf.

¹³ *Id.*

¹⁴ ARIZONA’S NEXT CENTURY, *supra* note 11, at 16; Judicial Branch of Arizona, Maricopa County, *Arizona’s General Stream Adjudications*, <http://www.superiorcourt.maricopa.gov/SuperiorCourt/GeneralStreamAdjudication/Index.asp> (last visited Nov. 30, 2014); ARIZONA WATER ATLAS, *supra* note 12, at 123–24. The Gila River adjudication includes the Salt, Gila, San Pedro, and Verde River watersheds (most of southeastern and central Arizona). The Little Colorado River adjudication includes the Little Colorado River system in northeastern Arizona. ARIZONA WATER ATLAS, *supra* note 12, at 123–24. The adjudications began as administrative proceedings in the Arizona State Land Department. In 1979, the legislature amended the adjudication statutes, and the proceedings were transferred to the superior court. Telephone Interview with George A. Schade, Jr., Special Master, in Phoenix, Ariz. (Aug. 14, 2014).

¹⁵ See generally ARIZ. REV. STAT. §§ 45-251 to -264 (2014); see also Arizona’s General Stream Adjudications, *supra* note 14.

on a special master, an appointed judicial officer who hears objections, reports on legal and factual issues, and makes recommendations to the court regarding the content of final decrees.¹⁶ The superior courts have exclusive jurisdiction over the determination of water rights, plus ancillary issues such as ditch disputes.¹⁷ Currently, one superior court judge presides over both adjudications.¹⁸ These adjudications are in addition to federal court decrees and old state court decrees that predate these general stream adjudications.¹⁹

Under Arizona's Water Rights Registration Act, a person claiming a state water right in an adjudication must file a "Statement of Claimant" in the proceeding.²⁰ The Statement of Claimant "is admissible in evidence as a rebuttal presumption of the truth and accuracy of the information contained in the claim," and thus may be contested.²¹ Contested claims generally must be supported by a preponderance of the evidence.²²

The Arizona Department of Water Resources (ADWR) investigates water rights claims, prepares technical reports, and provides administrative support "in all aspects of the general adjudication with respect to which the [agency] possesses hydrological or other expertise."²³ In particular, the ADWR prepares and publishes comprehensive Hydrographic Survey Reports (HSRs) that recommend how

¹⁶ Arizona's General Stream Adjudications, *supra* note 14.

¹⁷ Telephone Interview with Mike Pearce, Private Water Law Attorney, in Phoenix, Ariz. (Aug. 19, 2014). *See also* *Yavapai-Apache Nation v. Fabritz-Whitney*, 227 Ariz. 499, 509, 260 P.3d 299, 309 (Ariz. App. 2011); *Gabel v. Tatum*, 146 Ariz. 527, 529, 707 P.2d 325, 327 (Ariz. App. 1985).

¹⁸ Telephone Interview with Michael Johnson, Assistant Director & Chief Engineer, Surface Water Division, Arizona Department of Water Resources, in Phoenix, Ariz. (Aug. 22, 2014); Schade Interview, *supra* note 14.

¹⁹ Johnson Interview, *supra* note 18. Examples include the 1915 state court Kent Decree on the Salt River, and the 1935 federal district court Globe Equity Decree No. 59 on the Upper Gila River. *Id.*

²⁰ ARIZ. REV. STAT. § 45-254 (2014). Outside of formal adjudication proceedings, persons may also claim such rights through a claim filing with the ADWR. ARIZ. REV. STAT. § 45-182 (2014). These claims do not constitute an adjudication. *Id.*

²¹ ARIZ. REV. STAT. § 45-261 (2014); *see also* Arizona Department of Water Resources, *General Description of Adjudications Program*, <http://www.azwater.gov/AzDWR/SurfaceWater/Adjudications/default.htm> (last visited Dec. 1, 2014).

²² Schade Interview, *supra* note 14. However, "underground water is presumed to be percolating, and . . . one claiming otherwise has the burden of proving the claim by clear and convincing evidence." *In re the General Adjudication of All Rights to Use Water in the Gila River System and Source*, 175 Ariz. 382, 392, 857 P.2d 1236, 1246 (1993); *see also In re the General Adjudication of All Rights to Use Water in the Gila River System and Source*, 198 Ariz. 330, 335, 9 P.3d 1069, 1074 (2000) ("One who asserts that underground water is a part of a stream's subflow must prove that fact by clear and convincing evidence.").

²³ ARIZ. REV. STAT. § 45-256(A) (2014).

each claimed water right should be adjudicated.²⁴ When the court issues a final decree, it will characterize the priority date, type of use, and quantity of water at a claimant's point of diversion (stated as a volume).²⁵ The standards for quantifying adjudicated water rights are still being defined in pending cases involving federal non-Indian reserved water rights.²⁶

Early on, the state prioritized the resolution of federal and Indian reserved water rights claims.²⁷ Although the pending adjudications involve thousands of claims, the State represents that it "has made significant progress in reducing uncertainty through execution of Indian Settlements resolving in whole or in part thirteen of the twenty-two tribal claims through court decrees or negotiations culminating in Congressionally authorized settlements."²⁸ Unfortunately, major reductions in agency staff and funding since 2009 have contributed to a significant slowing in the state's progress adjudicating state-law based water rights.²⁹ The state's historic separation of surface and groundwater regulation has also caused problems because the McCarran Amendment adjudications must encompass the "river system and source," which may include connected groundwater.³⁰ The debate over the dividing line between percolating groundwater and underground "surface water" has necessitated additional decades of court proceedings to determine what groundwater uses require inclusion as surface "subflow."³¹

Permitting and Change Review. The Arizona Department of Water Resources also administers the state's surface water permit system, issuing permits for post-1919 water uses within the state, except for the federally controlled Colorado River.³² As in other states, proposed uses must not conflict with existing water

²⁴ *Id.*; see also General Description of Adjudications Program, *supra* note 21.

²⁵ Schade Interview, *supra* note 14.

²⁶ *Id.*

²⁷ Johnson Interview, *supra* note 18. Between 1991 and 2014, the adjudication court approved eight Indian water rights agreements, the most in any western state: White Mountain Apache Tribe (2014); Gila River Indian Community (2008); Tohono O'odham Nation (2007); Zuni Indian Tribe (2006); San Carlos Apache Tribe (1999); Yavapai-Prescott Indian Tribe (1995); Fort McDowell Yavapai Nation (1993); Salt River Pima-Maricopa Indian Community (1991). Schade Interview, *supra* note 14.

²⁸ ARIZONA'S NEXT CENTURY, *supra* note 11, at 16. As of June 30, 2014, there were 87,945 statements of claim. Schade Interview, *supra* note 14.

²⁹ Johnson Interview, *supra* note 18; Schade Interview, *supra* note 14. *But cf.* Pearce Interview, *supra* note 17 (noting additional reasons for the slow progress).

³⁰ Pearce Interview, *supra* note 17 (referencing *In re* the General Adjudication of All Rights to Use Water in The Gila River System and Source; *In re* Subflow Technical Report, San Pedro River Watershed, Order (Maricopa County Superior Court Sept. 28, 2005) (Gila IV)).

³¹ *Id.*

³² ARIZ. REV. STAT. § 45-152 (2014); see also ARIZONA WATER ATLAS, *supra* note 12, at 123-24.

rights,³³ which makes the final adjudication of those rights vital to accurate permit review. Groundwater use is separately regulated under the Arizona Groundwater Code,³⁴ with specialized rules in the state's active management areas.³⁵ As new surface uses are permitted within the Gila and Little Colorado river systems, they may become part of the pool of rights subject to the ongoing adjudications in those systems.³⁶

Arizona also requires agency approval of most changes in the place of use or point of diversion of a surface water right (a "severance and transfer"), including changes to rights currently undergoing state adjudication.³⁷ All changes are limited to the historic volume put to beneficial use, and an applicant must substantiate that volume.³⁸ The agency does not consider historic consumptive use unless protests or objections are raised.³⁹ Further, in determining historic use, the agency does not look back a set number of years; instead, it reviews a compilation of historic, continued, and current uses of the water right.⁴⁰ Applicants must also show that the use has been continuous (not abandoned or forfeited).⁴¹ When changes of use are approved, the statements of claimants filed in the adjudication proceeding may generally be amended accordingly. But importantly, any agency findings made about the underlying water right during change review are subject to modification by the adjudicating court.⁴² Because of the ad hoc nature of change review, and the unresolved statements of claimants in state adjudications, practitioners perceive the change process as "lengthy, difficult, and uncertain."⁴³

Contested ADWR decisions and orders proceed through the Office of Administrative Hearings, where an administrative law judge makes a

³³ ARIZ. REV. STAT. § 45-153 (2014).

³⁴ See generally ARIZ. REV. STAT., Title 45, Chapter 2; see also ARIZONA WATER ATLAS, *supra* note 12, at 124; ARIZONA'S NEXT CENTURY, *supra* note 11, at 11.

³⁵ ARIZ. REV. STAT. § 45-411 to -421 (2014); see also Arizona Department of Water Resources, Water Management, Active Management Areas, <http://www.azwater.gov/AzDWR/WaterManagement/AMAs/default.htm> (last visited Dec. 1, 2014).

³⁶ Johnson Interview, *supra* note 18. New permittees must file a statement of claimant in the new proceeding. Schade Interview, *supra* note 14.

³⁷ ARIZ. REV. STAT. § 45-172 (2014). ADWR also reviews changes to the "manner" or purpose of use, even though such changes are not mentioned as requiring review under state law. Johnson Interview, *supra* note 18.

³⁸ ARIZ. REV. STAT. § 45-172(A)(2) (2014); Johnson Interview, *supra* note 18.

³⁹ Johnson Interview, *supra* note 18.

⁴⁰ Johnson Interview, *supra* note 18; Pearce Interview, *supra* note 17 (describing the determination as "case-by-case," with current use considered the most relevant).

⁴¹ Pearce Interview, *supra* note 17.

⁴² Johnson Interview, *supra* note 18; Pearce Interview, *supra* note 17 (noting that this caveat is stated on the face of the permit).

⁴³ Pearce Interview, *supra* note 17.

recommendation to the ADWR director. From there, administrative appeals are taken to state superior court.⁴⁴

Records. ADWR maintains a water rights registry of applications, permits, and statements of claim.⁴⁵ The law currently does not address whether final decrees will be updated or integrated with the agency registry, but it is anticipated that final decrees will not be updated after they are issued.⁴⁶

Distribution and Enforcement. Distribution on the Colorado River, a critical water supply for Arizona, falls primarily under federal jurisdiction.⁴⁷ Because a significant portion of state surface waters are used within irrigation districts, most ditch associations rely on private ditch riders to distribute water to users.⁴⁸ Outside of the Colorado River system, Arizona law contemplates that the agency will appoint “water superintendents” to distribute water throughout districts that correlate to court-issued decrees.⁴⁹ However, no such appointments have yet occurred.⁵⁰

In the realm of enforcement, ADWR has statutory authority to audit water records, investigate complaints, and conduct field inspections to enforce violations of state water law.⁵¹ Violations of the Surface Water Code must proceed in superior court and are limited to injunctive relief, whereas other state water law violations proceed through agency hearings and can be subject to fines.⁵²

B. California

Overview. California also has a complex water rights system because it recognizes both riparian and appropriative surface water rights, and because it does not comprehensively regulate groundwater withdrawals through a centralized permit system.⁵³ Because of the patchwork of water laws applying to different

⁴⁴ Johnson Interview, *supra* note 18.

⁴⁵ ARIZ. REV. STAT. §§ 45-164, 186 (2014).

⁴⁶ Johnson Interview, *supra* note 18.

⁴⁷ ARIZONA WATER ATLAS, *supra* note 12, at 127–28.

⁴⁸ Johnson Interview, *supra* note 18. In Arizona, ditch riders are commonly called “zanjeros,” which is a historical Spanish term (also used in New Mexico). Schade Interview, *supra* note 14.

⁴⁹ ARIZ. REV. STAT. § 45-109 (2014).

⁵⁰ Johnson Interview, *supra* note 18; Schade Interview, *supra* note 14.

⁵¹ See generally ARIZONA DEPARTMENT OF WATER RESOURCES, COMPLIANCE AND ENFORCEMENT MANUAL (2008), available at <http://www.azwater.gov/AzDWR/WaterManagement/AMAs/PhoenixAMA/Compliance.htm>.

⁵² *Id.* at 20–22 (citing violations of state groundwater law and water exchange law as two agency-enforcement proceedings).

⁵³ California State Water Resource Control Board, *The Water Rights Process*, http://www.swrcb.ca.gov/waterrights/board_info/water_rights_process.shtml (last visited Dec. 1, 2014). This summary focuses principally upon appropriative surface water rights.

categories of water, different water entities, and different water regions, it is difficult to generalize about California water law. The state has not conducted statewide adjudication of water rights, and the vast majority of surface water in California has not been adjudicated.⁵⁴ Nonetheless, both its trial courts and its State Water Resources Control Board (SWRCB) have authority to adjudicate surface water rights.⁵⁵ Trial courts also have jurisdiction to separately adjudicate groundwater rights.⁵⁶ Since 1914, the SWRCB has regulated surface water rights through a permit program that covers new permits, changes of use, and enforcement of permit violations.⁵⁷ Trial courts often implement decrees by appointing a “water master” that oversees the exercise of decreed water rights and sometimes physically operates the water diversion structures of decreed water rights holders.⁵⁸

Adjudication. As noted, surface water rights adjudication can commence either before a trial court or before the SWRCB.⁵⁹ Water users initiate trial court adjudication by filing a lawsuit.⁶⁰ In this scenario, the trial court may ask the SWRCB to analyze water rights claims and provide technical expertise to the court.⁶¹ Upon water user petition, the SWRCB can also conduct its own statutory adjudication of a surface water source, resulting in an order that is filed with a trial court for ultimate approval in a decree.⁶² Because the trial courts have general jurisdiction, they can adjudicate both the characteristics of water rights as well as related matters such as distribution and ditch easement disputes.⁶³ California decrees are not necessarily comprehensive: they may not address all water rights on a source, or may determine surface water rights without addressing interconnected groundwater rights.⁶⁴ Modern decrees do address diverted volume, and describe water uses as they exist at the time of decree.⁶⁵ But decrees are not uniform in all

⁵⁴ Telephone Interview with Justice Ronald B. Robie, Cal. 3d Dist. Ct. of App., in Sacramento, Cal. (Nov. 8, 2013); CAL. WATER CODE § 2900 (2014).

⁵⁵ CAL. WATER CODE §§ 2000, 2501 (2014).

⁵⁶ The authority for groundwater adjudications is based on common law. Telephone Interview with Andy Sawyer, Assistant Chief Counsel, California State Water Resources Control Board, in Sacramento, Cal. (Dec. 2, 2013). *E.g.*, *City of Santa Maria v. Adam*, 211 Cal. App. 4th 266, 149 Cal. Rptr. 3d 491 (2012), *cert. denied*, 134 S. Ct. 98 (2013).

⁵⁷ *The Water Rights Process*, *supra* note 53.

⁵⁸ Telephone Interview with Eric N. Robinson, Private Water Attorney, in Sacramento, Cal. (Dec. 2, 2013); CAL. WATER CODE § 2900 (2014).

⁵⁹ CAL. WATER CODE §§ 2000, 2501 (2014).

⁶⁰ *Id.* § 2000.

⁶¹ *Id.* § 2000.

⁶² *Id.* § 2501.

⁶³ Robie Interview, *supra* note 54.

⁶⁴ Robinson Interview, *supra* note 58; *but see* Sawyer Interview, *supra* note 56 (citing the *Mojave* adjudication as an example of a comprehensive adjudication).

⁶⁵ Sawyer Interview, *supra* note 56; CAL. WATER CODE § 2900 (2014).

respects; rather, they are tailored to the circumstances of the affected community.⁶⁶ And even in areas where adjudication is complete, those decrees have yet to incorporate California's public trust over waters.⁶⁷

Permitting and Change Review. For non-riparian surface water uses, California began requiring surface water use permits in 1914.⁶⁸ New rights may be issued only when water is available and prior rights are protected,⁶⁹ which can prove difficult in areas not finally adjudicated.

Any change in purpose, place of use, or point of diversion requires approval.⁷⁰ Changes to post-1914 water permits go before the SWRCB.⁷¹ In determining whether a change will cause injury to existing users, the agency analyzes consumptive use, typically focusing on current and recent uses of the water right proposed for change.⁷² The statutory window for determining whether rights have been forfeited is five years.⁷³ Depending on the type of change requested, historic uses may also be reviewed to the extent they are relevant.⁷⁴

Changes to adjudicated, pre-1914 surface water rights are more complex and depend on the language of the decree. Some minor changes may merely require the approval of the water master and need not go before the trial court.⁷⁵ Most changes, however, require approval of the trial court that originally issued the decree.⁷⁶ In this situation, the court is deemed to have ongoing jurisdiction over the decree, and it reopens and amends the decree to reflect the change.⁷⁷ In SWRCB adjudications, water users can later petition SWRCB to make changes to adjudicated water rights.⁷⁸

Records. Decrees in California are not regularly updated to reflect new and changed uses on a source. Water masters, however, maintain and update records

⁶⁶ Robinson Interview, *supra* note 58.

⁶⁷ Sawyer Interview, *supra* note 56.

⁶⁸ CAL. WATER CODE § 1125 (2014).

⁶⁹ CAL. WATER CODE § 1375 (2014); *see also The Water Rights Process*, *supra* note 53.

⁷⁰ *The Water Rights Process*, *supra* note 53.

⁷¹ Robie Interview, *supra* note 54.

⁷² Sawyer Interview, *supra* note 56. Sawyer explains: "Expedited changes are limited to water that would have been consumptively used in the absence of the change. But most changes are limited by the "no injury" rule. Often, avoiding injury means limiting the change to consumptive use, but not always." *Id.*

⁷³ CAL. WATER CODE § 1241 (2014).

