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Regulating with Reasonable Use: Lessons from Drought Management in the Russian River Watershed*

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Introduction

California's most recent drought challenged the Russian River watershed with many of the same issues other areas of California faced. Water scarcity forced stakeholders to balance the competing needs of endangered species, agriculture, and local residents, as well as the political controversies accompanying them. And they had to do so with severely incomplete information about water use and hydraulically connected surface and groundwater. Despite these common challenges, drought management in the Russian River watershed stood out because of the State Water Resources Control Board's ("State Board") attempt to address these issues using the legal prohibition against unreasonable uses of water. Although the State Board's actions helped pave the way for better drought response in the future, they also demonstrate the extreme difficulty in responding to a drought as it occurs without adequate planning and data.

To fully appreciate the State Board's actions in the Russian River watershed during the drought, it is necessary to understand the State Board's

actions in 2011 to protect endangered and threatened species during frost events. Enacted before the drought, the State Board's Frost Protection Regulations represented an important effort by the State Board to exercise its power under the reasonable use doctrine. In particular, the Frost Protection Regulations declared that the use of continuous sprinklers for frost protection was unreasonable and therefore prohibited under Article X, section 2 of the California Constitution. Using the reasonable use doctrine to regulate a type of use across an entire area and to regulate future use marked an important addition to the State Board's regulatory toolbox.

During the drought, state officials negotiated voluntary flow enhancements, which played a critical role in saving fish in the deadly dry summer of 2015. The State Board also returned to its unreasonable use tool and issued an emergency regulation in July 2015. This emergency regulation, which included both conservation measures prohibiting certain water uses and an order for all water users to provide their water use information to the State Board, built on the foundation laid by the Frost Protection Regulation. Beginning with the Frost Protections, the State Board's actions demonstrated how it can use the California Constitution's reasonable use doctrine to proactively manage watersheds like the Russian River.

The State Board's novel efforts, beginning with the Frost Protection Regulation and ending with the emergency regulation, combined with the voluntary flow augmentation agreements, provided valuable lessons through their shortcomings and successes:

- 1) Inadequate data makes effective drought response impossible,
- 2) The legal separation of surface and groundwater poses a barrier to effective water management generally, and drought response in particular,
- 3) The Sustainable Groundwater Management Act, passed in 2014, does not close this legal gap or provide all the tools for effective conjunctive management during drought,
- 4) Both the Frost Protection and Emergency Regulations demonstrate that the unreasonable use doctrine is an effective tool for environmental protection and drought response,
- 5) Effective enforcement of water conservation mandates is extremely difficult, particularly in locations with decentralized water management and numerous parcels,
- 6) State Board regulations, or the threat of them can motivate independent conservation actions,
- 7) Solutions outside the regulatory framework can contribute to combating severe drought conditions in an emergency, and
- 8) Gaps in state and local cooperation undermine sustainable water management efforts.

I. California's Prohibition Against the Unreasonable Use of Water

The prohibition against unreasonable use of water, although uncertain in scope and effect, is deeply embedded in California water law. In the early 20th century, the public sought to reform California's waste-ridden water allocation system. Governor Hiram Johnson criticized California's water law regime, telling the legislature in his inaugural address that "the great natural wealth of water in this state has been permitted, under our existing laws and lack of a system, to be misappropriated and to be held to the great disadvantage of its economical development."¹ The legislature responded by establishing the Conservation Commission of the State of California to examine the state's water resources and make recommendations.² The commission condemned the intolerable amount of water wasted under the riparian doctrine,³ criticizing a monopolistic practice of acquiring water rights without putting them to beneficial use for "speculative enrichment."⁴

In response to the commission's findings and recommendations, the legislature adopted the Water Commission Act, which limited riparian rights to beneficial use.⁵ But in 1926, the California Supreme Court struck down the Water Commission Act with its controversial decision in *Herminghaus v. Southern California Edison*.⁶ The decision outraged the public, and the voters reacted swiftly by passing a new amendment to the California Constitution in 1928.⁷ It reads:

[t]he right to water or to the use or flow of water in or from any natural stream or water course in this State is and shall be limited to such water as shall be reasonably required for the beneficial use to be served, and such right does not and shall not extend to the waste or unreasonable use or unreasonable method of use or unreasonable method of diversion of water.⁸

This amendment applied the prohibition against unreasonable use of water to *all* of California's surface water, which overruled *Herminghaus* and

1. Gordon R. Miller, *Shaping California Water Law, 1781 to 1928*, 55 S. CAL. Q. 9, 27 (Spring 1973) [hereinafter "*Shaping California Water Law*"] (internal quotation marks omitted).

2. *Id.*

3. *Id.*

4. William R. Attwater & James Markle, *Overview of California Water Rights and Water Quality Law*, 19 PAC. L.J. 957, 971-72 (1988).

5. *Shaping California Water Law*, *supra* note 1 at 28.

6. *Herminghaus v. S. California Edison Co.*, 200 Cal. 81, 117 (1926).

7. NORRIS HUNDLEY, JR., *THE GREAT THIRST* 245 (2001).

8. Cal. Const. art. X, § 2

prohibited any unreasonable use or waste of water.⁹ Since then, Courts have repeatedly upheld the amendment, cementing this fundamental shift in California water law.¹⁰

California's Legislature has not defined reasonable use, leaving the courts to develop the doctrine.¹¹ Historically, the State Board has also provided little regulatory guidance, which also left courts to determine unreasonable uses on a case-by case-basis.¹² One of the most important of those decisions came from the California Supreme Court in *Joslin v. Marin Municipal Water District*, which "marked the first time in more than sixty years that the reasonable use doctrine was employed to divest one party's water rights in favor of what the court perceived to be a socially more valuable, and hence more 'reasonable,' use."¹³ In its opinion, the Court emphasized that the reasonableness of a water use presented a factual question "determined according to the circumstances in each particular case."¹⁴ Importantly, the court held that what constitutes a reasonable use can change over time as societal expectations change, since the reasonableness of a given use depends on assessing the reasonableness of alternative uses.¹⁵

The unreasonable use prohibition stands as a potentially powerful legal tool – a limit on property rights to water and their exercise, anchored in fundamental California water law (the Constitution itself), yet subject to evolution that could impose changing limits on water rights to adapt to changing technology, norms, laws, and circumstances. Still, courts were hesitant to declare a customary water use unreasonable.¹⁶ But in 1971, a California Appellate Court found that the use of an unlined ditch, which lost five sixths of the diverted flow, was unreasonable.¹⁷ The court made this finding even though this diversion method was common in the area.¹⁸ This put the court's evolutionary view of unreasonable use into action, but still applied the doctrine to the past use of single user and not to the entire group of unlined ditch users. And only a few cases have determined a specific use of water unreasonable.¹⁹ In two different cases, the California Supreme Court

9. *Shaping California Water Law*, *supra* note 1 at 32.

10. *Id.*

11. Gregory A. Thomas, *Conserving Aquatic Biodiversity: A Critical Comparison of Legal Tools for Augmenting Streamflows in California*, 15 STAN. ENVTL. L.J. 3, 27 (1996) [hereinafter "*Conserving Aquatic Biodiversity*"].

12. *Id.* at 28.

13. Brian E. Gray, *The Modern Era in California Water Law*, 45 HASTINGS L.J. 249, 258 (1994) [hereinafter "*Modern Era in California Water Law*"].

14. *Joslin v. Marin Mun. Water Dist.*, 67 Cal. 2d 132, 139 (1967).

15. *Modern Era in California Water Law*, *supra* note 13 at 257.

16. *Conserving Aquatic Biodiversity*, *supra* note 11 at 29.

17. *Erickson v. Queen Valley Ranch Co.*, 22 Cal. App. 3d 578, 585 (Ct. App. 1971).

18. *Conserving Aquatic Biodiversity*, *supra* note 11 at 28-29.

