CONJUNCTIVE MANAGEMENT: CHANGING WATER REGULATION AND EVOLVING STRATEGIES

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ABSTRACT

In the past few decades, many western state legislatures have recognized that in some cases, surface water and groundwater is linked together in a hydrological manner. Because of that connection, physical effects from use at one source ripple to the connected source; however water management, especially from the legal side, does not always follow the physical facts.

Some western states have implemented a system where groundwater and surface water are regulated in a combined manner—a method termed conjunctive management. While conjunctive management is a pragmatic approach to recognize that sometimes water is connected between surface flows and groundwater, it comes at a time when over a century of case law and rights to use surface and ground water have existed in separate regulatory schemes.

New water appropriators face a daunting challenge when there are not only senior appropriators in the immediate area, but now surface water appropriators on rivers many, many miles away can determine whether or not the new water user can use the water from a nearby well. While the introduction of the conjunctive management approach has created some barriers to new water users, there are creative solutions to how the conjunctive management system can be satisfied, while at the same time allowing a new user to come to the table.

INTRODUCTION

In the western United States, the legal regimes used to allocate water are shifting between the previously distinct surface water and groundwater designations to a more holistic approach to recognize the interplay between the two sources of water. For over a century, many states regulated surface water in conformity with the prior appropriation doctrine: allowing for the first in time water user that registers with the state, the ability to satisfy his or her water needs prior to other water users who registered their water use at a later date. These surface water regulations used readily identifiable information: the

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observation and measurement of stream flows at points of diversion that would allow a regulator to determine how much water was being used in a particular area, and should the need arise, allow for curtailment of water from junior water appropriators to satisfy a senior appropriator’s needs.

However, groundwater use has not been regulated in the same way as surface waters. Many states adopted their groundwater codes and regulations several decades after their surface water codes. These later adoptions, while still using the prior appropriation doctrine framework, treated groundwater and surface water sources as separate and distinct sources, where interference and injury between junior and senior groundwater users were measured using interference between wells as a standard to determine injury. Regulating groundwater by priority otherwise is in most cases, non-existent: the regulating agency taking a “hands off” approach until the conflicting users’ well equally reached the bottom of the aquifer, a measure few could determine in advance. Since the 1980s, the groundwater regulatory approach between groundwater users became one of determining limited, critical or otherwise similar aquifer designations where users within the area would be allocated a “sustainable” quantity by priority to avoid groundwater mining. Other regulatory schemes, reached a similar result through the “reasonable” use doctrine common to the riparian system of appropriation.

More recently, states have looked at the way surface water and groundwater are sometimes connected; recognizing in some cases that groundwater use affects surface water use in other locations. The concern is that while maintaining the prior appropriation doctrine of first-in-time, first-in-right priority system, there are situations where senior surface water right holders may be unable to satisfy their water demands because junior groundwater appropriators are using water from water sources that are connected: situations where the groundwater and surface waters have a definable and demonstrable “hydraulic,” or “hydrologic connection.” This creates a tension between the two different regulatory frameworks that were previously considered as distinct sources and regulated separately without consideration between surface water and groundwater sources.

Regulating the interplay between the two water sources is termed “conjunctive management,” and several western states have taken steps to recognize the relationships between groundwater and surface water users. While the states’ recognition of the interplay between the two sources of water is an important measure to use when reviewing applications of new water users coming to the water source in the future, there is a danger of uncertainty and a tendency to incentivize inefficient and outdated water use techniques for current water users not wishing to invite regulatory review out of concern that previously allocated water will be unavailable.

This paper will review and analyze the current steps several western states have employed in the movement towards conjunctive management of surface and ground waters, and conclude with strategies for water users in states where “hydrologic connection” affects the use of surface and ground waters.
CODE COMPARISONS

Water use regulation is generally a creature of state law, and western states have taken different approaches in regulating water use between groundwater and surface water. Although there are different perspectives, nearly all western states place water in public ownership by the state.3 By declaring the water itself (the water molecules) to be public property, the states place themselves in the position of trustee of public resources and subject the use of water and water users to state regulation of water.