⁷⁴ *Id.*

⁷⁵ Robie Interview, *supra* note 54; Robinson Interview, *supra* note 58.

⁷⁶ Sawyer Interview, *supra* note 56.

⁷⁷ Robie Interview, *supra* note 54.

⁷⁸ Sawyer Interview, *supra* note 56.

for those water rights covered by the decrees they administer.⁷⁹ The SWRCB Division of Water Rights also maintains updated records based on mandatory water use reporting by all surface water rights holders.⁸⁰

Distribution and Enforcement. In water systems that have been adjudicated, the decree may appoint a “water master” that distributes water under the decree, conducts studies about the hydrology of the water source, collects fees, and even initiates projects to facilitate the availability and deliverability of water rights recognized by the decree.⁸¹ In this situation, the water master typically issues reports to the trial court pursuant to the decree.⁸² In rural areas, the water master may be an individual or small group.⁸³ But in major urban areas, the water master may actually be a public entity with a governing board.⁸⁴ Decrees may also designate the California Department of Water Resources to serve as a water master.⁸⁵ Water rights holders have a say in the membership of the board, which adopts rules and regulations, holds public meetings, and is considered an arm of the court.⁸⁶ Board actions are appealed to the trial court.⁸⁷ Practitioners hold a mixed view of this approach, depending on how well the particular board is functioning.⁸⁸

With respect to enforcement, the SWRCB “is responsible for investigating possible illegal, wasteful or unreasonable uses of water, either in response to a complaint or on the State Board’s own initiative.”⁸⁹ Misuse of water is subject to “various administrative enforcement measures” including fines and permit revocation, and additional judicial relief may also be sought in the courts.⁹⁰

C. Colorado

Overview. Perhaps more than any other state, Colorado has developed a unitary administration of water rights.⁹¹ Water courts not only adjudicate the

⁷⁹ Robinson Interview, *supra* note 58.

⁸⁰ *The Water Rights Process*, *supra* note 53.

⁸¹ Robinson Interview, *supra* note 58.

⁸² *Id.*

⁸³ *Id.*

⁸⁴ *Id.*

⁸⁵ CAL. WATER CODE § 4000 et seq. (2014); Robinson Interview, *supra* note 58.

⁸⁶ Robinson Interview, *supra* note 58.

⁸⁷ *Id.*

⁸⁸ *Id.*

⁸⁹ *The Water Rights Process*, *supra* note 53.

⁹⁰ *Id.*

⁹¹ Telephone Interview with Justice Gregory Hobbs, Jr., Colorado Supreme Court, in Denver, Colo. (Nov. 4, 2013); *see also generally* COLORADO FOUNDATION FOR WATER EDUCATION,

characteristics of existing water rights, but also have decree authority over new water rights and changes of use.⁹² Unlike other states, decree authority also extends to augmentation plans that allow out-of-priority diversions.⁹³ Thus, the same court that is familiar with the hydrology and historic uses on a water source is also considering questions about new uses and changes to use involving that source.

Every Colorado water rights case commences through filing of an individual water user application. The State Engineer works closely with the water courts by providing field examinations and a “consultation report” on the application.⁹⁴ This report “discusses any issues, problems, questions, or specific requirements that the division engineer or water referee has concerning [the application].”⁹⁵ In high-profile or controversial matters, the State Engineer occasionally appears before the water courts to oppose an application to protect state interests.⁹⁶

The State Engineer also generally approves groundwater wells⁹⁷ and oversees the division engineers and local water commissioners that distribute water in accordance with water court decrees.⁹⁸ There is further integration between the agency and water courts because actions taken by the State Engineer, including agency decisions and rule promulgation, are appealed to those water courts.⁹⁹ Appeals from water court decisions in turn go directly to the Colorado Supreme Court, bypassing the state court of appeals.¹⁰⁰

Adjudication. Colorado has seven major water divisions, each with its own specialized water court.¹⁰¹ The divisions generally follow the state’s seven major basin boundaries so that a court has jurisdiction to enter decrees involving an

CITIZEN’S GUIDE TO COLORADO WATER LAW (2009), available at <https://www.yourwatercolorado.org/cfwe-education/water-is/water-law>. This decree authority extends to surface waters, tributary groundwater, and federal reserved water rights. Hobbs Interview, *supra* note 91.

⁹² Hobbs Interview, *supra* note 91.

⁹³ *Id.*

⁹⁴ Telephone Interview with Dick Wolfe, State Engineer, Colorado Division of Water Resources, in Denver, Colo. (Nov. 14, 2013); WATER COURT COMM. OF THE COLO. SUPREME COURT, NON-ATTORNEY’S GUIDE TO COLORADO WATER COURTS 12 (2014), available at <http://water.state.co.us/DWRIPub/Documents/NonAttorneysGuidebookToColoradoWaterCourts.pdf>.

⁹⁵ Wolfe Interview, *supra* note 94

⁹⁶ *Id.*

⁹⁷ *Id.*

⁹⁸ *Id.*

⁹⁹ Hobbs Interview, *supra* note 91.

¹⁰⁰ *Id.*

¹⁰¹ WATER COURT COMMITTEE, COLORADO SUPREME COURT, NON-ATTORNEY’S GUIDEBOOK TO COLORADO WATER COURTS 5, available at http://www.courts.state.co.us/userfiles/File/Self_Help/Non-Attorneys_Guidebook_to_Colorado_Water_Courts_Final.pdf.

entire water source—both for purposes of adjudication and hearing challenges to the State Engineer’s administration of water rights.¹⁰² The State Engineer has division engineers that serve as points of contact for the water users, referees, and the water judges for that division.¹⁰³ Each water division also has a water referee who investigates water cases filed with the court, consults with the division engineer, oversees settlement discussions, and issues proposed rulings for the water court.¹⁰⁴ Referees may be either lawyers or engineers.¹⁰⁵ Additionally, to resolve or narrow issues in a case, the water courts have a unique pretrial rule requiring the parties’ experts to meet without the attorneys or clients¹⁰⁶—a step lauded by both the courts and the lawyers.¹⁰⁷

In Colorado, the judges serving on the water courts are designated district court judges that handle both their regular docket as well as water matters.¹⁰⁸ Accordingly, water courts exercise jurisdiction over all water matters involved in the ongoing adjudication of water rights, as well as individual disputes between water users.¹⁰⁹ Water courts thus function as a one-stop-shop for addressing all water issues that require litigation.

Because Colorado began adjudicating most of its water rights over a century ago, its modern, case-by-case adjudications supplement original and earlier amended decrees on a water source.¹¹⁰ In this way, decrees continue to evolve and incorporate new information, such as actual diverted volume and the cumulative effects of all water rights on a stream system.¹¹¹ Modern water records thus contain relevant information to analyze applications for new water rights and changes of use.¹¹²

¹⁰² Hobbs Interview, *supra* note 91.

¹⁰³ *Id.*; Wolfe Interview, *supra* note 94.

¹⁰⁴ Hobbs Interview, *supra* note 91.

¹⁰⁵ *Id.*

¹⁰⁶ Uniform Local Rules for All State Water Court Divisions ch. 36, rule 11 (requiring the experts to “identify undisputed matters of fact and expert opinion, to attempt to resolve disputed matters of fact and expert opinion, and to identify the remaining matters of fact and expert opinion in dispute.”).

¹⁰⁷ Hobbs Interview, *supra* note 91; Interview with David Robbins, Private Water Lawyer, in Denver, Colo. (Nov. 11, 2013); Wolfe Interview, *supra* note 94.

¹⁰⁸ Hobbs Interview, *supra* note 91.

¹⁰⁹ Hobbs Interview, *supra* note 91.

¹¹⁰ Robbins Interview, *supra* note 107. These adjudications began in 1881. Hobbs Interview, *supra* note 91.

¹¹¹ Robbins Interview, *supra* note 107.

¹¹² *Id.*

*Permitting and Change Review.*¹¹³ As noted, new water uses, changes of use, and augmentation plans require a water court decree.¹¹⁴ An applicant before the court must prove an absence of harm to other water rights and must hire his own expert, if necessary, to meet that burden of proof.¹¹⁵ Interested parties can file statements of opposition; and, as described, the division engineer provides a “consultation report” to the water court that identifies issues, questions, and recommendations that the agency and water referee have identified regarding the application.¹¹⁶ When decreed, water uses are subject to conditions that protect against injury to other users.¹¹⁷

For changes in particular, applicants must establish historic consumptive use of the water right proposed for change.¹¹⁸ The State Engineer also conducts an independent technical analysis of historic consumptive use, as well as location and timing of return flows.¹¹⁹ There is no definite look-back period for determining historic consumptive use, but twenty to thirty years of record (containing wet, dry, and average flow conditions) is typical.¹²⁰ Statements of opposition can raise fact questions that go back farther in time.¹²¹ The ten-year abandonment statute also plays a role.¹²² One water lawyer said it is typical for the water court to impose “knock downs” on the water right, meaning a reduction in historic decreed volume to account for changes between the proposed and historic consumptive use.¹²³

Records. As one Colorado water judge observed, “one-shot adjudications of water rights don’t work.”¹²⁴ For this reason, Colorado water courts retain ongoing jurisdiction over decrees and update them as new rights and changes of use are decreed.¹²⁵ Each month the water court publishes a “resume” of all applications so that all water users have notice and an opportunity to oppose.¹²⁶ The State Engineer

¹¹³ For Colorado, a more apt heading might be “Application Review.” Hobbs Interview, *supra* note 91.

¹¹⁴ Hobbs Interview, *supra* note 91.

¹¹⁵ COLO. REV. STAT. ANN. § 37-92-305 (2014); Robbins Interview, *supra* note 107.

¹¹⁶ COLO. REV. STAT. ANN. § 37-92-302 (2014); *see also supra* note 94 and accompanying text.

¹¹⁷ COLO. REV. STAT. ANN. § 37-92-302 (2014).

¹¹⁸ COLO. REV. STAT. ANN. § 37-92-305 (2014).

¹¹⁹ Wolfe Interview, *supra* note 94.

¹²⁰ Hobbs Interview, *supra* note 91; Robbins Interview, *supra* note 107.

¹²¹ Robbins Interview, *supra* note 107.

¹²² COLO. REV. STAT. ANN. § 37-92-402(11) (2014) (presuming abandonment after ten years of non-use).

¹²³ Robbins Interview, *supra* note 107.

¹²⁴ Hobbs Interview, *supra* note 91.

¹²⁵ *Id.* There are approximately 1,200 such requests annually. *Id.*

¹²⁶ COLO. REV. STAT. ANN. § 37-92-302(3)(a) (2014).

maintains water rights diversion records and a tabulation that commissioners and users can consult for up-to-date decree information.¹²⁷ A primary driver of this “living decree” approach is the need for adaptability to respond to demands in the Colorado water market.¹²⁸

Distribution and Enforcement. To preserve separation of powers, Colorado locates its distribution and enforcement functions in the executive branch through the State Engineer.¹²⁹ Colorado has 135 water commissioners who supervise the local distribution of surface water and groundwater for compliance with water court decrees.¹³⁰ Commissioners serve in seventy-eight water districts nested within the seven major state basins.¹³¹ When a water source spans multiple districts, there is a lead commissioner and assistant commissioners that coordinate and rely heavily on remote-sensing and real-time monitoring data.¹³² Commissioners are employees of the State Engineer and they reside in the local community and work from their homes.¹³³ When commissioners have questions about how to apply or interpret a water court decree, they report their question to the division engineer.¹³⁴ Water commissioners play an important role in a division engineer’s review of new or changed water rights, and augmentation plans, because of their “boots on the ground” perspective on the affected water source.¹³⁵

D. Idaho

Overview. Although Idaho follows the more traditional approach of separate court adjudication and agency permitting, it has taken steps to connect those functions by creating a specialized water court that not only conducts adjudications, but also hears all water-related cases, including appeals of agency water rights decisions.¹³⁶ Statewide, adjudication occurs in a single water court called the Snake River Basin Adjudication District Court (SRBA), a separate

¹²⁷ COLO. REV. STAT. ANN. § 37-92-401 (2014).

¹²⁸ Hobbs Interview, *supra* note 91.

¹²⁹ COLO. REV. STAT. ANN. § 37-92-301 (2014).

¹³⁰ Wolfe Interview, *supra* note 94.

¹³¹ *Id.*

¹³² *Id.*

¹³³ *Id.*

¹³⁴ *Id.* The State Engineer may further consult with the Attorney General’s Office. *Id.* This consultation differs from the consultation between the division engineer and water referee during the application phase, although that process often involves commissioner records and actions. Hobbs Interview, *supra* note 91.

¹³⁵ Hobbs Interview, *supra* note 91.

¹³⁶ Idaho Supreme Court, Administrative Order In the Matter of the Appointment of the SRBA District Court to Hear All Petitions for Judicial Review from the Department of Water Resources Involving Administration of Water Rights (Dec. 9, 2009) [hereinafter SRBA Appointment Order].

division of the district courts.¹³⁷ To ensure consistency and expertise in water rights cases, the Idaho Supreme Court provided the SRBA with exclusive jurisdiction over appeals of agency decisions related to water rights.¹³⁸ Beginning in 1963 (for groundwater) and 1971 (for surface water), Idaho law began requiring an agency permit for all new water uses and changes of use.¹³⁹ Idaho's Department of Water Resources (IDWR) reviews and approves these applications.¹⁴⁰ The IDWR also provides technical assistance to the SRBA,¹⁴¹ and the agency's "watermasters" distribute water pursuant to state decrees.¹⁴²

Adjudication. As noted, the SRBA has exclusive statewide jurisdiction to adjudicate the characteristics of water rights.¹⁴³ Until recently, the SRBA's focus has been on the Snake River Basin, which covers the vast majority of the state,¹⁴⁴ and which recently concluded with the entry of a final decree.¹⁴⁵ For its part, IDWR provides technical expertise by investigating water rights claims and filing Director's Reports, which are prima facie evidence of the nature and extent of all claimed water rights.¹⁴⁶ Idaho does not, as a routine practice, decree volume limits as part of its adjudication, unless necessary for the proper administration of the water right.¹⁴⁷ Unlike most states, that decree water rights as they currently exist, the SRBA's Snake River decree results in a "time gap" because it describes rights as they existed in 1987, when the general adjudication commenced.¹⁴⁸

Permitting and Change Review. IDWR reviews applications for new water rights and post-1987 changes of use ("transfers").¹⁴⁹ The agency only evaluates

¹³⁷ IDAHO CODE ANN. §§ 42-1401 to -1428 (2014); Idaho Supreme Court, Order Appointing District Judge and Determining Venue of Petition for General Adjudication of Water Rights in Snake River Basin, June 26, 1987, No. 99143 [hereinafter Order No. 99143].

¹³⁸ SRBA Appointment Order, *supra* note 136; IDAHO CODE ANN. § 42-1701A (2014).

¹³⁹ IDAHO CODE ANN. § 42-202 (2014); Telephone Interview by Caroline Sime, clinic student, with James Cefalo, Idaho Dept. of Water Resources, Hearing Officer, in Idaho Falls, Idaho (Oct. 31, 2013). Before that time, parties could develop rights through use or optionally filing an application for a permit. *Id.*

¹⁴⁰ IDAHO CODE ANN. § 42-202 (2014).

¹⁴¹ IDAHO CODE ANN. § 42-1401(B) (2014).

¹⁴² IDAHO CODE ANN. § 42-602 (2014); *see also* IDWR, *Water Districts & Other Water-Related Districts*, <http://www.idwr.idaho.gov/WaterManagement/WaterDistricts/> (last visited Dec. 5, 2014).

¹⁴³ *See generally* IDAHO CODE ANN. §§ 42-1401 to -42-1428 (2014); Order No. 99143, *supra* note 137.

¹⁴⁴ Order No. 99143, *supra* note 137.

¹⁴⁵ Final Unified Decree, *supra* note 8.

¹⁴⁶ IDAHO CODE ANN. § 42-1411(4) (2014).

¹⁴⁷ Telephone Interview with Jerry Rigby, Private Water Attorney, in Rexburg, Idaho (Oct. 29, 2013); Telephone Interview by Caroline Sime, clinic student, with Paul Harrington, Staff Attorney to Judge Eric Wildman, SRBA, in Twin Falls, Idaho (Nov. 7, 2013).

¹⁴⁸ Order No. 99143, *supra* note 137.

¹⁴⁹ IDAHO CODE ANN. § 42-222(1) (2014).

historic consumptive use in transfers proposing to change the nature of use.¹⁵⁰ For example, if an irrigation water right is changing to industrial use, the agency evaluates the historic consumptive use associated with the irrigation.¹⁵¹ In this setting, practitioners note that the agency scrutinizes a water right “significantly deeper” than the SRBA court during an adjudication proceeding.¹⁵²

Although there is no specific look-back period for determining consumptive use, Idaho does recognize a five-year forfeiture for unused water rights.¹⁵³ IDWR generally will look at the previous five years of crops as a measure of the consumptive use,¹⁵⁴ and applicants may also provide additional data.¹⁵⁵ An innovator among western states for its use of water rights software, IDWR depends heavily on a Geographic Information System (GIS) framework and quantitative models (including NASA infrared satellite technology) when considering the impacts of new or changed water uses.¹⁵⁶ As noted, agency water rights decisions are appealed to the SRBA district court, where they are reviewed for abuse of discretion or clear error using a closed administrative record.¹⁵⁷

Records. Idaho decrees are not regularly updated to reflect new uses or changes in use.¹⁵⁸ IDWR is charged with maintaining water rights records.¹⁵⁹ If there is an administrative proceeding that changes elements of a water right, the administrative decision supersedes the judicial decree for that particular water user.¹⁶⁰

Distribution and Enforcement. IDWR oversees the distribution of water through “watermasters” elected from state water districts and approved by the agency’s Director.¹⁶¹ Distribution disputes are raised in an IDWR administrative forum, after which, parties may appeal the agency decision to the SRBA.¹⁶² The

¹⁵⁰ *Id.*

¹⁵¹ IDAHO CODE ANN. § 42-222(1) (2014); Cefalo Interview, *supra* note 139.