19. *Light v. State Water Res. Control Bd.*, 226 Cal. App. 4th 1463, 1480 (2014), *as modified on denial of reh'g* (July 11, 2014), *review denied* (Oct. 1, 2014).

held “that the use of water for the sole purpose of flooding the land to kill gophers and squirrels is unreasonable . . . as is the use of floodwaters solely to deposit sand and gravel on flooded land.”²⁰

II. The Russian River Watershed

The Russian River watershed covers approximately 1485 square miles and contains roughly 240 named and numerous other unnamed tributaries.²¹ Historically, the 110 miles of the Russian River’s mainstem and its many hundreds of miles of tributaries were available to anadromous salmonids for spawning and juvenile rearing.²² In the 1960s the Department of Fish and Game surveyed Mark West Creek and documented an estimated 9,500 steelhead and salmon juveniles per mile of river.²³ Today, all the anadromous salmonids that call the Russian River home have been listed as threatened or endangered under the federal Endangered Species Act (“ESA”).²⁴ Specifically, Chinook and Coho salmon are listed as endangered under the ESA, and steelhead trout are listed as threatened.²⁵ Many factors have affected these species’ habitat, such as “[s]tream channelization, road construction along stream margins, bank stabilization, and water diversions in tributaries.”²⁶ These factors “have significantly degraded stream habitats throughout the watershed by simplifying stream channels, isolating them from their flood plains, greatly increasing sedimentation, blocking fish migrations, and reducing or eliminating flow and cover.”²⁷ The drought has also taken an incredible toll on the fish in key Russian River tributaries like Green Valley,

20. *Id.* (citing *Tulare Irr. Dist. v. Lindsay-Strathmore Irr. Dist.*, 3 Cal. 2d 489, 568 (1935), and *Joslin*, 67 Cal. 2d at 141).

21. Letter from Charlton H. Bonham, Director, California Department of Fish and Game, to Tom Howard, Executive Director, California State Water Resources Control Board (May 28, 2015) [hereinafter “Bonham Letter”].

22. U.S. ARMY CORPS OF ENGINEERS, SAN FRANCISCO DISTRICT, BIOLOGICAL OPINION FOR WATER SUPPLY, FLOOD CONTROL OPERATIONS, AND CHANNEL MAINTENANCE CONDUCTED BY THE U.S. ARMY CORPS OF ENGINEERS, THE SONOMA COUNTY WATER AGENCY, AND THE MENDOCINO COUNTY RUSSIAN RIVER FLOOD CONTROL AND WATER CONSERVATION IMPROVEMENT DISTRICT IN THE RUSSIAN RIVER WATERSHED X (Sept. 24, 2008) [hereinafter “Biological Opinion 2008”].

23. BRUCE SCHOENFIELD, *The Wrath of Grapes*, N.Y. TIMES, May 28, 2015, at . [hereinafter “*The Wrath of Grapes*”].

24. *Endangered and Threatened Marine Species under NMFS’ Jurisdiction*, NOAA FISHERIES, <http://www.nmfs.noaa.gov/pr/species/esa/listed.htm> (last visited June 12, 2016).

25. *See id.*

26. Biological Opinion 2008, *supra* note 22.

27. *Id.*

Dutch Bill, Mill and Mark West creeks.²⁸ Juvenile Coho surveys in 2014 revealed 97 percent fewer fish than in 2013.²⁹

Several competing uses put pressure on the Russian River, including over 60,000 acres of vineyards, 70 percent of which lie within 300 feet of salmonid habitat.³⁰ Other competing water uses include diversions for domestic, municipal and industrial purposes. All together, approximately 1778 claimed water rights exist across the watershed.³¹

