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## Alice in Groundwater Land: Water Supply Assessments and Subsurface Water Supplies

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## ARTICLE

ALICE IN GROUNDWATER LAND:  
WATER SUPPLY ASSESSMENTS AND  
SUBSURFACE WATER SUPPLIES*KEVIN M. O'BRIEN\**

California is the only western state that still treats surface water and groundwater under separate and distinct legal regimes. The persistence of these alternative regimes inevitably leads to thorny issues of classification and boundary-setting. As the present case illustrates, classification disputes in this field quickly take on an Alice-in-Wonderland quality . . . .<sup>1</sup>

## I. INTRODUCTION

In 2001 California enacted legislation (Senate Bill 610, or SB 610) requiring operators of public water systems to prepare water supply assessments (WSAs) that analyze whether water supplies are sufficient

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<sup>1</sup> N. Gualala Water Co. v. State Water Res. Control Bd., 139 Cal. App. 4th 1577, 1590 (Ct. App. 2006) (citation omitted).

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for certain proposed development projects.<sup>2</sup> If the water supply for a proposed project includes groundwater, then the operator must analyze whether groundwater supplies will be sufficient to meet the projected demand associated with the project.<sup>3</sup> The new statutory requirements are thoroughly sensible from a public-policy standpoint; however, their real-world application has been fraught with challenges in the groundwater context. The challenges lie in California's long tradition of decentralized management—its “patchwork quilt” of measurement, management and water rights administration—because this management has been at odds with the Legislature's efforts to inject precision and certainty into water supply and land use planning processes.<sup>4</sup>

The purpose of this Article is to explore the preparation of WSAs in the context of subsurface water supplies. The term “subsurface water supplies” is used here rather than “groundwater” because, as discussed below, the proponent of a development project may propose to utilize a subsurface water supply (such as water produced from beneath the surface of land via a well or a flowing spring) that is not properly classified as groundwater because it falls within the legal definition of subterranean stream flow. In such a case, the supply would be subject to the water rights permitting jurisdiction of the State Water Resources Control Board. A central premise of this Article is that, in the context of subsurface water supplies, the level of scientific and legal certainty required under SB 610-related statutes often does not exist in California. Recent appellate decisions suggest that the courts will afford public water-system operators substantial discretion in determining the sufficiency of subsurface supplies under SB 610. Looking forward, a key question is whether public water systems will consistently exercise such discretion in a manner that ensures the prudent management of the state's groundwater resources.

## II. THE IMPORTANCE OF GROUNDWATER AS A SOURCE OF SUPPLY

According to the California Department of Water Resources (DWR), there are 431 groundwater basins delineated in California, underlying forty percent of the surface area of the state.<sup>5</sup> Of those,

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<sup>2</sup> S.B. 221, ch. 642, 2001 Cal. Stat. 88; S.B. 610, ch. 643, 2001 Cal. Stat. 94.

<sup>3</sup> See *infra* Part III.

<sup>4</sup> Gregory S. Weber, *Twenty Years of Local Groundwater Export Legislation in California: Lessons from a Patchwork Quilt*, 34 NAT. RES. J. 657 (1994).

<sup>5</sup> CAL. DEP'T OF WATER RES., BULLETIN 118, at 106 (2003), available at [www.water.ca.gov/pubs/groundwater/bulletin\\_118/california's\\_groundwater\\_bulletin\\_118\\_-\\_update\\_2003\\_/bulletin118\\_entire.pdf](http://www.water.ca.gov/pubs/groundwater/bulletin_118/california's_groundwater_bulletin_118_-_update_2003_/bulletin118_entire.pdf) [hereinafter *DWR BULLETIN*].

twenty-four basins are subdivided into a total of 108 sub-basins, giving a total of 515 distinct groundwater systems.<sup>6</sup> Attempting to delineate groundwater basin boundaries in the context of a particular development proposal can be a challenging and costly task because the geology typically does not lend itself to the drawing of precise basin boundary lines.<sup>7</sup>

Groundwater is an increasingly important part of California's water supply mix. It provides about thirty percent of the state's water supply in an average year,<sup>8</sup> and in some regions, groundwater provides sixty percent or more of the supply during dry years.<sup>9</sup> While the construction of surface water infrastructure has slowed significantly over the past several decades, groundwater development "continues at a strong pace."<sup>10</sup> Even if new surface-water storage and conveyance projects are eventually constructed, it appears likely that the new supplies will be utilized principally to increase the reliability of existing water uses and to enhance water supplies for public-trust uses, particularly fish. In any event it seems likely that proponents of new development projects will continue to look to groundwater as a key source of supply.