¹⁵² Rigby Interview, *supra* note 147.

¹⁵³ IDAHO CODE ANN. § 42-222(2) (2014); Rigby Interview, *supra* note 147.

¹⁵⁴ Cefalo Interview, *supra* note 139.

¹⁵⁵ *Id.*

¹⁵⁶ *Id.*

¹⁵⁷ *Id.* (citing the Idaho Administrative Procedures Act).

¹⁵⁸ *Id.*

¹⁵⁹ IDAHO CODE ANN. § 42-244 (2014).

¹⁶⁰ Cefalo Interview, *supra* note 139.

¹⁶¹ IDAHO CODE ANN. § 42-605(3) (2014); Telephone Interview by Caroline Sime, clinic student, with Tony Olenichak, Idaho Dept. of Water Resources, Water Dist. 1 Program Manager, in Idaho Falls, Idaho (Nov. 5, 2013) (noting that some watermasters are agency employees and some are not, depending on the type of agreement a district has with the agency).

¹⁶² IDAHO CODE ANN. § 42-1701A(3) (2014).

agency cites its sophisticated technology as a major reason for its success in broad-basin distribution and enforcement of water rights.¹⁶³

E. Montana

Overview. Montana waited until 1973 before creating its modern permitting system.¹⁶⁴ The Montana Legislature and Montana Supreme Court thus embarked on an ambitious undertaking in the 1970s when they commenced general stream adjudications of all pre-1973 water rights in every basin of the state—an undertaking that continues today¹⁶⁵ before a specialized court called the Water Court.¹⁶⁶ The statewide adjudication has an estimated completion target of 2028.¹⁶⁷ The Montana Department of Natural Resources and Conservation (DNRC) assists in the examination of claims made before the Water Court¹⁶⁸ and also reviews all applications for new water permits and changes of use.¹⁶⁹ Traditional district courts also play a role in hearing appeals of DNRC decisions,¹⁷⁰ enforcing illegal water uses,¹⁷¹ and appointing water commissioners to distribute water on decreed waters.¹⁷²

Adjudication. The Montana Water Court has exclusive jurisdiction to decree the characteristics (or abandonment) of water rights (both surface and groundwater) that existed prior to July 1, 1973.¹⁷³ As noted, the DNRC provides technical expertise to the Water Court by examining statements of claim, making “issue remarks,” and transmitting findings to the Water Court in the form of

¹⁶³ Olenichak Interview, *supra* note 161.

¹⁶⁴ See generally MONT. CODE ANN. §§ 85-2-301 to -381 (2013). Before that time, rights could be developed through use or local recording at the county clerk and recorder, following a statutory filing process. *Murray v. Tingley*, 20 Mont. 260, 50 P. 723 (1897).

¹⁶⁵ MONT. CODE ANN. § 85-2-212 (2013); DNRC Water Resources Division, Basin Location and Adjudication Status (Oct. 29, 2014), available at http://dnrc.mt.gov/wrd/water_rts/adjudication/.

¹⁶⁶ After first attempting an agency-driven adjudication process, the Montana Legislature created the Water Court in 1979 through Senate Bill 76. Montana Judicial Branch, *Montana Water Court*, <http://courts.mt.gov/water/default.mcp>x (last visited Dec. 6, 2014); see also generally MONT. CODE ANN. §§ 3-7-101 to -502 (2013).

¹⁶⁷ Montana Judicial Branch, *supra* note 166; Interview with Russell McElyea, Chief Water Judge, Montana Water Court in Missoula, Mont. (Oct. 23, 2013).

¹⁶⁸ MONT. CODE ANN. § 85-2-243 (2013); see also Water Right Claim Examination Rules (Dec. 5, 2006), available at http://courts.mt.gov/content/water/rules/claim_exam_rules.pdf.

¹⁶⁹ MONT. CODE ANN. § 85-2-302 (2013).

¹⁷⁰ Telephone Interview by William Fanning, clinic student, with Anonymous Agency Source in Mont. (Oct. 17 and 24, 2013).

¹⁷¹ MONT. CODE ANN. § 85-2-114 (2013).

¹⁷² MONT. CODE ANN. § 85-5-101 (2013).

¹⁷³ MONT. CODE ANN. §§ 85-2-212, -234 (2013); see also *State ex rel. Jones v. Dist. Court of the Fourth Judicial Dist.*, 283 Mont. 1, 6, 938 P.2d 1312, 1316; McElyea Interview, *supra* note 167.

“summary reports.”¹⁷⁴ The agency later assists the court with resolving “issue remarks” noted during its claims examination.¹⁷⁵ Water masters assigned to particular basins around the state also assist the court in making recommended findings and conclusions about water rights claims.¹⁷⁶

To have pre-1973 rights recognized, water users submitted statements of claim that are considered *prima facie* proof of the water right.¹⁷⁷ The claim is thus accepted as true unless other, contradictory evidence proves otherwise.¹⁷⁸ As discussed below, this burden can be inconsistent with that applied in the agency change review process. Because Water Court decrees focus primarily on uses as they existed in 1973,¹⁷⁹ evidence is becoming increasingly difficult to obtain as witnesses with historical knowledge pass away.¹⁸⁰ Further, decrees describing water rights as they existed in 1973 may not reflect the way a water right is used today.¹⁸¹ This time gap is similar to that experienced in Idaho’s Snake River Basin Adjudication.¹⁸²

In Montana, decrees do not generally describe the volume of a water right,¹⁸³ which can require users to provide additional proof later in change proceedings. Over time, the Water Court has begun to more specifically describe the ditch systems tied to particular water rights so that water commissioners can more easily distribute decreed water.¹⁸⁴ The court also takes certified questions from district courts deciding localized water disputes that raise questions about characteristics of an existing water right.¹⁸⁵ Additionally, when district courts appoint water

¹⁷⁴ MONT. CODE ANN. § 85-2-234; Telephone Interview with Anonymous Agency Source in Mont. (Nov. 30, 2013).

¹⁷⁵ MONT. CODE ANN. § 85-2-248 (2014); Anonymous Agency Source Interview, *supra* note 170.

¹⁷⁶ MONT. CODE ANN. §§ 3-7-301 to -303 (2013); *see also Montana Water Court*, *supra* note 166.

¹⁷⁷ MONT. CODE ANN. § 85-2-227 (2013).

¹⁷⁸ Objectors carry the burden of overcoming this proof by a “preponderance of the evidence.” For objectors, that means showing that certain aspects of a claim are, more probable than not, incorrect. Objections, along with DNRC issue remarks, can result in a claimant having to provide additional proof to support a claim. Telephone Interview with Doug Ritter, Associate Water Judge, Montana Water Court in Bozeman, Mont. (Oct. 17, 2013). MONT. W. R. ADJ. R. 19. On analysis of issue remarks, *see also* MONT. CODE ANN. § 85-2-248 (2013).

¹⁷⁹ McElyea Interview, *supra* note 167.

¹⁸⁰ Telephone Interview with Bruce Loble, Retired Chief Judge, Montana Water Court, in Bozeman, Mont. (Oct. 17, 2013); McElyea Interview, *supra* note 167.

¹⁸¹ McElyea Interview, *supra* note 167.

¹⁸² *See supra* Part I.D. and accompanying text.

¹⁸³ McElyea Interview, *supra* note 167. Because the Legislature removed the Water Use Act’s original requirement of finding a diverted volume on direct flow irrigation claims, the Water Court does not always specify that information. *Id.*; *see* MONT. CODE ANN. § 85-2-234(6)(b)(i).

¹⁸⁴ McElyea Interview, *supra* note 167.

¹⁸⁵ *Id.*; Ritter Interview, *supra* note 178; *see* MONT. CODE ANN. § 85-2-406(2)(b) (2013).

commissioners to distribute waters, the Water Court provides its decrees and other background information to the district courts.¹⁸⁶

Individual water user disputes in district court can overlap with larger questions of adjudication. The Water Court may have to accept a certified question, resolve the water right's characteristics, and return the matter to district court.¹⁸⁷ On the flip side, the Water Court, during adjudication, may encounter a ditch easement or other entwined water questions that must be sent to district court.¹⁸⁸ At the end of the day, water users can thus find themselves appearing before two separate courts to achieve full resolution of their water rights issues—a phenomenon that one interviewee described as “being caught in a jurisdictional seam.”¹⁸⁹

Permitting and Change Review. The DNRC reviews and decides upon applications for new permits and changes to the purpose, place of use, or point of diversion of water rights.¹⁹⁰ DNRC rulemaking and permit decisions can both be appealed to district court.¹⁹¹ Applicants must demonstrate that all applicable criteria are met, including that existing users will not be injured.¹⁹² Permits are also made subject to the final outcome of the Water Court adjudication.¹⁹³ For changes to pre-1973 water rights, the DNRC may certify questions about characteristics of those rights to the Water Court.¹⁹⁴

¹⁸⁶ Ritter Interview, *supra* note 178; see MONT. CODE ANN. § 85-2-406(4); MONT. W. R. ADJ. R. 31. Ritter clarifies that “right now Montana has a patchwork of old district court decrees and new water court decrees that are enforced.” The district courts can enforce their old decrees without Water Court involvement, but a Water Court decree will ultimately replace a district court decree upon its issuance. Ritter Interview, *supra* note 178.

¹⁸⁷ McElyea Interview, *supra* note 167.

¹⁸⁸ *Id.*

¹⁸⁹ Loble Interview, *supra* note 180. Further, interviewees express concern about the district court judges lacking interest and expertise in such water matters. *E.g.*, Telephone Interview with Judge Randy Spaulding, Fourteenth Judicial Dist. Ct., in Roundup, Mont. (Oct. 18, 2013); Interview with Judge Loren Tucker, Fifth Judicial Dist. Ct., in Missoula, Mont. (Oct. 23, 2013).

¹⁹⁰ MONT. CODE ANN. §§ 85-2-102(6), 302 (2013). A conversion from flood to sprinkler irrigation, a change in crops, or modifications to internal ditch systems—where no change in point of diversion or place of use results—does not require agency approval, even if the change increases “historic” consumptive use.

¹⁹¹ Anonymous Agency Source Interview, *supra* note 170.

¹⁹² MONT. CODE ANN. §§ 85-2-311, 402 (2013).

¹⁹³ Anonymous Agency Source Interview, *supra* note 170. In one example, a water user received DNRC approval of a change, invested money to upgrade an irrigation system, and subsequently lost that water right when the Water Court held it abandoned. Loble Interview, *supra* note 180.

¹⁹⁴ MONT. CODE ANN. § 85-2-309(2)(a) (2013).

To assess injury to other water users, the applicant must provide evidence of historic volume—both that historically diverted and that historically consumed—as the right existed in 1973.¹⁹⁵ From a practical standpoint, water users may thus have to provide additional evidence in the DNRC change proceeding beyond that required in the Water Court, or rely on agency mathematical models.¹⁹⁶ As one DNRC official explains, the agency “fills in gaps” left by the decree to determine whether an applicant has met the statutory no-injury requirement.¹⁹⁷ The end result is that a water user may not be able to change the full amount of a water right if the proposed change would enlarge the water right’s volume or consumptive use. Similar to Colorado, some water users in Montana perceive that they have received their full water right claim in the adjudication, only to “lose” some of that right for failure to provide sufficient evidence of historic volume and consumption in the change process.¹⁹⁸ As a consequence, some users know neighbors who have declined to pursue changes, or made changes without notifying the agency.¹⁹⁹

Records. DNRC maintains a centralized database containing post-1973 water permits, changes to water rights, and abstracts of water rights claims undergoing adjudication.²⁰⁰ Although this system is a vast improvement from the incomplete records historically maintained in county clerk and recorder offices, it can still be difficult to find all water rights information in one place. From the agency perspective, it is unclear whether interim Water Court determinations should trigger DNRC modifications to water rights abstracts.²⁰¹ Additionally, there is currently no mechanism for recording changes to existing rights that do not undergo agency review. On the other hand, Water Court decrees do not list agency permits or change authorizations; and when final decrees issue, the law does not provide a mechanism for updating those decrees to reflect new and changed uses.

Further, water disputes in the district court generate a separate set of orders related to water rights. For example, in distribution proceedings (discussed below), the Water Court prepares tabulations to guide water commissioners that contain details beyond those stated in the Water Court’s decree or the DNRC’s

¹⁹⁵ MONT. ADMIN. R. 36.12.1902 (2013).

¹⁹⁶ *Id.*

¹⁹⁷ Anonymous Agency Source Interview, *supra* note 170.

¹⁹⁸ Telephone Interview with Anonymous Water Rights Holder in Mont. (Nov. 4, 2013); Telephone Interview with Anonymous Water Rights Holder in Mont. (Oct. 30, 2013).

¹⁹⁹ *Id.*

²⁰⁰ MONT. CODE ANN. § 85-2-112 (2013).

²⁰¹ Anonymous Agency Source Interview, *supra* note 170.

water right abstracts.²⁰² Thus, as in most other states, there are multiple sources of information that must be reviewed to fully understand the legal records relating to a water right and its water source.

Distribution and Enforcement. The DNRC can initiate a case in district court to stop illegal or wasteful uses of water.²⁰³ District court judges can also appoint water commissioners to do on-the-ground distribution of water according to the terms of a decree (called “enforcement” proceedings).²⁰⁴ Water commissioner appointments typically occur when owners of at least fifteen percent of the water rights on a water source make a request,²⁰⁵ and the appointment process varies from judge to judge.²⁰⁶ In basins that do not have a decree, water commissioners are not an option.²⁰⁷

The water master and district court judge may hold informational sessions where water users can hear about the distribution process and provide input on the draft tabulations before water distribution commences.²⁰⁸ One judge conducts annual “water walks” where water users, commissioners, DNRC officials, Water Court representatives, state and local officials, and interested public meet on site to discuss water supply and delivery conditions.²⁰⁹

Historically, water commissioners have been appointed to localized stream segments.²¹⁰ Today, however, the Water Court is issuing decrees that cover entire basins and often span the jurisdiction of multiple district courts. Some judges and water users question how large-scale Water Court decrees spanning multiple districts will effectively be administered by one district court and one

²⁰² Telephone Interview with Colleen Coyle, Former Water Master, Montana Water Court, in Bozeman, Mont. (Oct. 24, 2013); *see* MONT. W. R. ADJ. R. 31. These tabulations are colloquially known as “Red Books,” and the Water Court compiles them from its own records, along with DNRC records. Loble Interview, *supra* note 180.

²⁰³ MONT. CODE ANN. § 85-2-114 (2013).

²⁰⁴ Enforceable decrees can include historic decrees and temporary preliminary, preliminary, and final decrees issued by a water judge (which supersede historic decrees). MONT. CODE ANN. § 85-5-101 (2013).

²⁰⁵ *Id.*

²⁰⁶ *E.g.*, Telephone Interview with Judge Holly Brown, Eighteenth Judicial Dist. Ct., in Bozeman, Mont. (Nov. 18, 2013); Telephone Interview with Judge Randy Spaulding, Fourteenth Judicial Dist. Ct., in Roundup, Mont. (Oct. 18, 2013); Interview with Judge Loren Tucker, Fifth Judicial Dist. Ct., in Missoula, Mont. (Oct. 23, 2013).

²⁰⁷ MONT. CODE ANN. § 85-5-101 (2013).

²⁰⁸ Coyle Interview, *supra* note 202.

²⁰⁹ Brown Interview, *supra* note 206.

²¹⁰ Spaulding Interview, *supra* note 206; Tucker Interview, *supra* note 206 (also expressing discomfort at potential conflicts of interest when the judge appoints and instructs the commissioner and also resolves water user complaints against that commissioner).

water commissioner.²¹¹ There is also a lack of adequate measuring devices and hydrologic data that further hampers decree enforcement.²¹²

F. Nevada

Overview. Since 1905, the Nevada State Engineer has administered the appropriation of surface water and groundwater through a statutory permitting process,²¹³ and it also oversees water distribution.²¹⁴ The agency additionally plays a dominant role in the adjudication of pre-statutory “vested water rights,” including conducting administrative hearings before proceedings advance to the courts.²¹⁵ Due to the vast acreage of federal and Indian lands in Nevada, reserved rights are an important focus in the state’s general stream adjudications.²¹⁶ The majority of the state’s waters are not yet adjudicated.²¹⁷ “Water importation and interbasin transfers of water from sparsely populated areas to densely populated areas” are also significant issues in the state.²¹⁸

²¹¹ Spaulding Interview, *supra* note 206; Tucker Interview, *supra* note 206; *but cf.* Coyle Interview, *supra* note 202 (sharing belief that some basins have been able to do this successfully, and thus “problem will vary by stream system”). In one basin, for example, lower river users were unsuccessful in requiring upper river users to install water totalizing meters on their ditches and headgates. Spaulding Interview, *supra* note 206. In another basin that spans multiple court districts, water users residing in one judicial district felt disenfranchised when they were sued by water users residing in another judicial district. The out-of-district water users expressed concern that the judge and water commissioner would have loyalties toward those water users located within their own judicial district. Telephone Interview with Anonymous Water Rights Holder in Mont. (Feb. 18, 2014).

²¹² Anonymous Agency Source Interview, *supra* note 170.