III. Frost Protection as an Unreasonable Use

A. Background

A prior controversy over water diversions by vineyards for frost protection set the stage for the State Board's actions during the drought. Growers of vineyards and orchards use water as a means of protecting their crops from unseasonable frost in the spring. When the temperature drops to freezing, growers in vineyards and orchards have typically used overhead sprinklers to spray their crop, constantly keeping it wet to insulate it from frost, which can cause substantial damage.³² Sprinkler frost protection requires continuous spraying, so when growers employ this technique, it can quickly reduce stream flow.³³ Five hundred and thirty-three of the 1,778 water rights claims in the Russian River watershed provide for the diversion of water for frost protection.³⁴ Consequently, frost events can trigger a rapid drop in flow when many growers spray at the same time, potentially stranding salmon and steelhead in shallow areas or trapping them in isolated pools.³⁵ Frost events happen with some irregularity, and some years have had almost 20, while others have had none.³⁶ The impacts of withdrawals for frost protection on stream flows have been a matter of growing concern in the Russian River basin. Prior to issuing the regulation in 2011, the State Board heard testimony about a study comparing air temperature and flow data from "a gauge in the

28. THOMAS HOWARD AND CHARLTON H. BONHAM, *Close to Home: A Plea to North Coast to Help Coho Salmon*, PRESS DEMOCRAT, Apr. 23, 2015 at 1.

29. *Id.*

30. *Light*, 226 Cal. App. 4th at 1474.

31. Nicholas Jacobs, *A Vineyardist's View on Reasonable Use and Frost Protection Diversions Under California Water Law*, 9 GOLDEN GATE U. ENVTL. L.J. 67, 70 (2015) [hereinafter "A Vineyardist's View on Reasonable Use"].

32. Brian J. Johnson, *Reasonable Use on the Russian River: A Brief History of the Frost Protection Rule*, 9 GOLDEN GATE U. ENVTL. L.J. 41, 42 (2015) [hereinafter "Reasonable Use on the Russian River"].

33. *Id.* at 42-43.

34. *Light*, 226 Cal. App. 4th at 1474 n. 2.

35. *Reasonable Use on the Russian River*, *supra* note 32 at 43.

36. *Id.* at 44.

Russian River over the 17 years prior to 2009 and found a correlation between the occurrence of low air temperatures and rapid drawdown. The intensity of the drawdowns had increased significantly in recent years. Such drawdowns did not occur in areas without vineyards.”³⁷

When a frost event strikes, the high instantaneous demand for water by a large number of vineyards “may contribute to a rapid decrease in stream stage that results in the mortality of salmonids due to stranding.”³⁸ In April 2008, one such event struck in the wake of a dry winter. The National Marine Fisheries Service (NMFS) discovered two incidents of fatal salmon and steelhead strandings in the mainstream Russian River and a Dry Creek tributary.³⁹ An abrupt drop in streamflow, which occurred when frost protectors diverted from streams to save their crop,⁴⁰ resulted in the mainstem “dropp[ing] about 80 [cubic feet per second (cfs)] in minutes.”⁴¹

A recent article on the frost protection issue identifies three key reasons why sprinkler frost protection is an especially challenging issue. First, frost protection requires a relatively high pumping rate, typically “about 50 gallons per minute per acre, which amounts to 1.1 [cfs] of water for every 10 acres of grapes.”⁴² Second, everyone responds to the same frost events, so they engage in frost protection events at the same time.⁴³ Third, frost protection areas are closely correlated to “highly ecologically important streams,” with “[a]bout 70 percent of Russian River vineyards within 300 feet of a salmon or steelhead bearing stream.”⁴⁴ Naturally, when sprinklers rely on direct diversions, they immediately affect the source, but with groundwater use, the connection is less clear.⁴⁵ Groundwater pumping, especially its cumulative effect, could influence streamflow, but the effect “is much more attenuated than it is with direct diversions from a stream.”⁴⁶

37. *Light*, 226 Cal. App. 4th at 1474 n. 2.