### III. STATUTORY REQUIREMENTS: WATER SUPPLY ASSESSMENTS FOR SUBSURFACE WATER SUPPLIES

SB 610 requires public water agencies to prepare WSAs to assess the sufficiency of water supplies for certain proposed development projects in order to assist local governments in deciding whether to approve the projects.<sup>11</sup> An WSA must describe whether the public water agency's "total projected water supplies available during normal, single dry, and multiple dry water years" for a twenty-year period will meet the "projected water demand [for] the proposed project," taking into account the agency's "existing and planned future uses, including agricultural and manufacturing uses."<sup>12</sup> If the water supplies will be provided by a local government (such as a city or county) then the local government must prepare the WSA.<sup>13</sup> The local government must include the WSA in the environmental document for the project and consider it when deciding

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<sup>6</sup> *Id.* at 106.

<sup>7</sup> *Id.*

<sup>8</sup> *Id.* at 2.

<sup>9</sup> *Id.*

<sup>10</sup> *Id.* at 27.

<sup>11</sup> CAL. WATER CODE §§ 10910-10915 (Westlaw 2010).

<sup>12</sup> *Id.* § 10910(c)(3).

<sup>13</sup> *Id.* § 10910(b).

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whether to approve the project.<sup>14</sup>

When the water supply for the proposed project includes groundwater, the WSA must discuss and analyze specific information pertaining to the groundwater sources and supply.<sup>15</sup> In particular, a WSA that relies in part on groundwater is required to (1) consider information in any urban water-management plan relevant to supplies for the project;<sup>16</sup> (2) describe the groundwater basin or basins that will supply the project;<sup>17</sup> (3) describe and analyze past groundwater pumping by the water supplier from the basin that will supply the project, based on reasonably available information;<sup>18</sup> (4) describe and analyze projected future pumping by the water supplier from the basin, again based on reasonably available information;<sup>19</sup> and (5) conduct an analysis of the sufficiency of the groundwater from the basin or basins from which the proposed project will be supplied to meet the demands of the proposed project.<sup>20</sup>

For a basin in which a court or the State Water Resources Control Board (SWRCB) has adjudicated the rights to pump groundwater, the WSA must include a copy of the order or decree adopted by the court or the Board and a description of the amount of groundwater the public water system, or the city or county as applicable, has the legal right to pump under the order or decree.<sup>21</sup> For a basin that has not been adjudicated, the WSA must include information as to whether the DWR has identified the basin as overdrafted or has projected that the basin will become overdrafted if present management conditions continue, and a detailed description of the efforts being undertaken to eliminate overdraft.<sup>22</sup>

To date there has been one appellate decision interpreting the groundwater provisions of SB 610. In *O.W.L. Foundation v. City of Rohnert Park*, the central issue was the sufficiency of the groundwater analysis contained in a WSA adopted by the City of Rohnert Park (the City was processing approvals for six development projects contemplated in its general plan).<sup>23</sup> The trial court concluded that the

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<sup>14</sup> *Id.*

<sup>15</sup> *Id.* § 10910(f).

<sup>16</sup> *Id.* § 10910(f)(1).

<sup>17</sup> *Id.* § 10910(f)(2).

<sup>18</sup> *Id.* § 10910(f)(3).

<sup>19</sup> *Id.* § 10910(f)(4).

<sup>20</sup> *Id.* § 10910(f)(5).

<sup>21</sup> *Id.* § 10910(f)(2).

<sup>22</sup> *Id.*

<sup>23</sup> *O.W.L. Found. v. City of Rohnert Park*, 168 Cal. App. 4th 568 (Ct. App. 2008).