²¹³ NEV. REV. STAT. §§ 533.030, 534.020 (2014); *see also* Nevada Department of Conservation & Natural Resources, *Nevada Water Law 101*, <http://dcur.nv.gov/documents/documents/nevada-water-law-101/> (last visited Aug. 10, 2014). The State Engineer is the head of the Nevada Division of Water Resources, a division within the Nevada Department of Conservation and Natural Resources. *Id.* Vested water rights are “surface water rights initiated by applying water to beneficial use prior to March 1, 1905, and which have been perpetuated or continuously used through the years.” Fred W. Welden, Legislative Counsel Bureau, Background Paper 03-2, *History of Water Law in Nevada and the Western States* 6 (Jan. 2003), *available at* <http://www.leg.state.nv.us/Division/Research/Publications/Bkground/BP03-02.pdf>. Artesian percolating water and groundwater have slightly later vesting dates of 1913 and 1939, respectively. Telephone Interview with Anonymous Agency Source in Nev. (Aug. 11, 2014).

²¹⁴ NEV. REV. STAT. §§ 533.270 to .320 (2014).

²¹⁵ Anonymous Agency Source Interview, *supra* note 213.

²¹⁶ R. Craig Howard & Bryce Alstead, *Overview of Water Law in Nevada*, NEV. LAW. 8 (Sept. 2009).

²¹⁷ Anonymous Agency Source Interview, *supra* note 213.

²¹⁸ Howard & Alstead, *supra* note 216, at 8; *see also* NEV. REV. STAT. § 533.370 (2014) (requiring State Engineer’s consideration when allowing an interbasin transfer).

Adjudication. State adjudications can commence either by water user petition or by the State Engineer initiating a proceeding on its own.²¹⁹ Adjudications can apply to both surface water and to groundwater, and modern state adjudications are occurring on a basin-wide scale.²²⁰ The State Engineer drives the adjudication process by publishing notice and accepting claims, preparing abstracts, investing claims proof, hearing objections, and preparing a final order of determination that is transmitted to a state district court, along with evidence of record, for approval.²²¹ Among the State Engineer's findings are a volume determination based on a fixed "duty of water" per acre, according to the current use of the right.²²²

The district court hears exceptions to the State Engineer's order, determines whether the State Engineer's findings are supported by substantial evidence, and enters the final decree.²²³ Should a water source span multiple judicial districts, the judges of the districts will confer and decide which district will conduct the adjudication.²²⁴ Because Nevada state district courts have statewide jurisdiction, they can issue basin-wide "inter-district" decrees spanning multiple judicial districts.²²⁵ There are also some pre-existing federal court decrees covering the western portion of the state that are separately administered.²²⁶ Those federal decrees do not include groundwater.²²⁷

Permitting and Change Review. The State Engineer's Office administers post-statutory surface and groundwater rights.²²⁸ Changes to the point of diversion, manner, or place of use for water rights, including vested water rights, also require agency review.²²⁹ The State Engineer determines if the changes will conflict with

²¹⁹ See generally NEV. REV. STAT. §§ 533.090 to .320 (2014); see also Welden, *supra* note 213, at 6.

²²⁰ Welden, *supra* note 213, at 5.

²²¹ *Id.*

²²² Anonymous Agency Source Interview, *supra* note 213; Telephone Interview with Judge David Gamble, Nevada Ninth Jud. Dist., in Minden, Nev. (Aug. 14, 2014).

²²³ *Id.*

²²⁴ NEV. REV. STAT. § 533.165 (2014).

²²⁵ Gamble Interview, *supra* note 222.

²²⁶ Telephone Interview with Gordon DePaoli, Private Water Attorney, in Reno, Nev. (Aug. 18, 2014).

²²⁷ In the federal cases, the courts have assumed surface and groundwater are not connected unless someone objects. DePaoli Interview, *supra* note 226 (giving the example of the Walker River Basin).

²²⁸ NEV. REV. STAT. § 533.030 (2014); NEV. REV. STAT. § 534.020 (2014).

²²⁹ NEV. REV. STAT. §§ 533.085(1), .370(5) (2014); see also Howard & Alstead, *supra* note 216, at 8; Welden, *supra* note 213, at 4.

existing water rights.²³⁰ As in other states, the State Engineer must determine consumptive use during the change process, and water users may lose a portion of their water right because of the difference in actual consumptive use.²³¹ Consumptive use is largely based on the principal crop grown in the part of the basin where the right arises.²³² Users can also lose water rights through forfeiture²³³ or abandonment.²³⁴ Appeals of agency decisions affecting vested rights go to the state district court adjudicating the water source in question.²³⁵

Records. As in most states, Nevada's decrees are not updated to reflect changes to water rights.²³⁶ Whereas in most states, local water rights records are a thing of the past, Nevada water rights conveyances are still recorded both in the counties where the water is diverted and where it is put to use.²³⁷ The State Engineer also employs a separate filing system for administrative purposes.²³⁸ Thus, both State Engineer and county records must be searched.²³⁹

Distribution and Enforcement. District courts retain ongoing jurisdiction to enforce state decrees.²⁴⁰ Except on federally decreed streams, the State Engineer is responsible for distributing adjudicated and permitted water use.²⁴¹ The agency appoints and supervises water commissioners that act under court authority pursuant to final decrees.²⁴² The State Engineer also holds the power to enforce against illegal water uses through arrest, imposition of penalties, and request for judicial injunction.²⁴³ On streams adjudicated in federal court, a court-appointed "water master" distributes water under the federal decree.²⁴⁴

²³⁰ NEV. REV. STAT. § 533.370 (2014); *see also* Howard & Alstead, *supra* note 216, at 9.

²³¹ Howard & Alstead, *supra* note 216, at 9.

²³² DePaoli Interview, *supra* note 226.

²³³ NEV. REV. STAT. § 534.090 (2014).

²³⁴ NEV. REV. STAT. § 533.060 (2014).

²³⁵ DePaoli Interview, *supra* note 226.

²³⁶ Anonymous Agency Source Interview, *supra* note 213.

²³⁷ NEV. REV. STAT. § 533.382(3) (2014).

²³⁸ NEV. REV. STAT. § 533.384(1)(a) (2014); *see also* Howard & Alstead, *supra* note 216, at 10.

²³⁹ Howard & Alstead, *supra* note 216, at 10 (noting that state records should not be relied upon).

²⁴⁰ DePaoli Interview, *supra* note 226.

²⁴¹ NEV. REV. STAT. §§ 533.270 to .320 (2014); *see also* Welden, *supra* note 213, at 6.

²⁴² NEV. REV. STAT. § 533.270 (2014); Telephone Interview with Judge David Gamble, Nevada Ninth Jud. Dist., in Minden, Nev. (Aug. 14, 2014).

²⁴³ NEV. REV. STAT. §§ 533.460 to .482 (2014).

²⁴⁴ *Id.*

G. New Mexico

Overview. New Mexico's Water Code dates back to territorial days. In 1907 the legislature "assigned courts the task of adjudicating New Mexico's water rights" and created what is now the Office of the State Engineer (OSE) "to have general supervision over the measurement, appropriation and distribution of New Mexico's water."²⁴⁵ Like Nevada, New Mexico also contains numerous federal reserved water rights, along with special acequia rights²⁴⁶ that add to the complexity of the state's adjudications. There are currently around a dozen active adjudications,²⁴⁷ and less than half of the state's water rights are finally decreed.²⁴⁸ Because New Mexico belongs to eight interstate stream basins, it also has an Interstate Stream Commission that, among other things, negotiates with other states to settle interstate stream controversies.²⁴⁹ The state has done extensive modeling in every declared basin.²⁵⁰

Adjudication. Generally, the New Mexico Attorney General, on behalf of the OSE, has initiated the state's stream adjudications by filing lawsuits.²⁵¹ Water users can also bring a request for adjudication.²⁵² In New Mexico, many of the general stream adjudications are happening in federal court, with a handful of additional adjudications happening in state district court.²⁵³ At the state level,

²⁴⁵ New Mexico Office of the State Engineer, *Brief History of the Office of the State Engineer*, http://www.ose.state.nm.us/state_engineer_history.html (last visited Dec. 10, 2014). After statehood, New Mexico adopted the Territorial Water Code the State Water Code. *Id.* Two decades later, the state's Groundwater Code was adopted. JUDGE JERALD A. VALENTINE, INSTITUTE FOR COURT MANAGEMENT, A WATER COURT FOR NEW MEXICO: PERSPECTIVES FROM THE BENCH 42 (May 2003), available at <http://www.nmcourts.gov/watercases/ValentineJerry.pdf>.

²⁴⁶ Valentine, *supra* note 245, at 19.

²⁴⁷ New Mexico Office of the State Engineer, *Active Cases*, http://www.ose.state.nm.us/legal_ose_active_cases.html (last visited Dec. 10, 2014).

²⁴⁸ Gregory Ridgley, Office of State Engineer, *The Future of Water Adjudications in New Mexico* 11 (Dec. 2010), available at <http://wri.nmsu.edu/publish/watcon/proc55/ridgley.pdf>; Telephone Interview with Judge James J. Wechsler, New Mexico Court of Appeals, in Santa Fe, New Mexico (Aug. 21, 2014).

²⁴⁹ "To ensure basin compliance, Interstate Stream Commission staff analyze, review, and implement projects in New Mexico and analyze streamflow, reservoir, and other data on the stream systems." New Mexico Office of the State Engineer, *Interstate Stream Commission*, <http://www.ose.state.nm.us/ISC/index.php> (last visited Dec. 13, 2014).

²⁵⁰ Telephone Interview with Steve Hernandez, Private Water Attorney, in Las Cruces, New Mexico (Aug. 18, 2014). For example, one of the largest adjudications in New Mexico involving the Lower Rio Grande was brought in 1986 by the Elephant Butte Irrigation District. *Id.*

²⁵¹ Valentine, *supra* note 245, at 43; see N.M. STAT. ANN. § 72-4-15 (2014).

²⁵² Hernandez Interview, *supra* note 250; see N.M. STAT. ANN. § 72-4-17 (2014).

²⁵³ Ridgley, *supra* note 248, at 11; Valentine, *supra* note 245, at 38.

there are currently two designated adjudication judges, selected from the state's district court judges, who hear and preside over adjudications.²⁵⁴ Additionally, outside of adjudication, there is a designated judge in each of New Mexico's thirteen judicial districts who handles other types of water rights disputes.²⁵⁵ This model promotes efficiency and uniformity in the state's water rights case law.²⁵⁶

In modern times, adjudications have addressed both surface water and groundwater.²⁵⁷ Ancillary questions such as ditch easement disputes are determined in a separate proceeding.²⁵⁸ New Mexico also has a unique procedural rule that requires state adjudication judges and the OSE to meet annually to discuss adjudication priorities and allocate state resources among those priorities.²⁵⁹

In the first stage of state adjudication, the OSE prepares a hydrographic survey of the stream system and describes each water right, which today involves the use of GIS, GPS, and metering technology, but which also reflects historic records and other information sources.²⁶⁰ The surveys (which are a combination of textual information and maps) are presumed correct, and the parties bear the burden of proving a survey wrong.²⁶¹ Each survey dispute with OSE is resolved in a separate court proceeding.²⁶² New Mexico water users have perceptions of a conflict of interest between the OSE's technical and legal functions.²⁶³

In the second *inter se* stage, water users may object to the claims of others.²⁶⁴ Unlike any other state surveyed, New Mexico's modern decrees contain both a diverted volume and a consumptive irrigation requirement ("CIR"), determined on a "stream system basis" based on the current average consumption of crops

²⁵⁴ Wechsler Interview, *supra* note 248; *see also* New Mexico Courts, *Water Rights Adjudication*, <http://www.nmcourts.gov/watercases/waterjudges.php> (last visited Dec. 10, 2014).

²⁵⁵ Wechsler Interview, *supra* note 248; *see also* *Water Rights Adjudication*, *supra* note 254.

²⁵⁶ Telephone Interview with Frank Reckard, Counsel for State Engineer, in Santa Fe, New Mexico (Aug. 21, 2014).

²⁵⁷ *Id.*

²⁵⁸ *Id.*

²⁵⁹ N.M. R. Civ. P. 71.3 (discussed in Ridgley, *supra* note 248, at 15).

²⁶⁰ New Mexico Courts, *Hydrographic Survey*, <http://www.ose.state.nm.us/HydroSurvey/index.php> (last visited Dec. 10, 2014); *see also* N.M. STAT. ANN. § 72-4-13; Valentine, *supra* note 245, at 44.

²⁶¹ *Hydrographic Survey*, *supra* note 260.

²⁶² INSTITUTE OF PUBLIC LAW & POLICY, U. OF N.M. SCHOOL OF LAW, ASSESSING POTENTIAL CHANGES TO THE NEW MEXICO WATER RIGHTS ADJUDICATION: PROCESS RESULTS FROM DELIBERATIVE FORUMS AMONG THE ENGAGED PUBLIC, "Issues Statement" Attach. (Aug. 2009) (on file with author).

²⁶³ *Id.* at 6 n.2, 14.

²⁶⁴ Valentine, *supra* note 245, at 44.

grown in that area.²⁶⁵ Additionally, final decrees list both historic and newly permitted rights together so it is a complete tabulation.²⁶⁶

Permitting and Change Review. The OSE oversees permits to appropriate state waters, as well as changes to the place or purpose of water rights.²⁶⁷ Within the OSE, the Water Resources Allocation Program processes water rights applications and “conducts the scientific research” necessary for deciding those applications.²⁶⁸ Among the review criteria are injury to existing rights, as well as water conservation considerations.²⁶⁹ Parties can appeal agency decisions first through an administrative appeal, and then to the district court.²⁷⁰ The OSE Hearings Unit holds administrative hearings on “protested and aggrieved water rights applications.”²⁷¹ Those hearing decisions are appealable to district court under de novo review.²⁷²

The OSE has insufficient resources to address abandonments and forfeitures,²⁷³ and one of the agency’s strategic priorities is to “eliminate the water rights application backlog.”²⁷⁴ On the other hand, because consumptive use is determined during adjudication, the turnaround for agency review of certain change applications in adjudicated areas can be reduced.²⁷⁵ The agency also plays an important role in linking water and land use by evaluating local subdivision applications for adequate water supply.²⁷⁶

²⁶⁵ Reckard Interview, *supra* note 256; Hernandez Interview, *supra* note 250; Wechsler Interview, *supra* note 248. See N.M. STAT. ANN. § 72-4-19 (2014); N.M. CODE R. § 19.26.2.

²⁶⁶ Reckard Interview, *supra* note 256.

²⁶⁷ N.M. STAT. ANN. § 72-2-1 (2014); New Mexico Office of the State Engineer, *Water Rights Info*, http://www.ose.state.nm.us/water_info_water_rights.html (last visited Dec. 12, 2014); Valentine, *supra* note 245, at 42, 73–81, App. C.

²⁶⁸ New Mexico Office of the State Engineer, *Water Resource Allocation Program*, http://www.ose.state.nm.us/water_info_index.html (last visited Dec. 12, 2014).

²⁶⁹ New Mexico Office of the State Engineer, *Water Rights Info*, http://www.ose.state.nm.us/water_info_water_rights.html (last visited June 25, 2015).

²⁷⁰ Ridgley, *supra* note 248, at 9; see also Valentine, *supra* note 245, at 43; N.M. CONST. art. XVI, § 5; N.M. STAT. ANN. § 72-7-1 (2014).

²⁷¹ New Mexico Office of the State Engineer, *Water Rights Hearings Unit*, http://www.ose.state.nm.us/legal_hearings.html (last visited Dec. 13, 2014).

²⁷² N.M. CONST. art. XVI, § 5.

²⁷³ Valentine, *supra* note 245, at 25–26.

²⁷⁴ Dario Rodriguez-Bejarano and Ted Apodaca, Legal Services Division, Office of the State Engineer, *Water Rights Adjudication in New Mexico: Applications of GIS and IS* (undated), available at <http://proceedings.esri.com/library/userconf/proc00/professional/papers/pap419/p419.htm>.

²⁷⁵ Reckard Interview, *supra* note 256.

²⁷⁶ N.M. STAT. ANN. §§ 47-6-10, -11 (2014); see also New Mexico Office of the State Engineer, *Water Use & Conservation*, <http://www.ose.state.nm.us/Subdiv/subdiv.php> (last visited Mar. 3, 2015).

Records. Another OSE duty is to maintain accurate water rights records,²⁷⁷ and an agency strategic priority is to “automate information and processing of its databases.”²⁷⁸ There is no specific provision in New Mexico law for updating final decrees after they are entered.²⁷⁹

One New Mexico judge has observed that New Mexico’s water rights recordkeeping could be improved: “The OSE should review its internal procedures and analyze the resources it would need to maintain current records and request adequate funding from the Legislature.”²⁸⁰ That same judge observed, “there is no mechanism to insure timely updates to the judicial decree” and called for “an institutional structure that insures the continuing accuracy of adjudicated water rights.”²⁸¹

Distribution and Enforcement. In the administrative realm, the OSE is charged with supervising, measuring, distributing, and enforcing all water rights.²⁸² This authority extends to administering priorities in unadjudicated stream systems.²⁸³ For unadjudicated rights, the OSE can preliminarily determine the characteristics of the water right for purposes of distribution. Such determinations are non-binding in the adjudication and subject to court decree.²⁸⁴

The OSE’s Water Resources Allocation Program is primarily responsible for distribution and enforcement.²⁸⁵ Under this program, the agency hires “water masters” to measure stream flow, control diversions, and directly distribute water.²⁸⁶ Water masters are generally individuals residing within the watershed to which they are assigned.²⁸⁷ This program also inventories and monitors water

²⁷⁷ See New Mexico Water Rights Reporting System, *available at* <http://nmwrrs.ose.state.nm.us/nmwrrs/disclaimer.html> (last visited Dec. 13, 2014).

²⁷⁸ Rodriguez-Bejarano & Apodaca, *supra* note 274.

²⁷⁹ Wechsler Interview, *supra* note 248.

²⁸⁰ Valentine, *supra* note 245, at 25–26.

²⁸¹ *Id.*

²⁸² N.M. STAT. ANN. §§ 72-2-9, 72-4-19, 72-12-1 (2014); *see also* Valentine, *supra* note 245, at 42.