From this basic principle of state ownership, the states take diverging views of how surface and groundwater use is regulated. For example, in Oregon, Washington, and Idaho, there is a form of conjunctive management that recognizes the connected nature between some surface and groundwater uses.4 These states place restrictions on groundwater use when the water withdrawn from aquifers would interfere with senior surface water uses. Nevada does not presently use an explicit conjunctive management system where groundwater use is connected to surface water use.5 California, in applying its hybrid riparian and prior appropriation approach, uses a different approach from any other western state. “California’s body of law and regulations governing rights to the use of surface water and groundwater, taken as a whole, is one of the most complicated areas of law in the United States.”6 In California, the groundwater and surface water regulation is de-centralized, allowing local agencies to manage groundwater basins; the California Courts stating that matters of groundwater management are to be decided at the local level.7 Although California’s groundwater regulatory system is managed at the local level, the legislature has encouraged8 local agencies to adopt groundwater management plans,9 and has offered grants to carry out the local groundwater management activities.10

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3 See IDAHO CODE § 42-101 (2014); WASH. REV. CODE § 90.03.010 (2014); OR. REV. STAT. § 537.110 (2013); NEV. REV. STAT. § 533.025 (2014); CAL. WATER CODE § 102 (2014).
4 See generally OR. ADMIN. R. 690-009-0010 et seq.; WASH. REV. CODE § 90.44.030; IDAHO ADMIN. CODE r. 37.03.020 (2014).
5 See NEV. REV. STAT. § 534.110(5) (setting interference limitations between wells); see generally NEV. REV. STAT CH. 533 (using terms “stream system” and “groundwater” as exclusive systems).
7 See Baldwin v. County of Tehama, 31 Cal. App. 4th 166, 182 (Cal. App. 3d Dist. 1994) (“There is a common thread in these statutes which suggests that problems of groundwater management should be addressed on the local level.”).
8 See CAL. WATER CODE § 10750.4 (“Nothing in this part requires a local agency overlying a groundwater basin to adopt or implement a groundwater management plan or groundwater management program pursuant to this part.”).
9 CAL. WATER CODE § 10753.7(a)(5) (“The local agency shall adopt monitoring protocols that are designed to detect changes in groundwater levels, groundwater quality, inelastic surface subsidence for basins for which subsidence has been identified as a potential problem, and flow and quality of surface water that directly affect groundwater levels or quality or are caused by groundwater pumping in the basin. The monitoring protocols shall be designed to generate information that promotes efficient and effective groundwater management.”).
10 See CAL. WATER CODE § 10795.2–4 (creating a Local Groundwater Assistance Fund, and defining funded activities).
INJURY IN DIFFERENT JURISDICTIONS

In order to determine if there is truly an issue with conflicting water uses, the different jurisdictions define what it means to “cause” injury to other water users. Within the context of the prior appropriation doctrine, this injury can be considered to occur when a junior appropriator uses water that prevents a senior appropriator from being able to appropriate the full volume of water under his or her water right.

In Oregon, injury is analyzed at critical points in the state’s review of a water right application or an application to transfer water rights. In the transfer inquiry, “‘[i]njury to an existing water right’ is defined to mean that the ‘proposed transfer would result in a water right not receiving the water to which it is legally entitled.’” Additionally in the context of a groundwater rights application, the injury standard is for “substantial or undue influence,” meaning that the new groundwater appropriation’s effects are measured against competing senior wells, as well as senior surface water rights.

In Washington, the Department of Ecology similarly reviews injury during appropriation applications. The Washington statutes and courts both consider any impairment to existing water rights to preclude approval of an application to appropriate water. Allowing for even a de minimis impact to other water rights would frustrate the prior appropriation doctrine in Washington. However, impairment is a factual matter that must be established by the Department of Ecology, and the applicant is given an opportunity to challenge the determination of impairment. The continuity between a groundwater source and surface water is not enough to establish impairment by law; a factual impairment is still required.