38. State Water Resources Control Bd. *Frost Protection Regulation: Russian River Watershed 1* (2012), http://www.swrcb.ca.gov/waterrights/water_issues/programs/hearings/russian_river_frost/index.shtml (providing documents in the administrative record leading up to the adoption of the Frost Protection Regulation); *see also* CAL. CODE REGS. tit. 23, § 862 (West 2015) www.swrcb.ca.gov/waterrights/water_issues/programs/hearings/russian_river_frost/docs/adptd_reg092011.pdf [hereinafter “*Frost Protection Regulation*”].

39. *Reasonable Use on the Russian River*, *supra* note 32 at 49 (“The Felta Creek event was deemed the result of one diverter on a small creek.”).

40. *Light*, 226 Cal. App. 4th at 1472.

41. *Reasonable Use on the Russian River*, *supra* note 32 at 49.

42. *Id.* at 43.

43. *Id.*

44. *Id.* at 44.

45. *Id.* at 45.

46. *Id.* at 45.

B. State Board's Intervention Based on Unreasonable Use

In February 2009, NMFS sent a letter to the State Board, asking for “immediate assistance to protect salmon and steelhead trout from the harmful effects of water diversions for frost protection in the Russian River, Sonoma, and Mendocino counties.”⁴⁷ After conducting a series of hearings, the State Board adopted a regulation requiring the reduction of surface diversions for frost protection on September 20, 2011.⁴⁸ Despite these investigatory efforts, many local growers “were shocked at the lack of study offered in support of the State Board’s theory that frost protection diversions alone were causing salmonid strandings, as well as the lack of study on what stream conditions are necessary to protect juvenile salmonids.”⁴⁹

The regulation recognized the harm in “high instantaneous demand for water for frost protection” and mandated that “any diversion of water from the Russian River stream system, including the pumping of hydraulically connected groundwater, for purposes of frost protection from March 15 through May 15, shall be diverted in accordance with a board approved water demand management program (WDMP).”⁵⁰ The WDMP’s purpose was to “assess the extent to which diversions . . . affect stream stage and manage diversions to prevent cumulative diversions . . . from causing a reduction in stream stage that causes stranding mortality.”⁵¹

To implement the WDMP, the State Board delegated authority to grower-led governing bodies, responsible for preparing the WDMP and a list of the participating diverters.⁵² The State Board provided guidance for WDMPs, including a list of elements that all WDMPs must include.⁵³ Notably, the regulation applied to both surface water and “groundwater pumped within the Russian River watershed [that] is considered hydraulically connected to the Russian River stream system,” meaning “that pumping [it] contributes to a reduction in stream stage to any surface stream in the Russian River watershed.”⁵⁴ Significantly, the rule declared that any water use inconsistent

47. *Id.* at 47.

48. *Light*, 226 Cal. App. 4th at 1472; (Johnson 52)

49. *A Vineyardist's View on Reasonable Use*, *supra* note 31 at 68.

50. *Frost Protection Regulation*, *supra* note 38 at (a).

51. *Id.* at (b).

52. *Reasonable Use on the Russian River*, *supra* note 32 at 55.

53. *Frost Protection Regulation*, *supra* note 38 at (c) (The full list is “(1) an inventory of the frost diversion systems within the area subject to the WDMP, (2) a stream stage monitoring program, (3) an assessment of the potential risk of stranding mortality due to frost diversions, (4) the identification and timelines for implementation of any corrective actions necessary to prevent stranding mortality caused by frost diversions, and (5) annual reporting of program data, activities, and results. In addition, the WDMP shall identify the diverters participating in the program and any known diverters within the area subject to the WDMP who declined to participate.”).

54. *Id.* at (a).

with a WDMP would be unreasonable and thus prohibited and subject to enforcement by the State Board.⁵⁵ The State Board was, in effect, saying that a specific type of water use (frost protection outside the scope of a WDMP) was incompatible with California water law.