²⁸³ Tri-State Generation and Transmission Ass’n Inc. v. D’Antonio, 2012-NMSC-039, 289 P.3d 1232 (2012) (basing authority on N.M. STAT. ANN. § 72-2-9.1).

²⁸⁴ N.M. CODE R. § 19.25.13.7(B), *available at* <http://www.ose.state.nm.us/AWRM/Rules/ActiveWaterMgt-2004-12-28.pdf>. *See also* New Mexico Office of the State Engineer, *Frequently Asked Questions*, http://www.ose.state.nm.us/faq_index.html (last visited Dec. 12, 2014).

²⁸⁵ New Mexico Office of the State Engineer, *Water Resource Allocation Program*, http://www.ose.state.nm.us/water_info_index.html (last visited Dec. 12, 2014).

²⁸⁶ *Id.*

²⁸⁷ Reckard Interview, *supra* note 256.

resources and supply.²⁸⁸ In certain situations, the OSE has authority to charge counties for water master services, and counties can assess local taxes to pay for water master services.²⁸⁹

In the judicial realm, water users with disputes arising outside of the adjudication process bring cases to the district court judge designated to hear water rights matters in that judicial district.²⁹⁰ These designated judges may also hear agency enforcement cases and challenges to water master tabulations.²⁹¹

A decade ago, the OSE created the Active Water Resource Management initiative to address drought conditions through a local water district approach.²⁹² In priority stream systems, water districts are created, in which there are special “measuring and metering efforts, rules and regulations, . . . appointment of water masters, and development of water master manuals.”²⁹³ Basin teams include a “project manager, hydrologist, attorney, communication manager, personnel manager, and technical support staff.”²⁹⁴ Agency staff also work toward shortage-sharing agreements among water users within a district to avoid the harsh outcomes of strict priority administration.²⁹⁵

H. Oregon

Overview. Since the 1909 Oregon Water Code, the Oregon Water Resources Department (Department) has administered all permits for new water rights, as well as changes of use.²⁹⁶ State trial courts oversee basin-based adjudications, but the Department plays a significant role by examining claims to pre-Water Code rights and preparing proposed orders for the adjudication court.²⁹⁷ Although approximately two-thirds of Oregon waters are adjudicated, the Klamath Basin is the only major basin adjudicated in the last forty years.²⁹⁸

²⁸⁸ *Id.*

²⁸⁹ Applicable when majority of water users have successfully petitioned for appointment of a water master. *Id.*; see N.M. STAT. ANN. §§ 72-3-2, -4 (2014).

²⁹⁰ See *supra* note 258 and accompanying text.

²⁹¹ Reckard Interview, *supra* note 256.

²⁹² New Mexico Office of the State Engineer, *Frequently Asked Questions*, *supra* note 284.

²⁹³ *Id.*

²⁹⁴ *Id.*

²⁹⁵ *Id.*

²⁹⁶ OR. REV. STAT. §§ 537.010 and 540.520 (2014); OREGON WATER RESOURCES DEPARTMENT, WATER RIGHTS IN OREGON: AN INTRODUCTION TO OREGON’S WATER LAWS 5 (Nov. 2013), available at <http://www.oregon.gov/owrd/PUBS/docs/aquabook2013.pdf>.

²⁹⁷ OR. REV. STAT. §§ 539.021 and .130 (2014). Oregon trial courts are called “circuit courts.”

²⁹⁸ Telephone Interview by William Fanning with Dwight French, Water Right Services Division Administrator, Oregon Water Resources Department, in Salem, Oregon (Nov. 4, 2013); Telephone Interview by William Fanning with Phillip Ward, Director, Oregon Water Resources

Adjudication. In Oregon, adjudication addresses water rights that predate the Water Code, along with federal and tribal water rights.²⁹⁹ The proceeding can commence three ways: (1) by court order, (2) by Department order, or (3) by water user petition.³⁰⁰ As noted, the Department examines all claims in a basin adjudication, produces a hydrologic analysis, and drafts proposed final orders destined for the adjudication court.³⁰¹ But before orders reach the court, a general state administrative law judge hears any protests to proposed final orders.³⁰² This step in the process has been criticized due to a lack of water law expertise on the part of administrative law judges.³⁰³ The Department then reviews the administrative law judge's findings and issues proposed Findings of Fact and an Order of Determination (FFOD), which it then finally transmits to the adjudication court.³⁰⁴

The trial court reviews the Department's order under a *de novo* standard, and can either affirm the order or hear contested issues.³⁰⁵ With contested issues, the court can hear additional evidence and appoint a special master to conduct further proceedings.³⁰⁶ Because adjudications can extend over decades, which means original evidence or witnesses can be difficult to locate, some question whether a *de novo* standard makes sense.³⁰⁷ The court will ultimately affirm the FFOD, with any necessary modifications, as a final decree.³⁰⁸ Until then, the FFOD is treated as an enforceable preliminary decree.³⁰⁹ Decrees describe water rights according to those uses occurring at the time of decree, and include

Department, in Salem, Oregon (Nov. 4, 2014). *See generally* Oregon Water Resources Department, *Klamath River Basin Adjudication*, <http://www.oregon.gov/owrd/Pages/adj/index.aspx> (last visited Dec. 13, 2014).

²⁹⁹ French Interview, *supra* note 298.

³⁰⁰ *Id.*

³⁰¹ OR. REV. STAT. §§ 539.021 and .130 (2014); French Interview, *supra* note 298; Ward Interview, *supra* note 298. *See also* Douglas W. MacDougal, *The Klamath Adjudication: Will It Ever End?*, available at <http://www.martenlaw.com/newsletter/20110707-klamath-adjudication> (last visited Dec. 13, 2014).

³⁰² MacDougal, *supra* note 301.

³⁰³ Telephone Interview by William Fanning with Douglas MacDougal, Private Water Law Attorney, in Portland, Or. (Nov. 2013).

³⁰⁴ OR. REV. STAT. §§ 539.130 and 539.150(3) (2014); *see also* Douglas MacDougal et al., *Klamath Adjudication: The Judicial Phase Begins*, 113 THE WATER REP. 8 (July 15, 2013).

³⁰⁵ OR. REV. STAT. § 539.150 (2014); MacDougal, *supra* note 301.

³⁰⁶ MacDougal, *supra* note 301.

³⁰⁷ MacDougal Interview, *supra* note 303.

³⁰⁸ OR. REV. STAT. § 539.150 (2014).

³⁰⁹ OR. REV. STAT. §§ 539.130 and .200 (2014); Ward Interview, *supra* note 298.

a finding of diverted volume (in acre-feet).³¹⁰ The characteristics of decreed rights mirror the description of statutorily permitted rights.³¹¹

Permitting and Change Review. As noted, all post-Water Code water uses require a permit from the Department.³¹² The Department also approves changes to the place of use, the point of diversion, or the type of use made of a water right (called a “transfer”) when decreed rights or Water Code-based permits are changed.³¹³ Changes in the type of use receive the most scrutiny.³¹⁴ Pre-statutory rights that have not been decreed do not qualify for an agency transfer.³¹⁵ The Department currently has a significant backlog in transfer applications that it is working to reduce.³¹⁶

Although there is no automatic statutory look-back period for determining consumptive use during a transfer proceeding, the state’s forfeiture statute could apply if there has been five years of continuous non-use at any point during the last fifteen years.³¹⁷ In other words, the agency may examine whether the water right proposed for a change has been beneficially used to its full extent at least once in the last five years.³¹⁸ In one attorney’s experience, however, the vast majority of cases involve no look-back at all, but rather focus on whether there is injury if the current use is changed to the proposed use.³¹⁹ Typical evidence includes recent power bills or crop yields.³²⁰

Department decisions are subject to a complex process that can involve “contested case” administrative hearings and appeals to a specialized commission,

³¹⁰ French Interview, *supra* note 298.

³¹¹ *Id.*

³¹² OR. REV. STAT. § 537.130 (2014).

³¹³ Ward Interview, *supra* note 298. For change statutes, see generally OR. REV. STAT. §§ 540.505 to .587 (2014).

³¹⁴ Ward Interview, *supra* note 298. In contrast, “if the transfer is from irrigation to irrigation, then the water rights holder can transfer the whole paper right.” *Id.*

³¹⁵ OR. REV. STAT. § 540.505 (2014).

³¹⁶ Oregon Water Resources Department, *Water Transfers*, http://www.oregon.gov/owrd/Pages/mgmt_transfers.aspx (last visited Dec. 13, 2014).

³¹⁷ OR. REV. STAT. § 540.610 (2014); MacDougal Interview, *supra* note 303. A forfeiture claim can be raised independently in a proceeding. Telephone Interview by William Fanning with David Moon, Publisher of THE WATER REPORT, in Eugene, Or. (Nov. 20, 2013).

³¹⁸ OR. REV. STAT. § 540.610 (2014); French Interview, *supra* note 298. The Department would also verify that there are no other periods of non-use for five consecutive years in the last fifteen years. Moon Interview, *supra* note 317.

³¹⁹ Moon Interview, *supra* note 317.

³²⁰ OR. ADMIN. R. 690-380-3000(12) (2014); French Interview, *supra* note 298.

and are ultimately appealable to a trial court.³²¹ The Department has a strong record of settling most permitting disputes before the need for trial or administrative hearing.³²²

Records. Decreed rights receive a “certificate” like statutorily permitted rights and are maintained in the Department’s water rights information system.³²³ Like most states, Oregon decrees will not be updated on an ongoing basis after they are issued.³²⁴

Distribution and Enforcement. The Department employs approximately twenty “watermasters” (who are hydrologists), divided among five major water regions in the state.³²⁵ Watermasters not only distribute waters under decrees and permits, but also conduct inspections, and enforce violations of state water law.³²⁶ They also play an important supporting role during the agency’s application review by providing information on crop use and water availability.³²⁷

I. Utah

Overview. Utah began requiring water rights permits with the passage of its Water Code in 1903.³²⁸ The Division of Water Rights of the State Engineers Office (SEO) plays a strong role in all aspects of Utah water rights. This agency processes applications for new appropriations and changes of existing rights,³²⁹ has exclusive jurisdiction over enforcement,³³⁰ and drives the adjudication process for pre-statutory rights.³³¹ Utah has ongoing general stream adjudications for nearly

³²¹ See generally OR. REV. STAT. §§ 537.170 to .173 (2014); Ward Interview, *supra* note 298; Moon Interview, *supra* note 317.

³²² Ward Interview, *supra* note 298; Moon Interview, *supra* note 317.

³²³ Oregon Water Resources Department, *Water Rights Information Search*, <http://www.oregon.gov/owrd/pages/wr/wris.aspx> (last visited Dec. 13, 2014). See generally OR. REV. STAT. §§ 539.140 and .160 (2014); WATER RIGHTS IN OREGON, *supra* note 296, at 39; French Interview, *supra* note 298.

³²⁴ MacDougal Interview, *supra* note 303.

³²⁵ French Interview, *supra* note 298. See generally Oregon Water Resources Department, *Oregon Water Resources Field Offices*, http://www.oregon.gov/owrd/pages/offices.aspx#region_water-master_map (last visited Dec. 13, 2014).

³²⁶ See generally OR. REV. STAT. §§ 540.010 to .155 (2014); WATER RIGHTS IN OREGON, *supra* note 296, at 41–43.

³²⁷ OR. REV. STAT. § 540.045 (2014); French Interview, *supra* note 298.

³²⁸ UTAH CODE ANN., Title 73 (2014); see also Utah Division of Water Rights, *Water Right Information*, <http://www.waterrights.utah.gov/wrinfo/default.asp> (last visited Dec. 29, 2014). Ground-water became subject to permitting in 1935. *Id.*

³²⁹ UTAH CODE ANN. §§ 73-3-2 and -3 (2014).

³³⁰ UTAH CODE ANN. § 73-5-1 (2014).

³³¹ UTAH CODE ANN. § 73-4-1 (2014).

every stream within the state, and proceedings take place in district courts.³³² While some of these adjudications have languished for decades, increased staffing has begun to speed up the process.³³³

Adjudication. On an individual basis, water users with pre-statutory rights can seek recognition of those rights through the filing of a “diligence claim” with the SEO.³³⁴ The SEO advertises and investigates diligence claims, and then files an investigation report and assigns a water rights number.³³⁵ Diligence claims describe conditions as they existed prior to 1903, and include a diverted volume in acre-feet.³³⁶ A person may challenge a diligence claim by filing an action in district court.³³⁷ Although the investigation report becomes part of the water right file and is admissible in any administrative or judicial proceeding,³³⁸ an adjudication court is not bound by a diligence claim or the agency’s investigation report.³³⁹

Upon request or of its own accord, the SEO may initiate general stream adjudications in state district court.³⁴⁰ These proceedings adjudicate all water rights, whether pre-statutory or permitted rights.³⁴¹ Agency field staff gather water rights information, prepare hydrographic surveys, and assist water users in filing “statements of water users claims” in the adjudication.³⁴² Similar to Montana, filed statements of claim are deemed “competent evidence of the facts stated therein unless the same are put in issue.”³⁴³ Claims are made based on current water uses,³⁴⁴ although, consistent with state forfeiture law, the agency may look back further to determine if there have been seven years of nonuse within the last

³³² Utah Division of Water Rights, *Adjudication*, <http://www.waterrights.utah.gov/adjdinfo/default.asp> (last visited Dec. 29, 2014) (“All of the hydrologic areas of the state are currently involved in a court ordered adjudication of water rights except the Weber River and Sevier River drainages.”)

³³³ Telephone Interview with John Mann, Assistant State Engineer, and Boyd Clayton, Deputy State Engineer, in Salt Lake City, Utah (Nov. 1, 2013).

³³⁴ UTAH CODE ANN. § 73-5-13 (2014).

³³⁵ Telephone Interview by William Fanning, with Steven Clyde, Water Lawyer, in Salt Lake City, Utah (Nov. 5, 2013).

³³⁶ *Id.* Or pre-1935 for groundwater diligence claims.

³³⁷ *Id.*

³³⁸ UTAH CODE ANN. § 73-5-13 (2014); Mann & Clayton Interview, *supra* note 333.

³³⁹ UTAH CODE ANN. § 73-5-13 (2014).

³⁴⁰ UTAH CODE ANN. § 73-4-1 (2014).

³⁴¹ Mann & Clayton Interview, *supra* note 333.

³⁴² UTAH CODE ANN. §§ 73-4-3(7)(a) and 73-4-5 (2014); *see also Adjudication*, *supra* note 332.

³⁴³ UTAH CODE ANN. § 73-4-14 (2014).

³⁴⁴ *Adjudication*, *supra* note 332. However, water users are not excused from change application requirements if the current uses deviate from those of the recorded water right. Mann & Clayton Interview, *supra* note 333.

fifteen years.³⁴⁵ The SEO then issues a Proposed Determination of Water Rights Book (called a “PDET”), which contains both maps and textual recommendations for the district court.³⁴⁶ Newer proposed determinations more expressly address volume and consumptive use for claimed water rights.³⁴⁷

The agency’s proposed determinations play a strong role in the adjudication process. Users have ninety days to object to the proposed determination,³⁴⁸ but objections are relatively few and settlements are common.³⁴⁹ The district court approves all proposed water rights determinations that have no objection.³⁵⁰ When there is an objection, the burden of proof is on the claimant to overcome the SEO’s determination in a court hearing process.³⁵¹ Utah has many outdated proposed determinations that have not yet been court-approved and thus require updating to reflect current water uses.³⁵² Utah also does not have designated water courts or judges, and general stream adjudications are “assigned somewhat randomly,” which creates concerns, as most district court judges today have limited experience with water rights.³⁵³

Permitting and Change Review. Since 1903, the SEO has reviewed all requests for new appropriations, as well as changes to the purpose, place of use, or point of diversion for existing water rights.³⁵⁴ For changes of use, the agency does a full hydrological analysis to determine if there will be injury, and, for pre-statutory rights that do not yet have an adjudicated volume, it assumes a maximum volume based on current crops grown and flood irrigation methods.³⁵⁵ SEO decisions are appealed to district court under de novo review.³⁵⁶ SEO proceedings are informal administrative proceedings, and the vast majority of water rights applications are handled without an attorney.³⁵⁷ Roughly one percent, or less, of SEO decisions

³⁴⁵ UTAH CODE ANN. § 73-1-4 (2014). A forfeiture action can commence as late as fifteen years “from the end of the latest period of nonuse of at least seven years.” *Id.*

³⁴⁶ UTAH CODE ANN. § 73-4-11(2)(a) (2014); *see also* *Adjudication*, *supra* note 332.

³⁴⁷ Mann & Clayton Interview, *supra* note 333.

³⁴⁸ UTAH CODE ANN. § 73-4-11(3).

³⁴⁹ Mann & Clayton Interview, *supra* note 333; *see also* Telephone Interview by William Fanning, with Norman Johnson, Assistant Attorney General / Chief of Natural Resources Division, and Mike Quealy, Assistant Attorney General, in Salt Lake City, Utah (Nov. 13, 2013).

³⁵⁰ Johnson & Quealy Interview, *supra* note 349.

³⁵¹ UTAH CODE ANN. §§ 73-5-13 and -15 (2014).

³⁵² Mann & Clayton Interview, *supra* note 333.

³⁵³ Clyde Interview, *supra* note 335.

³⁵⁴ UTAH CODE ANN. §§ 73-3-2 and -3 (2014).

³⁵⁵ Mann & Clayton Interview, *supra* note 333 (noting that the agency does not hold historic rights to a modern level of efficiency).

³⁵⁶ UTAH CODE ANN. §§ 73-3-14; 63G-4-402(1)(a) (2014); Mann & Clayton Interview, *supra* note 333.