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12 OR. ADMIN. R. 690-008-0001 (8) (2014) (“Substantial or Undue Interference” means the spreading of the cone of depression of a well to intersect a surface water body or another well, or the reduction of the ground water gradient and flow as a result of pumping, which contributes to:
   (a) A reduction in surface water availability to an extent that:
      (A) One or more senior surface water appropriators are unable to use either their permitted or customary quantity of water, whichever is less; or
      (B) An adopted minimum streamflow or instream water right with an effective date senior to the causative ground water appropriation(s) cannot be satisfied.”).
13 WASH. REV. CODE § 90.03.290 (“if it shall find that there is water available for appropriation for a beneficial use, and the appropriation thereof as proposed in the application will not impair existing rights or be detrimental to the public welfare, it shall issue a permit stating the amount of water to which the applicant shall be entitled and the beneficial use or uses to which it may be applied . . .”).
14 Id.; Postema v. Pollution Control Hearings Bd., 142 Wn.2d 68, 90 (2000) (“RCW 90.03.290 does not, however, differentiate between impairment of existing rights based on whether the impairment is de minimis or significant. If withdrawal would impair existing rights, the statute provides the application must be denied.”).
15 See Swinomish Indian Tribal Cmty. v. Dep’t of Ecology, 178 Wn.2d 571, 591 (2013).
16 Postema, 142 Wn.2d at 117.
17 Id.
Idaho defines material injury in its conjunctive management administrative rules.\textsuperscript{18} Idaho’s statutes gives the Director of the Department of Water Resources a list of factors to consider whether a holder of a water right is suffering material injury including: the amount of water available from the source, the effort and expense of diverting the water, ratios of irrigated acreage and rates of diversion, the amount of the water being diverted and used compared to the water rights, and the extent to which the requirement of a senior water rights holder can be met using alternate means of diversion.\textsuperscript{19} This discretion given to the Idaho Department of Water Resources is available in the context of a water management function as compared to a water rights case.\textsuperscript{20}

Nevada’s dual regulatory framework for surface and groundwater appropriately gives two standards of injury. The State Engineer is authorized to conduct investigations and restrict withdrawals based on priority from aquifers when “the average annual replenishment to the groundwater supply may not be adequate for the needs of all permittees and all vested-right claimants.”\textsuperscript{21} Surface water rights are measured against the “conflicts with existing rights”\textsuperscript{22} standard, which is a factual matter determined by the State Engineer and given great deference.\textsuperscript{23}

California’s hybrid laws regarding prior appropriation and riparian doctrines also give rise to two separate standards of injury. “Injury from a change in place of use generally occurs when use at the new location results in the appropriator using a greater amount of water than he was entitled to . . . or when use at the new location reduces return flows to the watercourse, thus reducing the amount of water available for diversion by downstream users.”\textsuperscript{24} And California also allows the change of a point of diversion, provided the change does not injure superior water rights holders.\textsuperscript{25} As mentioned supra, groundwater is regulated at the local level with varying standards of interference and injury.

**HYDROLOGIC CONNECTION**

The primary way to allow for dual regulation of both groundwater and surface water is to demonstrate that there is a link between the two sources of water. Creating either a legal or factual link between the two water sources can give the regulating body the authority to curtail groundwater use when it affects surface water flows. Scientific surveys and legal presumptions are both employed to demonstrate hydraulic connection.

\textsuperscript{18} IDAHO ADMIN. CODE r. 37.03.011.010.14 (2014) (“Material Injury. Hindrance to or impact upon the exercise of a water right caused by the use of water by another person as determined in accordance with Idaho Law, as set forth in Rule 42.”).

\textsuperscript{19} IDAHO ADMIN. CODE r. 37.03.011.042.01 (2014).

\textsuperscript{20} See A&B Irrigation v. Spackman (In re A&B Irrigation Dist.), 2013 Ida. LEXIS 368, 36 (Idaho Dec. 17, 2013) (“We went on to note that the Director has discretionary authority in a water management case that is not available to him in a water rights case . . . ”).

\textsuperscript{21} NEV. REV. STAT. § 534.110(6) (2014).

\textsuperscript{22} NEV. REV. STAT. § 533.370(2) (2014).