WSA did not comply with the statute because it did not assess water demands and projected pumping by all other parties taking water from the same groundwater basin.<sup>24</sup> On appeal, the City argued that the statute contains no such requirement but instead allows water suppliers flexibility in determining how to measure groundwater sufficiency for a proposed project.<sup>25</sup> Plaintiffs and respondents (OWL) conceded that it is unrealistic to expect a water supplier to analyze actual pumping by all users in a large groundwater basin but nonetheless argued that a study area selected by the water supplier to assess groundwater sufficiency must be representative of conditions in the basin.<sup>26</sup> OWL contended that the City's relatively small study area was not representative of the subject groundwater basin because its boundaries were defined by a watershed boundary that extended beyond the borders of the groundwater basin.<sup>27</sup>

The Court of Appeal, First Appellate District, held that a WSA need not analyze groundwater pumping by all users in an entire basin and that the statute does not specify a particular methodology for a sufficiency analysis.<sup>28</sup> The court noted the "infeasibility" of conducting a basin-wide analysis of groundwater uses given that the basin in question was large geographically, included several different municipal jurisdictions and had a large number of private wells.<sup>29</sup> Importantly, the court rejected OWL's contention that a substantial evidence standard of review applies.<sup>30</sup> The statute "affords the water supplier substantial discretion in determining how to measure groundwater sufficiency."<sup>31</sup> The court noted that "[i]n technical matters requiring the assistance of experts and the use and interpretation of scientific data, we give substantial discretion to administrative agencies. . . . Our task is limited to determining whether the agency action is arbitrary, capricious, or entirely lacking in evidentiary support."<sup>32</sup> While the discretion afforded to the agency is "not boundless," the court determined that the City acted well within its discretion in adopting the WSA based on a sample study area.<sup>33</sup>

*O.W.L. Foundation* is important because it establishes the standard

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<sup>24</sup> *Id.* at 580.

<sup>25</sup> *Id.* at 574.

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

<sup>27</sup> *Id.*

<sup>28</sup> *Id.*

<sup>29</sup> *Id.* at 591.

<sup>30</sup> *Id.* at 586.

<sup>31</sup> *Id.* at 574.

<sup>32</sup> *Id.* at 593.

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

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that will apply to the judicial review of WSAs. The deferential standard adopted by the court will provide public water systems with substantial latitude in the selection of methodologies for determining the adequacy of subsurface water supplies. A party challenging the adequacy of a WSA will have a heavy burden to demonstrate that the agency action is “arbitrary, capricious, or entirely lacking in evidentiary support.”<sup>34</sup>

#### IV. AREAS OF UNCERTAINTY IN THE IMPLEMENTATION OF SB 610 IN THE CONTEXT OF SUBSURFACE WATER SUPPLIES

##### A. CLASSIFICATION OF SUBSURFACE WATER SUPPLIES

Section 1200 of the California Water Code provides that the water right permitting authority of the SWRCB extends to surface water and to “subterranean streams flowing through known and definite channels.”<sup>35</sup> Accordingly, subsurface water produced from one or more wells may be susceptible to the argument that the source of supply is subterranean stream flow rather than “percolating” groundwater and that, in order to produce and use the subsurface water, a water right permit from the SWRCB must be obtained or another type of surface water right, such as a riparian right, must be established.

A recent decision of the California Court of Appeal, First Appellate District, brings some clarity to this area of California law. In *North Gualala Water Co. v. State Water Resources Control Board*, the court upheld the SWRCB’s assertion that a water company must obtain an appropriative water right permit in order to pump subsurface water from two production wells located near a stream.<sup>36</sup> In that case a water company provided municipal water service in and around the Town of Gualala in Mendocino County.<sup>37</sup> The company developed two production wells in an area adjacent to the North Fork of the Gualala River.<sup>38</sup> Both wells were located approximately two hundred feet from the river.<sup>39</sup> According to the company’s engineering consultant, the water produced from the wells was not flowing in a subterranean stream; rather, the subject aquifer was maintained by a combination of deep percolation of surface precipitation during the rainy season and

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<sup>34</sup> *Id.* at 594.

<sup>35</sup> CAL. WATER CODE § 1200 (Westlaw 2010).

<sup>36</sup> *N. Gualala Water Co.*, 139 Cal. App. 4th 1577.

<sup>37</sup> *Id.* at 1581.

<sup>38</sup> *Id.* at 1582.