³⁵⁷ Mann & Clayton Interview, *supra* note 333; Clyde Interview, *supra* note 335.

are taken to court for judicial review.³⁵⁸ Changes to water rights undergoing adjudication are reflected in the agency's PDET and the court's final decree.³⁵⁹

Although Utah has a forfeiture statute that provides for invalidation of water rights not used for seven years, the SEO lacks authority to declare unadjudicated rights forfeited during the change application process.³⁶⁰ Instead, a court must determine forfeiture of these rights in a general adjudication proceeding or separate forfeiture action.³⁶¹ For that reason, the agency does not look back at historical uses when determining changes to water rights.³⁶² This ruling has created an unfortunate scenario in which speculators can revive a long abandoned water right in the change application process.³⁶³

Records. Utah has a bifurcated record system, with water rights ownership records housed with the county recorder, and all other water rights records housed with the SEO in a searchable database.³⁶⁴ There are concerns that the older county ownership records are poorly indexed and lack clarity.³⁶⁵

Although old court decrees are not reopened, district courts do retain ongoing jurisdiction over decrees issuing in modern adjudication proceedings.³⁶⁶ If individual water user disputes arise, a court can supplement the decree with additional rulings.³⁶⁷ The district courts can also reserve the right to make changes to decrees based on newly available science.³⁶⁸ For example, upon motion of the SEO, the court may modify the irrigation duty, the domestic use allowance, or the stock water allowance it has decreed.³⁶⁹

Distribution and Enforcement. The SEO has authority over the distribution of water rights under decrees—a task it implements through appointment of water

³⁵⁸ Mann & Clayton Interview, *supra* note 333; Clyde Interview, *supra* note 335; Johnson & Quealy Interview, *supra* note 349.

³⁵⁹ Mann & Clayton Interview, *supra* note 333.

³⁶⁰ UTAH CODE ANN. § 73-1-4 (2014); Jensen v. Jones, 2011 UT 67, ¶ 17 (2011); *see also* Johnson & Quealy Interview, *supra* note 349.

³⁶¹ Jensen, 2011 UT ¶¶ 14–15.

³⁶² Mann & Clayton Interview, *supra* note 333.

³⁶³ *Id.*; *see also* Clyde Interview, *supra* note 335 (describing how junior users are harmed by the resurrection of long abandoned senior rights).

³⁶⁴ *Water Right Information*, *supra* note 328.

³⁶⁵ Mann & Clayton Interview, *supra* note 333 (citing concerns about silent deeds and appurtenance issues).

³⁶⁶ *Id.*

³⁶⁷ *Id.*

³⁶⁸ *Id.*

³⁶⁹ *E.g.*, Interlocutory Decree for Tooele City Subdivision Area 15-4, P. 6, No. 650306049 (3d Jud. Dist. Ct.) (Mar. 28, 2012).

commissioners.³⁷⁰ Commissioners hold four-year appointments, work out of their home, and serve various-sized distribution systems throughout the state.³⁷¹ Similar to several of the surveyed states, the state agency also directs and trains commissioners.³⁷² Water users provide input on commissioner appointments and compensation, and are assessed to fund the commissioner's salary.³⁷³ Water users also elect committees that hold public meetings and collect records relating to water distribution on a water source; the SEO then maintains these records online.³⁷⁴ Until the final decree is issued, the SEO distributes water in accordance with its proposed determinations.³⁷⁵ The SEO also performs the state's enforcement function by investigating and prosecuting water rights violations through administrative orders, fines, and litigation.³⁷⁶

J. Washington

Overview. Washington began requiring agency approval of appropriations under its 1917 Surface Water Code, later adding groundwater in 1945.³⁷⁷ Pre-statutory water uses do not require a permit, but the state has required claimants to file statements of claim to preserve these right or face forfeiture.³⁷⁸ Today, the state's Department of Ecology (Ecology) processes applications for new appropriations and changes of use.³⁷⁹ Agency officials report that the backlog in reviewing applications is the largest of any western state.³⁸⁰ On the other hand, the state stands apart in integrating a water rights component into its mandatory local watershed planning laws.³⁸¹

³⁷⁰ UTAH CODE ANN. § 73-5-1(1)(a), (2) (2014); *see also* Mann & Clayton Interview, *supra* note 333.

³⁷¹ Mann & Clayton Interview, *supra* note 333.

³⁷² UTAH CODE ANN. § 73-5-1(3)(a)(i) (2014).

³⁷³ UTAH CODE ANN. § 73-5-1 (2014).

³⁷⁴ Utah Division of Water Rights, *Distribution System Meetings*, <http://www.waterrights.utah.gov/meetinfo/dist.asp> (last visited Jan. 2, 2015).

³⁷⁵ UTAH CODE ANN. § 73-4-11(4) (2014).

³⁷⁶ UTAH CODE ANN. § 73-2-25 (2014).

³⁷⁷ WASH. REV. CODE §§ 90.03 and 90.44 (2014); *see also* WATER DISPUTES TASK FORCE, A REPORT TO THE WASHINGTON STATE LEGISLATURE 6 (Dec. 2003) (on file with author).

³⁷⁸ WASH. REV. CODE § 90.14.071 (2014).

³⁷⁹ WASH. REV. CODE §§ 90.03.250 and 90.03.380 (2014).

³⁸⁰ Telephone Interview with Jeff Marti, Information and Management, and Benno Bonkowski, Manager (Retired), Adjudication Section, Dept. of Ecology, in Lacey, Wash. (Oct. 24, 2013) (estimating 6,000 applications pending).

³⁸¹ WASH. REV. CODE § 90.82.070 (2014).

Ecology also plays a fact-finding role in adjudications that take place in state trial courts.³⁸² Although eighty-two basins in Washington have been adjudicated since 1918,³⁸³ those proceedings cover only about ten percent of the state's land area; the vast majority of claimed water rights remain unadjudicated.³⁸⁴ The main active adjudication today commenced in the 1970s and involves surface waters in the Yakima River Basin.³⁸⁵

Adjudication. In Washington, Ecology commences adjudications in superior courts (a type of trial court).³⁸⁶ Adjudications can range from small disputes to large, general stream adjudications.³⁸⁷ They can be limited to surface water or groundwater, or include both.³⁸⁸ Superior courts may appoint special referees to take evidence and issue preliminary findings and conclusions.³⁸⁹ The parties bear the burden of proving their claims through the submission of evidence.³⁹⁰ Ecology investigates claims, gathers its own evidence, and reports its findings to the court, making motions for the court to decree substantiated claims and hold hearings on contested claims.³⁹¹ Parties may respond and object to Ecology's motions.³⁹²

In determining the characteristics of a claimed pre-statutory right, the court may consider historic evidence back to the original use.³⁹³ Washington decrees, which are later incorporated into agency-issued certificates, reflect current water uses and include a maximum diverted volume in addition to flow rate.³⁹⁴

³⁸² WASH. REV. CODE § 90.03.640 (2014).

³⁸³ A REPORT TO THE WASHINGTON STATE LEGISLATURE, *supra* note 377, at 7.

³⁸⁴ *Id.* at 6.

³⁸⁵ Marti & Bonkowski Interview, *supra* note 380; *see also generally* Sid Ottem, *The General Adjudication of the Yakima River: Tributaries for the Twenty-First Century and a Changing Climate*, 23 J. ENVTL. L. & LITIG. 275 (2008).

³⁸⁶ WASH. REV. CODE §§ 90.03.110 and 90.44.220 (2014); *see also generally* DEPT. OF ECOLOGY, PROCESS FOR CONDUCTING A WATER RIGHTS ADJUDICATION (June 2010), *available at* <https://fortress.wa.gov/ecy/publications/publications/1011013.pdf>.

³⁸⁷ Dept. of Ecology, *Water Right Adjudications*, <http://www.ecy.wa.gov/programs/wr/rights/adjhome.html> (last visited Jan. 2, 2015).

³⁸⁸ *Id.*

³⁸⁹ WASH. REV. CODE § 90.03.160 (2014).

³⁹⁰ WASH. REV. CODE § 90.03.635 (2014).

³⁹¹ WASH. REV. CODE § 90.03.640 (2014); *see also* PROCESS FOR CONDUCTING A WATER RIGHTS ADJUDICATION, *supra* note 386, at 17–19.

³⁹² PROCESS FOR CONDUCTING A WATER RIGHTS ADJUDICATION, *supra* note 386, at 20.

³⁹³ A REPORT TO THE WASHINGTON STATE LEGISLATURE, *supra* note 377, at 7.

³⁹⁴ WASH. REV. CODE § 90.03.240 (2014); *see also* Marti & Bonkowski Interview, *supra* note 380.

Since 1967, a relinquishment statute has provided that failure to use all or part of a water right without good cause for five successive years can trigger loss of the water right.³⁹⁵ There is also a common law cause of action for abandonment.³⁹⁶

Permitting and Change Review. As noted, Ecology generally reviews applications for new appropriations, as well as transfers of water rights and changes to points of diversion or purposes of use.³⁹⁷ There is an exception during pendency of an adjudication, where parties request temporary changes directly through the trial court overseeing the adjudication.³⁹⁸ For permanent changes, however, Ecology processes requests and records its agency decision with the court.³⁹⁹ The change then becomes part of the final decree.⁴⁰⁰ Post-decree, Ecology processes changes of use outside of the court using its standard procedures.⁴⁰¹ Upon approval of any change, Ecology issues a “superseding certificate” and updates its centralized records.⁴⁰²

In the Yakima River Basin, the state encourages, but does not require, that change proposals be brought to the Water Transfer Working Group: a voluntary team of agency representatives and water users that provide technical review during the change process.⁴⁰³ This option “guides applicants to those types of water right changes and transfers that can quickly and easily gain approval from the state.”⁴⁰⁴

Because Washington decrees resolve the volume of claimed water rights, Ecology does not adjust volume in a change proceeding involving an adjudicated water right unless there are questions of relinquishment or nonuse.⁴⁰⁵ And in processing a change application for an adjudicated water right, the doctrine of res judicata bars Ecology from raising allegations of relinquishment that it failed

³⁹⁵ WASH. REV. CODE § 90.14.160 (2014).

³⁹⁶ Marti & Bonkowski Interview, *supra* note 380; *see also* OFFICE OF ATTORNEY GENERAL, AN INTRODUCTION TO WASHINGTON WATER LAW 14 (Jan. 2000), *available at* <https://fortress.wa.gov/ecy/publications/publications/0011012.pdf>.

³⁹⁷ WASH. REV. CODE §§ 90.03.250 and 90.03.380 (2014).

³⁹⁸ Marti & Bonkowski Interview, *supra* note 380. *See generally*, *In re Yakima River Drainage Basin*, Pretrial Order No. 12 (Yakima Co. Sup. Ct. Cause No. 77-2-01484-5) (Jan. 22, 2002).

³⁹⁹ Marti & Bonkowski Interview, *supra* note 380. In the Yakima adjudication, it is also possible in certain situations for a water conservancy board to process changes, which in turn is reviewable by Ecology and, thereafter, the courts. Pretrial Order No. 12, *supra*, note 398.

⁴⁰⁰ Marti & Bonkowski Interview, *supra* note 380.

⁴⁰¹ *Id.*

⁴⁰² *Id.*; WASH. REV. CODE § 90.03.380 (2014).

⁴⁰³ Marti & Bonkowski Interview, *supra* note 380.

⁴⁰⁴ *Id.*; Dept. of Ecology, *Water Transfer Working Group*, <http://www.ecy.wa.gov/programs/wr/ywtwg/ywtwg.html> (last visited Jan. 3, 2015).

⁴⁰⁵ Marti & Bonkowski Interview, *supra* note 380.

to raise during its investigation of the right during the adjudication.⁴⁰⁶ Thus, the agency cannot look back beyond the date of the court's order characterizing the right.⁴⁰⁷ In non-decreed water rights situations, however, Ecology reviews the history of the water right to perform a "tentative determination" of the validity and extent of the water right.⁴⁰⁸ This determination is subject to court modification during a subsequent adjudication proceeding.⁴⁰⁹

When an applicant seeks to enlarge the amount of irrigated acreage or add new purposes to a water right, Ecology is also required to limit changes to the "annual consumptive quantity," which means "the estimated or actual annual amount of water diverted pursuant to the water right, reduced by the estimated annual amount of return flows, averaged over the two years of greatest use within the most recent five-year period of continuous beneficial use of the water right."⁴¹⁰ Thus, the look-back period under this consumptive use formula is generally five years.

Appealing Ecology's decision on a change request is somewhat complicated. If the agency decision touches on the extent and validity of a water right undergoing adjudication, that decision is appealed to the trial court overseeing the adjudication, subject to *de novo* review.⁴¹¹ If the decision touches on matters other than the extent and validity of a claimed water right, that aspect of the appeal is certified to an independent Pollution Control Hearings Board (PCHB).⁴¹² Decisions by that board can then be appealed to the adjudication court, which applies deferential review.⁴¹³ Analysts favorably review the PCHB's role as one providing expertise, consistency in decision making, mediation opportunities, and a short turnaround time for decisions, all of which are available online.⁴¹⁴

Records. During the pendency of an adjudication, a monthly notice is issued regarding all changes made to claimed rights in the proceeding, and changes are incorporated into the final decree.⁴¹⁵ Post adjudication, Ecology maintains a

⁴⁰⁶ *Id.*

⁴⁰⁷ *Id.*

⁴⁰⁸ See generally POL 1120, Water Resources Program Policy for Conducting Tentative Determinations of Water Rights (Aug. 30, 2004).

⁴⁰⁹ *Id.*

⁴¹⁰ WASH. REV. CODE § 90.03.380(1) (2014).

⁴¹¹ WASH. REV. CODE § 90.03.210(2) (2014); see also generally Policy for Conducting Tentative Determinations, *supra* note 408.

⁴¹² Policy for Conducting Tentative Determinations, *supra* note 408.

⁴¹³ *Id.*

⁴¹⁴ A REPORT TO THE WASHINGTON STATE LEGISLATURE, *supra* note 377, at 23. For more information, see State of Washington, *Pollution Control Hearings Board*, <http://www.eluho.wa.gov/Board/PCHB> (last visited Jan. 3, 2015).

⁴¹⁵ Marti & Bonkowski Interview, *supra* note 380.

record of decreed rights,⁴¹⁶ but the courts have not traditionally updated decrees to reflect changes made after they become final.⁴¹⁷ State policy analysts have recommended that Washington switch to a system where decrees are periodically maintained and updated so they remain relevant.⁴¹⁸ Indeed, there is a possibility of ongoing court jurisdiction in the Yakima Basin, which would mean that the court's final decree may be updated over time.⁴¹⁹

Distribution and Enforcement. Ecology oversees enforcement of water use under the state's water code, and has powers to seek voluntary compliance or assess penalties.⁴²⁰ The agency is in charge of hiring, training, and supervising "water masters" that are assigned to different state regions to do on-the-ground distribution of water and hold powers of arrest for water code violations.⁴²¹ Water masters are used both in decreed and non-decreed basins.⁴²² Washington law requires that Ecology "shall to the extent practicable station its compliance personnel within the watershed communities they serve."⁴²³

When Ecology engages in enforcement and distribution of water, its actions are typically appealable to the PCHB.⁴²⁴ Adjudicating courts, however, have discretion to fashion enforcement and implementation of a decree as they deem appropriate.⁴²⁵ In the Yakima Basin, for example, the court's proposed final decree envisions that Ecology will supervise enforcement, with the court retaining jurisdiction and taking direct appeals of agency actions for at least three years.⁴²⁶ Thereafter, appeals will go to the PCHB and then to the court under its ongoing jurisdiction.⁴²⁷

⁴¹⁶ PROCESS FOR CONDUCTING A WATER RIGHTS ADJUDICATION, *supra* note 386, at 23.

⁴¹⁷ *Id.*

⁴¹⁸ A REPORT TO THE WASHINGTON STATE LEGISLATURE, *supra* note 377, at 13.

⁴¹⁹ Marti & Bonkowski Interview, *supra* note 380.

⁴²⁰ WASH. REV. CODE §§ 90.03.400 and .605 (2014); *see also* Dept. of Ecology, *State Water Use Laws: Compliance and Enforcement*, http://www.ecy.wa.gov/programs/wr/comp_enforce/comp_enfor.html#howwaterregulated (last visited Jan. 3, 2015).

⁴²¹ WASH. REV. CODE §§ 90.03.060 to -.090 (2014).

⁴²² WASH. REV. CODE § 90.03.210 (2014) (allowing regulation of water during pendency of adjudication).

⁴²³ WASH. REV. CODE §§ 90.03.605(3) (2014).

⁴²⁴ WASH. REV. CODE § 43.21B.310 (2014).

⁴²⁵ *Id.*

⁴²⁶ *In re Surface Water Rights of the Yakima River Drainage*, Draft Proposed Final Decree 9 (Yakima County Sup. Ct.) (Nov. 20, 2007), *available at* <http://www.ecy.wa.gov/programs/wr/rights/Images/pdf/112007ProposedFinalDecree.pdf>.

⁴²⁷ *Id.* at 10.

K. Wyoming

Overview. In contrast to the judicially-driven approach of Colorado water law, Wyoming takes a strong agency-driven approach to water rights. Since the dawn of Wyoming's statehood in 1890, the Wyoming State Engineer's Office (SEO) has issued permits for all water rights.⁴²⁸ Thus, there are only a small amount of water rights existing outside the state permit system. The State Engineer and superintendents heading each of four water divisions make up the State Board of Control (BOC), a quasi-judicial body which individually adjudicates pre-statutory water rights, oversees water distribution, and reviews water rights changes.⁴²⁹

Adjudication. At statehood, Wyoming had about five thousand territorial rights.⁴³⁰ The State Engineer took sworn proofs of historic use and conducted field inspections on each of these rights during the period from 1890 to 1920.⁴³¹ Today, if a water user seeks to change a pre-1890 right, then the BOC first adjudicates that individual right by conducting fact-finding to confirm it was perfected and not abandoned.⁴³² Thus, the state does not as a general rule adjudicate water rights on a streamwide basis.