The Frost Protection Regulation also included information gathering efforts, a precursor to the Informational Order of 2015. Specifically, the regulation mandated that each WDMP gather information on all the frost diversions it covers, including the “[s]ource of water used and location of diversion” and “[t]he rate of diversion . . . and volume of water diverted during each frost event for the year.”⁵⁶ The regulation also provided for a stream stage monitoring program, which included “[a] determination of the number, type, and location of stream gages necessary for the WDMP to monitor and assess the extent to which frost diversions may affect stream stage and cause stranding mortality,” and “[a] determination of the stream stage that should be maintained at each gage to prevent stranding mortality.”⁵⁷ Johnson viewed the “extent the WDMPs are able to establish a stream gaging network with support from landowners, who will have to pay for it and provide access for [gages]” as a major test for the regulation.⁵⁸

C. Results of the Frost Protection Regulation

The Frost Protection Regulation used the prohibition against unreasonable use to justify requirements imposed on water users that might impose significant costs in the face of some opposition.⁵⁹ Although many growers have adopted alternatives to pumping water for frost protection, others have argued that finding alternatives will be financially impossible. These growers made claims that “the frost protection regulation will put either themselves or their friends and neighbors out of business.”⁶⁰ According to the State Board’s estimates, “a 160-acre vineyard would incur *initial* compliance costs of up to \$352,000, with additional and significant annual costs.”⁶¹ It remains to be seen exactly what toll these high costs will have on the wine producing industry.

NGO and government funding has helped offset some costs of transitioning away from direct water withdrawals for frost protection. For

55. *Id.* at (e).

56. *Id.* at (c)(1)(B,E).

57. *Id.* at (c)(2)(A-B).

58. *Reasonable Use on the Russian River*, *supra* note 32 at 63-64.

59. Some courts have found that water users may be compelled to incur “some expense or inconvenience . . . but an unreasonable or ‘material’ expense” are not warranted. *Conserving Aquatic Biodiversity*, *supra* note 11 at 29-30.

60. *A Vineyardist’s View on Reasonable Use*, *supra* note 31 at 68.

61. *Id.* at 68.

example, a small tributary known as Grape Creek's flow would drop below two cfs in especially dry years, and just two of the growers on the creek would historically pump about 1.6 cfs to spray about 15 acres of grapes, virtually drying the creek out.⁶² With the support of a partnership of NGOs and government agencies,⁶³ one grower installed a fan, eliminating the need for water for frost protection and another built an off-stream pond, filled by well water and not hydraulically connected to the creek.⁶⁴ Other nearby growers also installed fans or built off-stream reservoirs.⁶⁵ Across the Russian River watershed, the federal Natural Resource Conservation Service was especially helpful, contributing funds for "thirty-four frost protection fans, four offstream ponds, five changes in the point of diversion from direct diversion to well, six irrigation system upgrades as part of pond construction, and thirteen weather stations, which reduce water use by making better predictions of when water is needed."⁶⁶ The actual results of these efforts on streamflow are still unknown because a significant frost event has not occurred recently enough to measure the effects.⁶⁷

Entering 2016, the State Board had approved three WDMPs.⁶⁸ Johnson views it as an encouraging sign "that WDMPs are in place for the full territory covered by the Rule, and that the State Water Board concluded that each of the programs meets the requirements of the Frost Protection Rule."⁶⁹ Nevertheless, it is not clear how the WDMPs and the State Board will implement the regulation in regards to hydraulically connected groundwater.⁷⁰ Even though "a high percentage of frost diversions" use groundwater, it is unclear if their cumulative pumping immediately affects flows or could strand fish.⁷¹ And because the Frost Protection Regulation only applies to wells that are hydraulically connected to the river, "[i]t will be interesting to see if those well users bother to make a case for an exemption, or if they continue to participate in the WDMP."⁷²

62. *Reasonable Use on the Russian River*, *supra* note 32 at 46.

63. The Russian River Coho Water Resources Partnership includes the Center for Ecosystem Management and Restoration, Gold Ridge Resource Conservation District, Occidental Arts and Ecology Center, Sonoma Resource Conservation District, Trout Unlimited, University of California Cooperative Extension/California Sea Grant. It is supported by the National Fish and Wildlife Foundation and Sonoma County Water Agency, among many other partners.