\textsuperscript{25} CAL. WATER CODE § 1706 (2014).
For example, in Oregon, there is a presumption that wells drawing from unconfined aquifers within one-fourth of a mile from surface waters are hydraulically connected. So when applying for a groundwater permit in Oregon within one-fourth of a mile from a surface source, this legal presumption places the burden on the applicant to demonstrate that either the aquifer is a confined and distinct aquifer, or that the unconfined aquifer is not hydrologically connected to the surface waters. Both requirements effectively short-cut the decision making process for the regulating body, and place the burden of producing scientific data on the applicant. Some river basins in Oregon have been found to have a high degree of surface water to groundwater connectivity due to the origins of the water being from underground aquifers.

Washington uses a basin-by-basin approach when identifying the hydraulic continuity between ground and surface waters. For example, in the Okanogan River Basin, the applicable rule uses the term “significant hydraulic continuity,” which the Washington Court of Appeals approved noting the significance of the connection being of paramount importance. In the Walla Walla River basin, the Department of Ecology used the hydrogeology of the basin to “find[] that gravel aquifers in the basin are hydraulically connected to surface waters in the basin” thereby allowing the basin to be closed to future groundwater appropriations.

In Idaho, the Supreme Court has stated that “hydrologically connected surface and ground waters must be managed conjunctively.” However, the court did not specifically define “hydrologically connected,” nor do Idaho’s statutes or rules use that phrase. Although the exact determination is left out of the court’s record, the State’s conjunctive management rules use the term “Area Having a Common Ground Water Supply” when there is a connection to surface waters.

With neither California or Nevada employing a state-wide conjunctive management system, the requirement of hydrologic connection to surface waters does not apply with

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29 Hubbard v. Department of Ecology, 86 Wn. App. 119, 126 (1997) (“WAC 173-549-060 does not ask whether the proposed use will be significant, but whether there is a significant connection (hydraulic continuity) between the proposed groundwater source and the river.”).
30 WASH. ADMIN. CODE § 173-532-040(2).
32 See IDAHO ADMIN CODE r. 37.03.11.10 (2014) (“Area Having a Common Ground Water Supply. A ground water source within which the diversion and use of ground water or changes in ground water recharge affect the flow of water in a surface water source or within which the diversion and use of water by a holder of a ground water right affects the ground water supply available to the holders of other ground water rights.”)
the same force as it does within Oregon, Idaho, and Washington. Although not specifically instructed to manage conjunctively or to determine hydrologic connection between surface water and groundwater, the Nevada State Engineer is authorized to conduct hydrological studies in the approval process of appropriations.\textsuperscript{33}

**MANAGEMENT BETWEEN SURFACE WATER AND GROUND WATER**

With the above considerations, several of the western states have adopted methods for regulating the interplay between surface and ground waters, giving rise to the conjunctive management system.

**Preservation of Surface Water Priority**

In Washington, Oregon, and Idaho, surface water is given priority over groundwater when there is a conflict between groundwater and surface water.\textsuperscript{34} These priorities make sense when considering the timing of the surface water and ground water code adoption, as well as historical practice.

In order to develop the western expansion during the 19th century, territorial governments adopted the prior appropriation doctrine allowing the first person to beneficially use diverted water to have the first priority to use the water. When diverting the water, the first sources to be used were naturally-flowing surface waters, because of the accessibility of the water, the lack of sophisticated well drilling techniques and equipment, as well as the historical settling and clearing of the land near surface water sources. With these systems and historical uses in context, there was not the present scientific understanding that groundwater was necessarily related to surface waters in many areas.