<sup>39</sup> *Id.*

subsurface flow from the underlying bedrock formations into the alluvium during the dry season.<sup>40</sup>

In a 1999 decision, the SWRCB established a four-part test for determining whether subsurface water falls within its permitting authority: (1) a subsurface channel must be present, (2) the channel must have a relatively impermeable bed and banks, (3) the course of the channel must be known or capable of being determined by reasonable inference, and (4) groundwater must be flowing in the channel.<sup>41</sup> In the appellate proceedings in *North Gualala*, the company accepted the SWRCB's four-part test with certain qualifications but argued that groundwater produced from the two wells did not satisfy the test because (1) the only subsurface channel present did not narrow or contract in the direction of the flow as required under a correct application of the four-part test, (2) the second element of the test was not satisfied because there was no actual flow boundary at the interface between the bedrock forming the bed and banks of the alluvial channel and the alluvium, and (3) the groundwater produced by the wells was not flowing "in the channel" but in a direction perpendicular to it.<sup>42</sup>

The court of appeal began its analysis with the observation that California is the only western state that still treats surface water and groundwater under separate legal regimes and that classification disputes in this field quickly take on an "Alice-in-Wonderland quality" because the legal categories "are drawn from antiquated case law and bear little or no relationship to hydrological realities."<sup>43</sup> While ruling that the SWRCB's interpretation of Section 1200 of the Water Code is entitled to only "limited deference," the court concluded that the record contained substantial evidence supporting the SWRCB determination that the four-part test had been satisfied.<sup>44</sup> In reaching this conclusion the court rejected the company's arguments that (1) for a channel to be "defined" its width must be narrowing as the groundwater flows through it; (2) the bed and banks of a subterranean channel must be a "significant boundary" rather than "relatively impermeable"; and (3) the groundwater flow direction must more closely follow the course of the channel than was the case in *North Gualala*.<sup>45</sup> In the author's view, the court's analysis and disposition of the latter issue was suspect; while

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<sup>40</sup> *Id.* at 1583.

<sup>41</sup> *In re Garrapata Water Co.*, State Water Res. Control Bd. Dec. No. 1639 (June 17, 1999).

<sup>42</sup> *N. Gualala Water Co.*, 139 Cal. App. 4th at 1586.

<sup>43</sup> *Id.* at 1590.

<sup>44</sup> *Id.* at 1604.

<sup>45</sup> *Id.* at 1589.



acknowledging that, in order to fall within the definition of “subterranean stream,” the subsurface flow must be in the same general direction as flow in the stream channel, the court accepted as “substantial evidence” an opinion by a Department of Fish and Game expert that purported to explain away, on geologic grounds, the fact that subsurface flow in the vicinity of the subject wells was indisputably perpendicular to the stream channel.<sup>46</sup>

*North Gualala* is significant in the context of SB 610 because it opens the door to SWRCB assertion of rather extensive jurisdiction over subsurface water. To illustrate this point some historical background may be useful. In the early 2000s, the SWRCB contracted with Professor Joseph Sax of the University of California Berkeley, who rendered a report in 2002 entitled “Review of the Laws Establishing the SWRCB’S Permitting Authority over Appropriations of Groundwater Classified as Subterranean Streams and the SWRCB’S Implementation of Those Laws.”<sup>47</sup> The “Sax Report” embraced two principal positions. First, it advocated that Water Code § 1200 be read to grant the SWRCB authority over groundwater when the extraction of that groundwater would have an “appreciable and direct impact” on a surface stream.<sup>48</sup> Second, it suggested that the SWRCB possesses and should exercise authority over groundwater, either under the public-trust doctrine or under the waste-and-unreasonable-use doctrine, when the extraction of groundwater may have an adverse impact on environmental resources.<sup>49</sup> To date, neither position has been adopted by the SWRCB. The Sax Report is also significant for its thoughtful discussion of the potential implications of the “subterranean stream” test in relation to SWRCB water right jurisdiction. Professor Sax stated:

If the Board were to take the view that a channel must fit the definition of being like “a trench, furrow, or groove” or “a tubular passage” [the standard definition of the term from the American Heritage Dictionary]—that is, something essentially long and narrow—it would doubtless be drawn toward the more restricted view of its jurisdiction that some urge, sticking to the immediate confines of the channels of

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<sup>46</sup> *Id.* at 1581.