64. *Reasonable Use on the Russian River*, *supra* note 32 at 46.

65. *Id.* at 46.

66. *Id.* at 65.

67. Telephone Interview with Corinne Gray, Senior Environmental Scientist, Cal. Dep't of Fish and Wildlife (May 6, 2016).

68. *Reasonable Use on the Russian River*, *supra* note 32 at 63.

69. *Id.* at 63.

70. *Id.* at 64.

71. *Id.*

72. *Id.*

D. Implications for Future Policy and Management Decisions

Certain growers ultimately challenged the legal basis of the Frost Protection Policy in court. The California Court of Appeals affirmed the policy and its foundation in the reasonable use doctrine in *Light v. State Water Res. Control Board*.⁷³ The ruling is significant because it identified protection of salmonids as a legitimate grounds for assessing reasonable use. The court reasoned that although frost protection is a beneficial use, it was limited by the prohibition against unreasonable use in Article X section 2 of the California constitution. The court further held that the State Board has the authority to determine that reasonableness “depends upon whether ‘the diversion can be managed to avoid the harm’ to salmonids.”⁷⁴ A finding of unreasonable use based on harm to fish is a considerable tightening of the doctrine compared to historical cases.

In addition, the court confirmed that the State Board has the power to make unreasonable use determinations. The court reiterated that the judiciary is not the only entity with the power to determine unreasonable use, instead, “the Legislature [also] has the power to enact general rules governing the reasonable use of water, and the Board has a similar regulatory authority.”⁷⁵ In particular, the court affirmed the State Board’s ability to proactively regulate unreasonable use, instead of “[r]estricting the Board to postevent litigation,” which would “deprive[] it of any effective regulatory remedy, since the damage will have been done and the critical circumstances may not arise again for months or years.”⁷⁶ And further, “[e]fficient regulation of the state’s water resources in these circumstances demands that the Board have the authority to enact tailored regulations.”⁷⁷ The plaintiffs in *Light* argued both that the State Board did not have authority to act through regulations and that the regulation was based on “scant and even contradictory” science such as “the NMFS report, which was based on a single hour of actual observation and then constructed on multiple assumptions for which the author admitted there was no supporting data.”⁷⁸ Taken a step further, the fact that the court still upheld the regulation serves as an indication that courts may accept a significant amount of State Board discretion in regards to the scientific justification behind unreasonable use determinations.

The court additionally ruled that the State Board’s authority to regulate unreasonable use applied to all water users, regardless of the source of their

73. *Light*, 226 Cal. App. 4th at 1486-87.

74. *Id.*

75. *Id.* at 1484-85.

76. *Id.* at 1486-87.

77. *Id.*

78. *A Vineyardist’s View on Reasonable Use*, *supra* note 31 at 90.

water right.⁷⁹ In doing so, the court rejected the argument that the “‘vested rights’ doctrine prevents the Board from ‘redefining’ an existing beneficial use as unreasonable” because there is no property right in the unreasonable use of water under Article X, section 2 of the California Constitution.⁸⁰ The court also rejected arguments that the regulation violated the rule of priority, noting that this argument was premature.⁸¹ This leaves open the possibility that the Frost Protection Regulations may be challenged for violating priority water rights if the “WDMP is approved in a manner that fails to honor senior water rights.”⁸²

The Frost Protection Regulation also tested the State Board’s ability to delegate the power to make future individualized reasonable use determinations.⁸³ This delegation “arguably pushed the envelope beyond previous exercises of the reasonable use doctrine in that respect.”⁸⁴ Again, the court in *Light* upheld the delegation, because 1) “the Board clearly set out the fundamental purposes of the WDMP’s,” 2) “established detailed standards for the manner in which the WDMP governing bodies are to monitor stream levels and the type of corrective measures that can be instituted to prevent sudden decreases in water level,” and 3) “[n]o program developed by a governing body will become effective—will acquire the force of law—until it has been approved by the Board, and that approval must be sought annually,” which was all that was required for a lawful delegation of authority.⁸⁵ The court did express some concern about involving industry members in the regulation, noting that while they understand regulatory needs and business impacts, “involving members of the regulated industry... runs the risks associated with the fox guarding the henhouse.”⁸⁶

The court’s decisions affirmed the State Board’s power to proactively regulate unreasonable use, and to use harm to salmonids as a basis for a finding that an otherwise beneficial use of water was unreasonable. *Light* confirmed the State Board’s authority to allocate water to protect vulnerable fish species, an authority that proved central to its responses to the multi-year drought that began in 2011.