When Washington and Oregon passed their surface water codes in 1917 and 1909 respectively, surface water was the only regulated appropriation; groundwater was not regulated at the time the surface water codes were passed. As well drilling technology changed moving forward into the 1940s and 1950s, Washington and Oregon passed their groundwater codes with specific portions of the groundwater codes giving priority to surface waters. Idaho’s rules for its conjunctive management give surface water priority over groundwater.\textsuperscript{35} Idaho adopted these conjunctive management rules in 1994, following adoption of its surface water code in 1971, and groundwater code in 1963. While the rules recognize the prior appropriation doctrine, the legal doctrine of reasonable use was adopted as follows: “[a]n appropriator is not entitled to command the entirety of large volumes of water in a surface or ground water source to support his

\textsuperscript{34} Wash. Rev. Code § 90.44.030 (2014); Or. Rev. Stat. § 537.525(9) (2013); Idaho Admin Code r. 37.03.020 (2014).
\textsuperscript{35} See Idaho Admin. Code r. 37.03.020.01 (2014) (“These rules apply to all situations in the state where the diversion and use of water under junior-priority ground water rights either individually or collectively causes material injury to uses of water under senior-priority water rights. The rules govern the distribution of water from ground water sources and areas having a common ground water supply.”).
appropriation contrary to the public policy of reasonable use of water as described in this rule.” The limitation of reasonable use relates to the concept of material injury, discussed supra.

Movement Between Surface Water Rights and Ground Water Rights

In the early days of managing surface water sources for instream values, there was a movement to take surface water diversions off-channel where it was presumed the diversion would do less damage to fish. This movement was easily supported by conjunctive management which gave surface water users the ability to transfer from established surface water diversions to a groundwater appropriation via a well. Thus, if ground water and surface water were considered a single source, the change in point of diversion would not be as of much consequence to the source itself.

Oregon allows such “hydrologically connected transfers” between surface and ground water if there is no injury to existing priority water right holders, and the applicant satisfies the public interest review conducted by the Oregon Water Resources Department.36 In comparison, states without conjunctive management systems do not allow a transfer between ground water and surface water. Nevada maintains separate methods of regulation and does not provide for a mechanism for transfers between surface water and groundwater.

**STRATEGIES FOR WATER USERS IN “HYDROLOGICAL CONNECTION” STATES**

Given the shifting nature of regulation from separately regulated regimes in surface water and groundwater, there are serious issues facing entities or individuals seeking to use, expand, or transfer water in jurisdictions employing conjunctive management. By lumping all of the water in hydrologically connected areas, groundwater appropriators fare the worst under the prior appropriation doctrine because the connected surface water receives a resulting kind of “super priority.”

So what are some strategies that new appropriators can employ to put water to beneficial use in areas where conjunctive management is prohibiting further development of the water resources? The below four suggestions and strategies take into account the competing nature of conjunctive management, and in turn address the “lumping” of water sources when state regulatory agencies review new water right applications.

**Hydrological studies to prove lack of connection**

The threshold issue in many conjunctive management cases is, whether as a matter of physical fact, groundwater is hydrologically connected to surface waters. In Washington and Oregon for example, hydrological connection between surface and groundwater may be presumed, and in order to move a new application past the initial review stage to

determine if water is available, it may be necessary to prove that the groundwater sought is not hydrologically connected to the surface waters at issue.

This approach, as designed through rebuttable presumptions, places the burden of production and proof on the applicant by requiring a factual showing against the presumption of hydrologic connection or substantial interference with typically over-subscribed surface waters. While this type of investigation has the potential to be costly to the applicant by requiring the employment of hydrogeologists and compiling a study of the aquifer at issue, this may be the only way for a new appropriation to take place in an area that is already presumed to interfere with, or adversely affect nearby surface waters.

The downside of this method is that if the regulating entity disagrees with the factual conclusions, there is a high likelihood of litigation or administrative hearing on the issue where the law presumes that an agency is correct, thereby increasing costs, and with the agency against the applicant, may result in a denial even after several rounds of studies and hearings.

While this may be one option for new appropriator to explore, employing a study of the groundwater in the area may be just one of the initial steps involved in an overall water application process. Nevertheless, the discovery that a groundwater source is not hydraulically connected could be good news and provide a short-cut to the approval process.