Once the BOC adjudicates a water right, that right is given a duty (stated as a flow rate) and "permanently attached to the specific land or place of use described on the certificate."⁴³³ The right cannot be removed or changed except

⁴²⁸ JAMES J. JACOBS ET AL., WYOMING WATER LAW: A SUMMARY 2 (May 2003), available at <https://sites.google.com/a/wyo.gov/seo/documents-data>; see also generally CRAIG COOPER, A HISTORY OF WATER LAW, WATER RIGHTS & WATER DEVELOPMENT IN WYOMING 9–19 (June 2004). The requirement to submit a permit application with the SEO is set forth in WYO. STAT. ANN. § 41-4-501 (2014), and the standard utilized by the SEO to determine whether to approve or reject an application appears in WYO. STAT. ANN. § 41-4-503. The State Engineer's existence traces to WYO. CONST., art. 8, § 5.

⁴²⁹ WYO. STAT. ANN. § 41-4-201 (2014); see also Wyoming State Engineer's Office, *Board of Control*, <https://sites.google.com/a/wyo.gov/seo/agency-divisions/board-of-control> (last visited Jan. 4, 2015). The Board of Control's existence and composition are rooted in WYO. CONST., art. 8, § 2, and the prescribed organization of the state into four water divisions with appointed superintendents likewise stems from WYO. CONST., art. 8, § 4.

⁴³⁰ Telephone Interview by William Fanning with Sue Lowry, Administrator of Interstate Streams; Greg Lanning, Deputy State Engineer; Matt Hoobler, N. Platte River Coordinator in Cheyenne, Wyo. (Nov. 4, 2013).

⁴³¹ *Id.*

⁴³² *Id.*; Telephone Interview by William Fanning with Dave Palmerlee, Water Lawyer, in Buffalo, Wyo. (Nov. 26, 2013).

⁴³³ WYOMING WATER LAW: A SUMMARY, *supra* note 428, at 3. The maximum allowable duty is generally set by statute as 1 cfs per 70 acres. WYO. STAT. ANN. § 41-4-317 (2014) (with some exceptions for surplus and excess water under WYO. STAT. ANN. §§ 41-4-320, 41-4-330).

by BOC action.⁴³⁴ A water user may also request an adjudication of her right to confirm its validity in advance of marketing the water right.⁴³⁵ Nonetheless, there is a perception that the costs and risks inherent in adjudicating territorial water rights are a disincentive for many water users to modernize their water use.⁴³⁶ The BOC's final orders or decrees are deemed "conclusive as to all prior appropriations, and the rights of all existing claimants upon the stream or other body of water lawfully embraced in the adjudication."⁴³⁷

Because of difficulties enforcing the state's abandonment law, there is an issue with individuals converting unused paper rights into active water rights in Wyoming.⁴³⁸ Technically, if a water user ceases to use a water right for "any five (5) successive years, he is considered as having abandoned the water right and shall forfeit all water rights and privileges appurtenant thereto."⁴³⁹ Nonetheless, the BOC is known to be amenable to applicants resuscitating unused water rights by putting abandoned rights to use within five years before a change application.⁴⁴⁰ Additionally, water users arguing that another user has abandoned a right face a difficult burden, along with social repercussions, which adds to the difficulty of eliminating unperfected claims.⁴⁴¹

The exception to individualized agency adjudication was the Big Horn River Basin adjudication, which was a general stream adjudication involving federal and tribal rights that began in state district court in 1977 and recently concluded.⁴⁴²

⁴³⁴ WYO. STAT. ANN. § 41-3-104 (2014). As discussed further below, this provision applies to proposed changes in type of use and place of use. It prescribes the procedures for submitting a petition to pursue such changes, and sets forth the overall standard and an associated list of non-exhaustive factors that govern the BOC's review of petitions. *See also* WYO. STAT. ANN. § 41-3-114 (2014) (addressing petitions for changes in point of diversion or means of conveyance filed with BOC for adjudicated rights and with SEO for unadjudicated rights).

⁴³⁵ Palmerlee Interview, *supra* note 432.

⁴³⁶ *Id.*

⁴³⁷ WYO. STAT. ANN. § 41-4-326 (2014).

⁴³⁸ Lowry, Lanning, Hoobler Interview, *supra* note 430; Palmerlee Interview, *supra* note 432.

⁴³⁹ WYO. STAT. ANN. § 41-3-401(a) (2014). This provision applies regardless of whether the cessation of water use was intentional or unintentional. *Id.* The BOC has "exclusive original jurisdiction in water right abandonment proceedings." WYO. STAT. ANN. § 41-3-401(b) (2014).

⁴⁴⁰ Lowry, Lanning, Hoobler Interview, *supra* note 430; Palmerlee Interview, *supra* note 432. *See also* Sturgeon v. Brooks, 281 P.2d 675, 683-85 (1955) (holding resumption of water use prior to formal declaration of abandonment preserves water right).

⁴⁴¹ Palmerlee Interview, *supra* note 432; *see also* WYO. STAT. ANN. § 41-3-401(b)-(c) (2014) (conferring standing on specified holders of water rights or permits to petition BOC to declare other existing water rights abandoned, and providing for hearing for holders of water rights sought to be abandoned).

⁴⁴² *See generally* Phase III Order, *supra* note 9, and accompanying text. *See also generally* *Big Horn Adjudication: Recommendations for Concluding the Adjudication*, Report of an Ad Hoc Committee: In re general Adjudication of All Rights to Use Water in the Big Horn River System and All Other Sources, State of Wyoming, submitted to Judge Gary P. Hartman. Civ. No. 4993,

With respect to the pre-1890 rights involved in that case, the SEO, much like the approach taken in Oregon and Utah, provided technical expertise and made proposed findings for approval by the district court.⁴⁴³ During the adjudication, the BOC processed changes to water rights and filed proposed interlocutory orders with the district court regarding the changes.⁴⁴⁴ Post-adjudication, the court has transferred full jurisdiction back to the BOC to review all changes to decreed rights.⁴⁴⁵

Permitting and Change Review. As noted, the BOC exercises authority over applications for new water rights as well as changes to an existing water right's point of diversion, type of use, or place of use.⁴⁴⁶ For change applications, the BOC determines historic diverted volume and consumptive use to ensure no injury to other users.⁴⁴⁷ And unlike other states that allow an objection period, Wyoming requires applicants to obtain consent forms signed by other users on the stream.⁴⁴⁸ In the absence of full consent, the BOC holds a contested case hearing.⁴⁴⁹ As noted, although the state's look-back period to confirm historic diverted volume and consumptive use is five years (based on the state's abandonment statute), the BOC is tolerant of placing long unused paper rights to use prior to, or during pendency of, a change request.⁴⁵⁰ Appeals of BOC actions go to district court, which must advance the water case to the head of its docket.⁴⁵¹

Records. Because Wyoming adjudicated pre-1890 rights one at a time, there are no comprehensive decrees for a water source outside the Big Horn River Basin.⁴⁵² The SEO does, however, maintain and update tabulations of adjudicated water rights for each of the four water divisions, which the law requires to occur

Wyoming District Court, Fifth Judicial District (Nov. 6, 2005) *available at* <http://bhrac.courts.state.wy.us/DocumentCenter/BHCR/RPND9B0000.pdf>.

⁴⁴³ Lowry, Lanning, Hoobler Interview, *supra* note 430.

⁴⁴⁴ *Big Horn Adjudication*, *supra* note 442, at 18.

⁴⁴⁵ *In re The General Adjudication of All Rights to The Use Water in the Big Horn River System and All Other Sources, State of Wyoming, Order Terminating Phase III Procedures Big Horn River General Adjudication 1* (Wyo. Fifth Jud. Dist., Sept. 5, 2014), *available at* <http://bhrac.washakiecounty.net/DocumentCenter/BHCR/9-29-14c.PDF>.

⁴⁴⁶ WYO. STAT. ANN. §§ 41-4-501, 41-3-104 and -114 (2014).

⁴⁴⁷ WYO. STAT. ANN. § 41-3-104(a) (2014).

⁴⁴⁸ Wyoming State Engineer's Office, Board of Control Regulations and Instructions ch. V, § 7 (2015), *available at* <http://seo.wyo.gov/agency-divisions/board-of-control/board-of-control-regulations-and-instructions> [hereinafter BOC Regulations]; Lowry, Lanning, Hoobler Interview, *supra* note 430.

⁴⁴⁹ BOC Regulations, *supra* note 448, at ch. VI, Contested Case Procedure (2014).

⁴⁵⁰ Lowry, Lanning, Hoobler Interview, *supra* note 430; Palmerlee Interview, *supra* note 432.

⁴⁵¹ WYO. STAT. ANN. § 16-3-114 (2014); *see also* Lowry, Lanning, Hoobler Interview, *supra* note 430; BOC Regulations, ch. VII, Appeals and District Court Certification (2014).

⁴⁵² Lowry, Lanning, Hoobler Interview, *supra* note 430.

at least every two years.⁴⁵³ The extensive record from the Big Horn River Basin adjudication is, pursuant to court order, being held in a combination of locations that include state archives, SEO records, and court archives.⁴⁵⁴

Distribution and Enforcement. The BOC relies on a “local hierarchy” to administer state waters,⁴⁵⁵ with each of the four division superintendents overseeing local water commissioners that “regulate” the distribution of water according to division tabulations.⁴⁵⁶ Superintendents are gubernatorial appointees residing within their divisions,⁴⁵⁷ and the water commissioners under their supervision are hydrographers and full-time employees of the SEO.⁴⁵⁸ Streams are generally not “regulated” unless a user makes a “call.”⁴⁵⁹ If a “call for regulation” comes in, then a commissioner uses the BOC tabulation books and listings of unadjudicated permits in good standing to regulate by priority.⁴⁶⁰ This decision can be appealed to a division superintendent, then the SEO, and ultimately the courts.⁴⁶¹ As in other states, the SEO also has enforcement authority over illegal water activities, including the power to assess fines.⁴⁶²

II. COMMON THEMES AND IDEAS WORTH EXPLORING

The above survey reflects several common themes in the way western states approach the integration of adjudication into their permitting, change review, and administration processes for water rights. At the same time, there are unique innovations taking place that seek to smooth the seams between these processes so that their water rights legal system functions accurately and efficiently for

⁴⁵³ WYO. STAT. ANN. § 41-4-208 (2014).

⁴⁵⁴ *In re* The General Adjudication of All Right to Use Water in the Big Horn River System and All Other Sources, State of Wyoming, Order Re: Permanent Record Retention (Wyo. Fifth Jud. Dist. Sept. 5, 2014), *available at* <http://bhrac.washakiecounty.net/DocumentCenter/BHCR/9-29-14b>. PDF. An electronic copy of this record can be accessed at Washakie County, Big Horn Adjudication, Chronological Court Record, <http://bhrac.washakiecounty.net/Searches.aspx?SearchIndex=BHCR> (last visited July 13, 2015).

⁴⁵⁵ A HISTORY OF WATER LAW, *supra* note 428, at 23–24.

⁴⁵⁶ The statutory provisions governing water division superintendents are set forth in WYO. STAT. ANN. §§ 41-3-501 to -506 (2014), and counterpart provisions governing water commissioners are contained in WYO. STAT. ANN. §§ 41-3-601 to -614 (2014). *See also* WYO. STAT. ANN. § 41-6-301 (conferring water commissioners with limited power to resolve disputes between joint owners or lessees of irrigation ditches or reservoirs).

⁴⁵⁷ WYO. STAT. ANN. § 41-3-502 (2014).

⁴⁵⁸ WYO. STAT. ANN. § 41-3-602 (2014); Lowry, Lanning, Hoobler Interview, *supra* note 430.

⁴⁵⁹ *See* WYO. STAT. ANN. § 41-3-606 (2014) (providing that a water rights holder may submit a written request “that the source of supply of his water rights be regulated by a water commissioner as authorized by law and in accordance with established priorities.”).

⁴⁶⁰ *Id.*

⁴⁶¹ WYO. STAT. ANN. §§ 41-3-506 AND -603(B) (2014).

⁴⁶² WYO. STAT. ANN. § 41-3-616(a)-(b) (2014).

water users. This Part highlights some of these common themes, including some systemic problems that have not been satisfactorily resolved, and then explores some of the best ideas being discussed and tested in western water rights systems.

A. Continuity and Expertise: A Clear Role for Water Judges

In nearly every western state, the judiciary plays a role in adjudication of water rights. With its agency-driven adjudications, Wyoming is a bit of an outlier (although even that state relied on the judiciary to complete its general stream adjudication in the Big Horn River Basin).⁴⁶³ In states like Nevada, Oregon, Utah, and sometimes California, the state agency plays a larger role in making findings and resolving objections, and a district court plays a lesser role, hearing a limited universe of remaining contested issues, but largely signing off on the agency's work.⁴⁶⁴ In states like Arizona, Colorado, Idaho, Montana, New Mexico, and Washington, the judiciary plays a larger role in making findings and resolving objections, with the agency principally playing the role of technical expert.⁴⁶⁵

An area where states seem to struggle is in defining the long-term role of water judges once an adjudication is complete.⁴⁶⁶ Should these seasoned individuals, who have developed intimate familiarity with a water source and its people, continue to play a role in later legal matters affecting those water rights they have decreed? In many states, there are concerns about leaving water rights decisions in the hands of traditional judges who lack interest and experience in water matters.⁴⁶⁷

Although most western states have not formulated a clear answer to this question, Idaho has responded affirmatively.⁴⁶⁸ Capitalizing on the expertise of its water division, which recently completed the Snake River Basin adjudication, the Idaho Supreme Court in 1987 designated the SRBA district court as the sole water court for hearing all water rights matters.⁴⁶⁹ Not only will the SRBA complete adjudications of water rights in the remaining basins, but it will now hear appeals of agency decisions on water rights, applying a *de novo* standard of review.⁴⁷⁰ And because the SRBA judge is part of the regular district court system,

⁴⁶³ See generally Part I.K, *supra*.

⁴⁶⁴ See generally Parts I.F, .H, .I, *supra*.

⁴⁶⁵ See generally Parts I.A, .C, .D, .E., .G, and .J, *supra*.

⁴⁶⁶ Along with the judge, the special master holds extensive expertise and thus provides further justification for continuing the role of water judges.

⁴⁶⁷ See *e.g.*, *supra* notes 178, 333 and accompanying text (expressing concern about Montana and Utah district courts).

⁴⁶⁸ Arizona law does not address the question. See *supra* note 47 and accompanying text.

⁴⁶⁹ See *supra* notes 128–30, 153 and accompanying text.

⁴⁷⁰ *Id.*

with general subject matter jurisdiction, he can hear ancillary matters related to water rights, such as ditch disputes, as well as complaints relating to water distribution and enforcement.⁴⁷¹ Colorado, also, has created a system where select district court judges can hear adjudication matters, as well as ancillary litigation and administrative appeals.⁴⁷² And helpfully, the jurisdictional boundaries for these judges follow the boundaries of water basins.⁴⁷³

Arizona has taken lesser steps toward the same goal by designating a single district court judge to preside over adjudications arising in multiple judicial districts.⁴⁷⁴ And New Mexico has designated one water judge in each of its judicial districts to handle adjudications.⁴⁷⁵ But in these states, unlike Colorado, traditional court districts do not necessarily align with water basin boundaries.⁴⁷⁶

The vast majority of other western states also rely on traditional district court judges to adjudicate water rights and other ancillary issues, but none have gone so far as Idaho and Colorado by designating a particular division as housing exclusive jurisdiction and expertise over both original water matters and agency appeals.⁴⁷⁷ Thus, water users in those states have less continuity in water disputes, and less assurance that the judge they draw has the necessary interest and knowledge.

The Idaho model contrasts with Montana's system of having a water court that adjudicates and a traditional district court (which lacks specialized expertise) handling all ancillary litigation, water commissioner appointments, and appeals of agency actions.⁴⁷⁸ This prevents the parties from achieving full resolution of their issues in one forum. By combining all water issues into one proceeding, the Idaho process reduces the burden on the court system and litigants.

Along a similar vein, states could develop greater clarity in whether water judges retain ongoing jurisdiction over final decrees. In states like Idaho and Colorado, where all matters return to the same judge in any event, this provision may be less necessary. But elsewhere, a provision for ongoing jurisdiction provides the parties with a greater chance of returning to the forum of expertise. California follows this practice, as does Nevada.⁴⁷⁹ Utah courts take the concept a step

⁴⁷¹ Order No. 99143, *supra* note 128.

⁴⁷² *See generally* Part I.C, *supra*.

⁴⁷³ *See supra* note 95 and accompanying text.

⁴⁷⁴ *See supra* note 16 and accompanying text.

⁴⁷⁵ *See supra* note 246 and accompanying text.

⁴⁷⁶ *See supra* note 242 and accompanying text.

⁴⁷⁷ California and Utah, for example. *See supra* notes 56, 316 and accompanying text.

⁴⁷⁸ *See generally* Part I.E, *supra*.

⁴⁷⁹ *See supra* notes 77, 227 and accompanying text.

further by retaining jurisdiction to not only handle future related disputes, but also to modify original findings in the decree if the state agency comes forward with newly available science justifying the modification.⁴⁸⁰ In Washington's Yakima River Basin, the court intends to retain temporary jurisdiction over post-decree enforcement for three years, then relinquishing the task to the PCHB.⁴⁸¹ While preferable to a post-decree system, where disputes are randomly assigned to district court judges, these types of intermediate approaches simply do not provide the same type of "one stop shop" service that water users receive in places like Colorado and Idaho.

B. Seamless Proceedings: Integrated Administration and Adjudication

If adjudication proceedings and agency proceedings are not well calibrated, water users can be caught in a jurisdictional seam where, with respect to a single water right, they face different evidentiary questions and burdens of proof in two separate forums. Thus, the scope of issues addressed in adjudication has a direct bearing on related administrative proceedings. While all western states are generally decreeing a similar set of water right characteristics (priority date, purpose, flow rate, point of diversion, place of use, and period of use), there are important choices being made regarding the scope of coverage in an adjudication. For example, whether the adjudications encompass only pre-statutory rights or also decree statutorily permitted rights and whether they should determine characteristics like volume and consumptive use. These questions directly impact subsequent agency proceedings regarding those water rights.