<sup>47</sup> JOSEPH SAX, STATE WATER RES. CONTROL BD., REVIEW OF THE LAWS ESTABLISHING THE SWRCB’S PERMITTING AUTHORITY OVER APPROPRIATIONS OF GROUNDWATER CLASSIFIED AS SUBTERRANEAN STREAMS AND THE SWRCB’S IMPLEMENTATION OF THOSE LAWS (Jan. 2002), available at [www.waterboards.ca.gov/waterrights/water\\_issues/programs/hearings/groundwater\\_classification/docs/substreamrpt2002jan20.pdf](http://www.waterboards.ca.gov/waterrights/water_issues/programs/hearings/groundwater_classification/docs/substreamrpt2002jan20.pdf)

<sup>48</sup> *Id.* at 50.

<sup>49</sup> *Id.*

surface streams. On the other hand, if a channel can be quite broad and un-furrow-like, so long as it is enclosed by relatively impermeable beds and banks, subterranean stream jurisdiction could be quite extensive.<sup>50</sup>

A WSA that assesses the adequacy of a subsurface water supply should address the legal classification of the supply, applying the standards enunciated in *North Gualala*. In some settings this will require extensive analysis of the geologic and hydrologic nature of the subsurface water source. It is conceivable, in the wake of *North Gualala*, that the SWRCB will become more active in reviewing and commenting on WSAs and related environmental documents in situations where the SWRCB's water right permitting jurisdiction may be implicated. The key question—which remains unanswered—is whether the SWRCB will attempt to utilize *North Gualala* to assert subterranean stream jurisdiction that is “quite extensive,” as posited by Professor Sax.

#### B. WATER SUPPLY ASSESSMENTS IN NON-ADJUDICATED BASINS

According to the California Department of Water Resources, there are nineteen court adjudications of groundwater basins in California, located primarily in Southern California.<sup>51</sup> In most adjudications the court appoints a watermaster to oversee the court judgment.<sup>52</sup> In fifteen of the adjudications, the judgment limits the amount of groundwater that can be extracted by all parties, based on a court-determined safe yield of the basin.<sup>53</sup> If demand for water exceeds supply, and supplemental water is available (for example, through importation of State Water Project water), the judgment will typically include provisions for allocating the costs associated with supplemental water.<sup>54</sup>

Most groundwater basins in California have not been adjudicated.<sup>55</sup> In a non-adjudicated basin, the preparation of a WSA for a proposed development project that will utilize groundwater (in whole or in part) can be quite complicated, requiring an assessment of hydrologic conditions, existing and future demand for groundwater and, in some instances, water right priorities. The following discussion highlights some of the key issues that may arise.

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<sup>50</sup> *Id.* at 49-50 (footnote omitted).

<sup>51</sup> *DWR BULLETIN*, *supra* note 5, at 40.

<sup>52</sup> *Id.*

<sup>53</sup> *Id.*

<sup>54</sup> *Id.*

<sup>55</sup> *Id.*

*i. Water Right Priorities*

In California, water rights to percolating groundwater are not established under a state-administered permit system; rather, they arise by operation of law.<sup>56</sup> Courts typically classify water rights in a basin as overlying, appropriative, or prescriptive.<sup>57</sup> An overlying right, “analogous to that of the riparian owner in a surface stream, is the owner’s right to take water from the ground underneath for use on his land within the basin or watershed; it is based on the ownership of the land and is appurtenant thereto.”<sup>58</sup> One with overlying rights has rights superior to those of other persons who lack legal priority, but is nonetheless restricted to a reasonable beneficial use.<sup>59</sup> In contrast to overlying rights, the right of an appropriator depends upon the actual taking of water.<sup>60</sup> If the taking is wrongful, it may ripen into a prescriptive right.<sup>61</sup> Under the doctrine of prescription, pumping from a basin that is in a condition of overdraft fulfills the requirement of “hostility” required for the establishment of a prescriptive right.<sup>62</sup> “An appropriative taking of water which is not surplus is wrongful and may ripen into a prescriptive right where the use is actual, open and notorious; hostile and adverse to the original owner; continuous and uninterrupted for the statutory period of five years; and under claim of right.”<sup>63</sup> Even these acquired rights, however, may be interrupted without resort to the legal process if the owners engage in self-help and retain their rights by continuing to pump non-surplus waters.<sup>64</sup>