**Drill groundwater wells into non-connected aquifers and use sealing techniques**

As mentioned above, the first step in obtaining a new groundwater use is determining if a groundwater source is, or is not, hydraulically connected to a surface water source. Should there be conclusive evidence to rebut presumptions of interference with surface sources, that factual showing could end the inquiry of whether conjunctive management would be a necessary consideration. However, as part of the groundwater study, there could also be an inquiry or exploration of groundwater at deeper levels, in hydrologically unconnected aquifers separated by impermeable layers.

This additional inquiry could open up groundwater for appropriation if groundwater use has not been completely foreclosed by rule in the area. By penetrating beyond the hydrologically connected aquifer and sealing any interaction between the well and the hydrologically connected aquifer, this could open up the possibility of obtaining water at a deeper level. While this method could allow for the groundwater use, the method will likely cause increased pumping costs. However, increased costs of withdrawal may be better than having no right to access groundwater at all.

Of course, great care should be undertaken to ensure that state well construction standards are met, which likely includes prohibitions on drilling wells that allow water to
move between aquifers.\textsuperscript{37} Consulting well drillers who work in the area and studying area well logs may provide a notion as to whether the project is feasible before a full study is undertaken.

**Advocate for drawdown conditions on last coming to the source**

During the new water use application review process, senior water rights holders typically may comment, or protest any proposed agency approval prior to permit or license issuance. Sometimes a protestant can negotiate successfully to add conditions that will restrict the new junior use from drawing water from the aquifer that would lower the water level at a senior appropriator’s well.

Although most new groundwater users are not interested in conditioning use, if a senior appropriator is protesting and can actually prove injury, a measurable condition, while limiting, can allow for at least some use of groundwater—when without a condition, nothing would be available. Establishing a drawdown benchmark would similarly relate to the hydrologically connected surface waters which may also suffer from reduced flows. As always, some limit is better than no water at all.

In addition, although the water will be subject to the drawdown condition, it would encourage the most efficient use of water given the limited amount, and could encourage joint cooperation between competing groundwater appropriators to maintain drawdown levels and develop strategies within the affected resource area to use the most efficient methods of water application.

**Collectively purchase the connected water rights and manage conjunctively under one ownership**

As a final strategy, the water rights in surface or ground water conjunctive area boundary could be consolidated into collective ownership and managed through a centralized distribution system. While there would still be state control in how these operations are managed, mechanisms in state law allow the formation of public entities such as irrigation districts, or private corporations which could allow for collective management of both surface and ground water. In addition, contractual rotation agreements can serve as a type of self-regulation to ensure that both surface and groundwater sources are not “mined” unnecessarily to the detriment of the other.

As much of the available water in many areas is being reserved for non-consumptive uses, such as wildlife and recreation, in parallel, organizations could be focusing their efforts on taking up any remaining water past these state initiated non-consumptive appropriations if there are legitimate development goals that can use water beneficially.

\textsuperscript{37} See, e.g., OR. ADMIN. R. 690-200-0043 (2013) (“A water supply well shall not be constructed in a manner that allows commingling or leakage of ground water by gravity flow or artesian pressure from one aquifer to another.”).
CONCLUSION

Recognizing that water is connected in certain situations is not surprising to anyone who has dug a hole in the sand at the beach. However, beyond that simple comparison, two separate legal systems have evolved over the past century and a half, with firm rights given to water users over that timeframe. Lifestyles, consumer expectations, and communities have followed that development. The movement forward into a unified water management system has issues to overcome where deeply rooted legal theories are being reshaped into more interconnected systems. These changes can cause uncertainty and prohibit development in some situations, but creative ways of looking at the law and the facts of the situation could enable some new water users to come to the table. Although it will not be as simple as digging a ditch from the stream to the farmland, with difficult times come creative measures, and we are up to the task.

REFERENCED STATE INFORMATION

**Washington**

Surface Water Code Date: 1917  
Ground Water Code Date: 1945

**Oregon**

Surface Water Code Date: 1909  
Ground Water Code Date: 1955

**California**

Surface Water Code Date: 1914  
Ground Water Code Date: N/A

**Idaho**

Surface Water Code Date: 1971  
Ground Water Code Date: 1963

**Nevada**

Surface Water Code Date: 1913  
Ground Water Code Date: 1939