Montana and Idaho, for instance, do not routinely decree volume, deferring that factual question for later agency proceedings involving changes of use.⁴⁸² Both of these states have further narrowed the coverage of their adjudications by decreeing rights as they existed at some past point in time, rather than as they exist at the time of the decree.⁴⁸³ As adjudications drag on, that point in time becomes more remote, and for Montana, it is now over four decades in the past.⁴⁸⁴ Because of these time and information gaps, water users in these states must thus seek agency approval to change the water right as it is retroactively decreed, and must confront the reality and inefficiency of introducing evidence of water use in two separate proceedings before two separate bodies.

⁴⁸⁰ See *supra* notes 346–48 and accompanying text.

⁴⁸¹ See *supra* notes 406–07 and accompanying text.

⁴⁸² See *supra* notes 138, 172 and accompanying text.

⁴⁸³ See *supra* notes 139, 168 and accompanying text.

⁴⁸⁴ See *supra* note 168 and accompanying text.

The more ambitious the scope of the adjudication, the greater the odds that it will increase in length and complexity. On the other hand, making this investment now can greatly reduce the need for future proceedings involving the same water rights. New Mexico stands alone in opting to include the issue of consumptive use in its adjudication proceedings, which adds an additional evidentiary question to resolve, but later aids in streamlining the change of use process by reducing questions of fact in the agency proceeding.⁴⁸⁵ To ameliorate the complexity this additional step might lend an adjudication, the state has opted to find a uniform level of consumptive use throughout a water region, rather than determining the question one water right at a time.⁴⁸⁶ Water users thus avoid the frustration experienced in many other states of having to introduce evidence of historic use in two separate legal proceedings. In an era when water marketing and efficiency of transfers is increasingly important, the New Mexico approach merits serious consideration by all western states.

The look-back period for evidentiary questions provides another opportunity for coordination. In states where adjudications look back as far as the statutory period for abandonment and forfeiture, and state agencies use the same look-back period to determine consumptive use in change proceedings, applicants have a more seamless experience because they can introduce a similar body of evidence in both forums. California attempts to do this, and both Nevada and Oregon adjudication and change proceedings look at current use of the water right for purposes of volume determinations.⁴⁸⁷ In Colorado, which has a ten-year abandonment statute but generally looks back much farther for proof of consumptive use, water users complain that they often face “knock downs” of water rights when they reach the change of use stage.⁴⁸⁸ As noted, it is more effective still when the courts can adjudicate both pre-statutory and post-statutory rights, addressing the abandonment of both, and thereby eliminating the need for agencies to grapple with meritless requests to resuscitate old paper rights under the auspices of a change request.⁴⁸⁹

An additional area for court-agency coordination is burden of proof. In Arizona and Montana, for example, the bare allegations in a statement of claim, if uncontested in the adjudication, are presumed to be correct.⁴⁹⁰ Yet in subsequent change proceedings, the same water user must prove facts such as historic volume

⁴⁸⁵ See *supra* note 251 and accompanying text.

⁴⁸⁶ *Id.*

⁴⁸⁷ See *supra* notes 72–73, 209, 219, 294, 301–04 and accompanying text.

⁴⁸⁸ See *supra* notes 109–13 and accompanying text.

⁴⁸⁹ See *supra* Part II.C and accompanying text

⁴⁹⁰ See *supra* notes 20, 166 and accompanying text.

by a preponderance of the evidence.⁴⁹¹ Similarly, Idaho practitioners note that the IDWR scrutinizes a water right “significantly deeper” than the SRBA does when it evaluates historic consumptive use.⁴⁹² In contrast to these examples, if a water judge had the option of finding that the higher burden of proof was met in the adjudication proceeding, then water users could later use those same findings in an agency change of use process.

Washington and Nevada attempt to integrate agency and court by making the water judge the appellate judge for agency decisions affecting water rights currently under adjudication.⁴⁹³ Further protecting water users from duplicative proceedings, Washington has expressly applied *res judicata* principles to water judge decrees so agencies are precluded from considering certain evidence that would be considered a reopening of issues within the purview of adjudication.⁴⁹⁴

For water rights not currently undergoing adjudication, Utah authorizes its state agency to make a “diligence determination” when changes are sought, with the caveat that a subsequent adjudication may modify the determination.⁴⁹⁵ Similarly, Washington’s agency conducts “tentative determinations” of the validity of non-decreed water rights during change requests, subject to any later adjudication.⁴⁹⁶ These determinations can later supplement the agency findings and recommendations in the adjudication process. These approaches avoid the Oregon dilemma, where changes to pre-statutory rights are precluded until water rights are decreed, thus dampening water marketing and creating a backlog in transfer requests.⁴⁹⁷

C. Living Records: A Current, Complete Picture, All in One Place

While so much effort is put forth to achieve the moment of final decrees, such decrees do not go the distance if they fail to provide a complete picture of all rights on a water source. Indeed, even as the ink dries on a decree, it may not represent an accurate picture. In Montana and Idaho, for example, decrees describe water rights as they existed on some past date in time.⁴⁹⁸ These “time gap” decrees ignore

⁴⁹¹ See *supra* notes 38, 184–87 and accompanying text.

⁴⁹² See *supra* note 143 and accompanying text.

⁴⁹³ See *supra* notes 222, 379–80 and accompanying text.

⁴⁹⁴ See *supra* notes 386–87 and accompanying text.

⁴⁹⁵ See *supra* notes 318–20 and accompanying text.

⁴⁹⁶ See *supra* notes 388–89 and accompanying text.

⁴⁹⁷ See *supra* notes 299–300 and accompanying text.

⁴⁹⁸ See *supra* notes 142, 167 and accompanying text. For Montana, this is 1973, and for Idaho, it is 1987.

the realities of agency-permitted changes unfolding contemporaneously with the adjudication.⁴⁹⁹ Most court decrees wisely reflect water uses as they exist at the time of the decree, rather than some distant point in the past.⁵⁰⁰

But to a lesser degree, decrees that only address pre-statutory water rights, and do not also inventory and confirm statutorily permitted water rights present an incomplete picture as well.⁵⁰¹ New Mexico exemplifies the practice of decreeing both historic and newly permitted rights in a comprehensive tabulation.⁵⁰² This broader approach allows the court to directly confront and dispose of post-statutory abandoned rights, making the decree more accurately reflect current realities in water use. Many state agencies report being underfunded in their enforcement divisions, thus less likely to pursue abandoned rights outside of adjudication.⁵⁰³ And states express concern about the resuscitation of paper claims.⁵⁰⁴ Thus, the inclusion of post-statutory permitted rights within adjudications can be an important tool for freeing up new waters for beneficial use.

Likewise, states that adjudicate surface water in isolation, without regard to connected groundwater, are producing decrees of partial utility. In the Yakima River Basin, for example, the culmination of a four-decade long adjudication will be a surface water decree that does not address groundwater.⁵⁰⁵ This, despite the fact that groundwater pumping is estimated to deplete streamflow in the Yakima River by about 194 cubic feet per second.⁵⁰⁶ And after historically treating surface water and groundwater as separate water bodies in its state adjudications, Arizona has faced the additional burden of incorporating tributary groundwater into its general stream adjudications to meet McCarran Amendment requirements.⁵⁰⁷

Even when a state comprehensively tabulates every water right on a source, such as Arizona, time threatens to make decrees quickly irrelevant as uses change, new uses are permitted, and abandoned uses become obsolete.⁵⁰⁸ The nearly universal practice among western states is to not update decrees as changes occur,

⁴⁹⁹ See generally Parts I.D and .E, *supra*.

⁵⁰⁰ For example, Washington. See *supra* notes 379–80, 395 and accompanying text.

⁵⁰¹ Montana and Oregon are examples. See generally Parts I.E and .H, *supra*.

⁵⁰² See *supra* note 252 and accompanying text.

⁵⁰³ New Mexico reports insufficient resources, for example. See *supra* note 259 and accompanying text.

⁵⁰⁴ Utah's state agency, for example, often confronts resuscitated claims from real estate developers that request a change approval). See *supra* notes 339–42 and accompanying text.

⁵⁰⁵ See *supra* note 365 and accompanying text.

⁵⁰⁶ U.S. Geological Survey, *Yakima Basin Groundwater Connected to Rivers and Streams*, <http://wa.water.usgs.gov/news/2011/news.sir20115155.htm> (last visited Jan. 19, 2015).

⁵⁰⁷ See *supra* note 30 and accompanying text.

⁵⁰⁸ See *supra* note 36 and accompanying text.

even when courts retain ongoing jurisdiction over those decrees.⁵⁰⁹ California does so for a limited universe of major changes to adjudicated, pre-1914 surface water rights.⁵¹⁰ In Washington, there is an effort afoot to make future decrees subject to periodic maintenance and updating.⁵¹¹

More notably, Colorado's "living decree" approach is the gold standard, with a monthly resume of all requests for new and changed rights, which the court then updates in its decree, and which the agency then tabulates to reflect all water rights on a source.⁵¹² In the remaining states, water rights researchers must cobble together court orders and agency databases. In a practice long abandoned elsewhere, Nevada and Utah add the additional, unnecessary complication of recording ownership changes at the county level rather than in the state water rights database.⁵¹³

A related consideration is the extent to which preliminary findings or recommendations, prior to final decree, should be updated to reflect changes to water rights. Most states do not have a clear rule on this question. Here, Washington has developed the practice of a monthly notice of all such proposed changes, as well as recording final agency changes with the adjudication court for incorporation into the final decree, but only when the adjudication is still pending.⁵¹⁴ On the flip side, states seem unclear on the point at which preliminary adjudication findings, which may be subject to appeal, should trigger modifications to permits and change authorizations affected by those findings.⁵¹⁵

Yet another question relates to the vast amount of evidence amassed in an adjudication—the evidence on which the agencies and courts rely. How will that evidence be preserved if needed in future proceedings involving changes of use or in water distribution actions? States have startling little law in place to direct the long-term caretaking of such documents. In Wyoming's Big Horn River Basin adjudication, the court's order itself dictates multiple locations for the archiving of case records.⁵¹⁶

⁵⁰⁹ *E.g.*, *supra* notes 47, 149, 223, 308, 397 and accompanying text (Arizona, Idaho, Nevada, Oregon, and Washington).

⁵¹⁰ *See supra* note 76 and accompanying text.

⁵¹¹ *See supra* notes 398–99 and accompanying text.

⁵¹² *See supra* notes 115–18 and accompanying text.

⁵¹³ *See supra* notes 224, 343–44 and accompanying text.

⁵¹⁴ *See supra* notes 379–80, 395 and accompanying text.

⁵¹⁵ The Montana DNRC raised this question, for example. *See supra* note 189 and accompanying text.

⁵¹⁶ *See supra* note 434 and accompanying text.

States would be well advised to develop internal agency-court procedures for updating and integrating the water records generated by each entity. The parties should resolve how interim court rulings affect the agency's database, how ownership changes and splits are recorded, and how to create a one-stop-shop for water users who want to view abstracts, court orders, agency scientific data, and water commissioner field notes and tabulations. The optimal system would be one where the public and water users can consult a single source for comprehensive, current water rights information—a living decree. In states like Colorado, Utah, and California that use ongoing court jurisdiction over decrees, this approach seems more possible.

D. Into the Hands of Water Users: Effectively Delivering Decreed Waters

Decrees mean very little if water users cannot effectively implement them on the ground. In many places, implementation requires the involvement of water commissioners skilled in admeasuring water and solving and diffusing conflict.⁵¹⁷ Most western states now have a standardized process for hiring and training water commissioners, driven by the state agency that oversees other water rights administration. In states like Arizona, where private water districts hold the majority of water rights, private ditch riders are more common.⁵¹⁸ As states shift from localized adjudications among small groups of water users, to general streamwide adjudications affecting entire basins, water delivery under decrees becomes a more sophisticated undertaking and the need for coordination among multiple commissioners increases. In states like Arizona and Nevada that have both state and federal court adjudications, each with separate commissioner appointments, there may be additional challenges in coordinating water delivery among connected water sources.⁵¹⁹

Montana struggles in this area because it lacks a coordinated commissioner system, relying instead on ad hoc district court appointments.⁵²⁰ These district courts are not part of the water court that oversees general stream adjudications.⁵²¹ The state agency is not responsible for the state's commissioner process, and the district court judges express discomfort with the idea of simultaneously appointing and directing commissioners and then later presiding over water user complaints filed against those commissioners.⁵²² Because district court jurisdiction is not

⁵¹⁷ Depending on the state, these individuals may be called “water masters” or “water superintendents.”

⁵¹⁸ See *supra* note 49 and accompanying text.

⁵¹⁹ See *supra* notes 48–50, 227–32 and accompanying text.

⁵²⁰ See *supra* notes 192–93 and accompanying text.

⁵²¹ See generally Part I.E, *supra*.

⁵²² See *supra* note 194 and accompanying text.

correlated with basin boundaries, there can be additional difficulties determining which forum is most appropriate to oversee commissioner appointment.⁵²³ Further, Montana, along with Arizona and California, has an unrealistic requirement that a decree must exist before commissioners are empowered to distribute water.⁵²⁴ This leaves water users in years of uncertainty pending the outcome of lengthy adjudication proceedings. In Montana, water users must resort to a convoluted process of suing in the district court, and then having the dispute certified to the water court for priority resolution of the water rights in the dispute.⁵²⁵

Several states have responded by carefully organizing commissioner systems and employing modern technology. Colorado is organized by major water divisions (and nested sub-basins) that correlate with water court jurisdiction so that basin-wide decrees can be effectively administered within one court system,⁵²⁶ and Wyoming has a similar hierarchy within the Board of Control's water divisions.⁵²⁷ In drought-stricken areas of New Mexico, commissioners work in specially formed water districts alongside project teams that include hydrologists, attorneys, and technical support staff.⁵²⁸ And although a central agency oversees commissioners, Colorado and New Mexico use individuals that reside within the local communities they serve.⁵²⁹

New Mexico has also provided a "preliminary determination" process for determining delivery of water on unadjudicated water sources so that users are not left in adjudication purgatory without relief.⁵³⁰ Utah similarly allows pre-adjudication distribution of waters by relying on agency proposed determinations pending final decree,⁵³¹ and Washington also distributes water in both decreed and undecreed basins.⁵³²

States like Idaho and Colorado have invested in modern technology such as remote sensing and real-time monitoring, along with gathering hydrologic data to ensure accurate and efficient water distribution on basin-wide scales.⁵³³ New

⁵²³ See *supra* note 198 and accompanying text.

⁵²⁴ See *supra* notes 51, 81, and 192 and accompanying text.

⁵²⁵ See generally Part I.E, *supra*.

⁵²⁶ See *supra* notes 120–27 and accompanying text.

⁵²⁷ See *supra* notes 435–38 and accompanying text.

⁵²⁸ See *supra* notes 277–78 and accompanying text.

⁵²⁹ See *supra* notes 124, 272 and accompanying text.

⁵³⁰ See *supra* note 269 and accompanying text.

⁵³¹ See *supra* note 355 and accompanying text.

⁵³² See *supra* note 402 and accompanying text.

⁵³³ See *supra* notes 123, 154 and accompanying text.

Mexico has engaged in extensive water modeling of every basin, and uses GIS, GPS, and metering as it prepares its hydrographic surveys for adjudications.⁵³⁴

Several state agencies also leverage their water commissioner function by having them gather evidence related to change and permit applications,⁵³⁵ evaluate subdivision water supply plans,⁵³⁶ negotiate shortage-sharing agreements,⁵³⁷ conduct inspections,⁵³⁸ and enforce waste and illegal use violations.⁵³⁹ And California gives water commissioners authority to conduct studies and initiate new infrastructure projects.⁵⁴⁰

Finally, it is worth repeating that a water commissioner can only be as good as the records on which she relies. Decrees by necessity of economy tend to provide only the most basic information about the characteristics of a water right. They do not necessarily tell us the locations of losing and gaining reaches, the complexities of return flows from places of use that feed downstream users, the intricacies of ditch systems, nor the sophisticated rotation and sharing patterns that arise informally among users. Thus, there is a need for supplementation to bring a decree to fruition on the ground. And while commissioners may internally carry the hydrologic wisdom of their basin, our legal systems need to find effective ways of making that wisdom part of the public record. Prospective purchasers of water need and deserve to know the full array of factors that will affect delivery of that water. This is a challenge to which all states must rise.

CONCLUSION

Although we push mightily toward their completion, decrees are not an end unto themselves. They are part of a whole that informs water users of the extent of water rights on a source, of the ability to transform that right into a new use to meet tomorrow's needs, of, ultimately, the delivery of water into the water user's hands. States must not lose sight of this important fact as they continue to evaluate the effectiveness of their adjudication processes to mesh with permitting, distribution, and enforcement. States must explore how to better integrate change review and adjudication so that there is a seamless process of evidence gathering and fact finding, how to integrate records that are truly living, and how to deliver water in ways that reflect emerging hydrologic realities. Some states are making such inroads, and more remains to be done to ready ourselves for a post-adjudication world.

⁵³⁴ See *supra* notes 238, 246 and accompanying text.

⁵³⁵ See *supra* notes 127, 311, 352 and accompanying text (Colorado, Oregon, and Utah).

⁵³⁶ See *supra* note 273 and accompanying text (New Mexico).

⁵³⁷ See *supra* note 279 and accompanying text (New Mexico).

⁵³⁸ See *supra* note 310 and accompanying text (Oregon).

⁵³⁹ See *supra* notes 310, 401 and accompanying text (Oregon and Washington).

⁵⁴⁰ See *supra* note 81 and accompanying text.