In determining water right priorities for a proposed new use of water in a non-adjudicated basin, the threshold issue is whether the right to be utilized is overlying in character.<sup>65</sup> Significantly, public use of groundwater is generally not deemed an overlying use; municipalities, for example, typically utilize appropriative rights for purposes of municipal water supply.<sup>66</sup> Thus, if the proposed use will be undertaken

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<sup>56</sup> City of Barstow v. Mojave Water Agency, 23 Cal. 4th 1224, 1243 (2000).

<sup>57</sup> Cal. Water Serv. Co. v. Edward Sidebotham & Son, Inc., 224 Cal. App. 2d 715, 725 (Dist. Ct. App. 1964).

<sup>58</sup> *Id.* at 725.

<sup>59</sup> City of Barstow, 23 Cal. 4th at 1240.

<sup>60</sup> *Id.*

<sup>61</sup> Cal. Water Serv. Co., 224 Cal. App. 2d at 725.

<sup>62</sup> City of Barstow, 23 Cal. 4th at 1241.

<sup>63</sup> Cal. Water Serv. Co., 224 Cal. App. 2d at 725-26.

<sup>64</sup> Hi-Desert County Water Dist. v. Blue Skies Country Club, Inc., 23 Cal. App. 4th 1723, 1731 (Ct. App. 1994).

<sup>65</sup> *Id.* at 1727.

<sup>66</sup> City of San Bernardino v. City of Riverside, 186 Cal. 7 (1921).

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by a city, county or special district, then, absent prescription, the right will typically be classified as appropriative in nature. If the right to be utilized is appropriative in nature, then it will be necessary to establish that there is an increment of the safe yield of the basin that is surplus to the needs of active overlying users.<sup>67</sup> As discussed below, the SB 610 analysis should also consider whether overlying users who are not currently exercising their rights, known as “dormant” overlayers, may do so in the future.

*ii. Dormant Overlying Rights*

California law regarding to the nature and extent of the rights held by dormant overlayers is not entirely clear. In *Wright v. Goleta Water District*, the court of appeal found the trial court erred in holding that a water district’s appropriative rights had a higher priority than the overlying owners’ unexercised rights.<sup>68</sup> The court also held that the trial court could not define or otherwise limit an overlying owner’s future unexercised groundwater rights,<sup>69</sup> in contrast to the California Supreme Court’s decision in *In re Waters of Long Valley Creek Stream System*, which sanctioned the limitation of unexercised riparian rights.<sup>70</sup> In a recent decision, however, the California Supreme Court suggested in dictum that unexercised overlying rights may be subject to limitation in some contexts:

Although we do not address the question here, *Wright* does suggest that, in theory at least, a trial court could apply the *Long Valley* riparian right principles to reduce a landowner’s future overlying water right use below a current but unreasonable or wasteful usage, as long as the trial court provided the owners with the same notice or due process protections afforded the riparian owners under the Water Code.<sup>71</sup>

For purposes of preparing a WSA, it is necessary to assume, notwithstanding the above-quoted dictum, that dormant overlying rights retain their full entitlement to basin water and to undertake an analysis of whether and to what extent dormant overlayers can be expected to

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<sup>67</sup> *Wright v. Goleta Water Dist.*, 174 Cal. App. 3d 74, 82 (Ct. App. 1985).

<sup>68</sup> *Id.* at 74.

<sup>69</sup> *Id.* at 78.

<sup>70</sup> *Rowland v. Ramelli (In Re Waters of Long Valley Creek Streams Sys.)*, 25 Cal. 3d 339, 358-59 (1979).

<sup>71</sup> *City of Barstow*, 23 Cal. 4th at 1249.

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commence use of basin water in the future. Given the standard of review enunciated in *O.W.L. Foundation*, if the WSA preparer undertakes a reasonable effort to ascertain the nature and extent of future use of groundwater from the basin by currently dormant overlayers, such analysis would likely be sustained in litigation challenging the adequacy of the WSA. However, a WSA that ignores the issue of “springing” dormant rights does so at its own peril.

*iii. Water Supply Assessments and Conjunctive Use*

There is no single definition of “conjunctive use.” In general, the term applies to several different practices and processes employed to coordinate the use of ground and surface waters in order to get the maximum economic benefits from both resources. The California Department of Water Resources defines the term as follows:

The coordinated and planned management of both surface and groundwater resources in order to maximize the efficient use of the resource; that is, the planned and managed operation of a groundwater basin and a surface water storage system combined through a coordinated conveyance infrastructure. Water is stored in the groundwater basin for later and planned use by intentionally recharging the basin during years of above-average surface water supply.<sup>72</sup>

Conjunctive-use operations occur in many groundwater basins throughout California, and the trend toward conjunctive use of groundwater and surface supplies is likely to accelerate. To the extent that a WSA examines rights to groundwater in a non-adjudicated basin in which conjunctive-use operations are ongoing, thorny water right-priority issues may arise. While a comprehensive examination of this issue is beyond the scope of this Article, the following discussion suggests some of the complexities that may arise.

A key issue in any basin where conjunctive-use operations occur is whether the entity that is conducting artificial recharge operations retains a paramount right to recapture the increment of basin supply attributable to the artificial recharge program. Under the landmark decision in *City of Los Angeles v. City of San Fernando*, the right to recapture artificial recharge is defined as “an undivided right to a quantity of water in the ground reservoir equal to the net amount by which the reservoir is

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<sup>72</sup> *DWR BULLETIN*, *supra* note 5, at 215; *see also* Cal. Dep’t of Water Res., Groundwater Glossary, [www.water.ca.gov/groundwater/groundwater\\_glossary.cfm](http://www.water.ca.gov/groundwater/groundwater_glossary.cfm) (last visited July 5, 2010).

augmented by [imported water].”<sup>73</sup> In non-adjudicated basins where native groundwater and artificial recharge are co-mingled (an increasingly common scenario), quantifying the increment of native water that is available for use by new development projects can be a very challenging task. The potential complexities are virtually limitless. At one extreme, the introduction of artificial recharge may have caused groundwater levels to remain stable on a long-term basis, but the recharge may be masking overdraft of the native safe yield. In such a scenario a would-be developer would need to demonstrate, for purposes of the WSA, either a water right to use a portion of the native safe yield (presumably based on an overlying right) or a contractual entitlement to use a portion of the artificial recharge. At another extreme, the basin may be in surplus condition (native safe yield exceeds current pumping) with or without the introduction of artificial recharge, in which case demonstration of an adequate supply of groundwater should be a simpler task, assuming no unique facts regarding “springing” dormant uses.

## V. CONCLUSION

It is likely that proponents of new development projects in California will continue to look to groundwater as a key source of supply. While the water supply planning requirements of SB 610 and related statutes are thoroughly sensible from a public-policy standpoint, their real-world application is fraught with challenges in the groundwater context, because California’s longstanding tradition of decentralized management has been at odds with the Legislature’s efforts to inject precision and certainty into water supply and land use planning processes. In the author’s view, one unintended consequence of SB 610 has been a trend toward more basin adjudications.<sup>74</sup> Basin adjudication, while a lengthy and expensive process, ultimately provides some certainty as to the nature and extent of rights to groundwater, and in many instances adjudication judgments define the nature and extent of financial obligations to secure supplemental water supplies. But the vast majority of groundwater basins will likely remain non-adjudicated, and in such situations the potential complexities that may arise in connection with compliance with SB 610 are virtually limitless. In the end, effective management of groundwater resources by local public agencies is the

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<sup>73</sup> *City of L.A. v. City of San Fernando*, 14 Cal. 3d 199, 262 (1975), *disapproved on other grounds*; *City of Barstow*, 23 Cal. 4th 1224.

<sup>74</sup> *See, e.g., City of Santa Maria v. Adam*, *appeal docketed*, No. H035056 (Cal. Ct. App., 6th App. Dist. Dec. 11, 2009). This case involved adjudication of the Santa Maria Groundwater Basin in Santa Barbara and San Luis Obispo Counties.

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best hope for achieving the perfectly reasonable objective underlying SB 610—that new development occurs on the basis of a reliable water supply.