79. *Light*, 226 Cal. App. 4th at 1482 (citation omitted).

80. *Id.* at 1488.

81. *A Vineyardist’s View on Reasonable Use*, *supra* note 31 at 88.

82. *Id.*

83. *Reasonable Use on the Russian River*, *supra* note 32 at 61-62.

84. *Id.* at 62.

85. *Light*, 226 Cal. App. 4th at 1492.

86. *Id.* at 1490-91.

IV. Voluntary Drought Initiative

A. Watershed Conditions in 2015

California was in the midst of a multi-year drought that has challenged water management at every level. From 2012 through 2015 marked the driest four-year period on record, and although the 2015-16 water year brought average precipitation in the northern part of the state, one average year has not ended the drought.⁸⁷ On the Russian River and its tributaries, drought conditions began to create conflicts between human demands and the need to protect endangered species in 2014. Low flow conditions negatively impacted salmonid production and survival in 2014 and drought conditions persisted into 2015.⁸⁸ The Governor's April 25, 2014, Executive Order which continued the drought state of emergency he declared on January 17, 2014, directed the CDFW to work with other governmental agencies and landowners to protect both threatened and endangered species in priority watersheds.⁸⁹ Pursuant to this order, CDFW partnered with NMFS to develop a California Voluntary Drought Initiative Program for the Russian River watershed.⁹⁰ This program identified Green Valley, Mill, Dutch Bill, and Mark West Creeks as priority watersheds and sought to encourage conservation and the development of agreements with landowners to protect streamflow.⁹¹ CDFW sent out three rounds of letters to all landowners within select areas of those four watersheds, encouraging conservation and looking to develop agreements to enhance summer flows to support summer rearing habitat for juvenile salmonids.⁹²

These initial efforts produced mixed responses. During community outreach meetings, CDFW received complaints about unresponsive landowners whose water use "likely ha[d] a considerable effect on instream flow."⁹³ CDFW then warned that "additional action may be needed to ensure sufficient flow for summer rearing and adult passage in the fall and early winter during the 2015 drought."⁹⁴ CDFW's ultimate short-term goal was "to bridge hydrological conditions in this fourth year of drought . . . such that it might be possible to support habitat conditions that provide a reasonable probability of survival of steelhead and Coho salmon juveniles during the

87. California Department of Water Resources, *Water Conditions Update* (June 2016), available at [http://drought.ca.gov/pdf/archive/DroughtUpdate\(06-17-16\).pdf](http://drought.ca.gov/pdf/archive/DroughtUpdate(06-17-16).pdf).

88. *Bonham* Letter, *supra* note 21.

89. *Id.*

90. *Id.*

91. *Id.*

92. *Id.* (Letters went out in October 2014, April, 2015, and May 2015)

93. *Id.*

94. *Id.*

summer low flow period.”⁹⁵ Without proper stream flow to sustain the minimum hydrologic connections, pools become isolated, water temperatures rise, and dissolved oxygen levels decrease.⁹⁶ These conditions put a severe strain on an already vulnerable fish population.

B. Voluntary Flow Augmentation Agreements

By May 28, 2015, CDFW had reached agreements with nineteen residential landowners, who pledged to stop irrigating lawns, to take other steps to conserve water, and to provide CDFW access for monitoring and rescues.⁹⁷ The largest benefits from these voluntary efforts, however, arose from voluntary flow augmentation. For example, in early April 2015, a group of Coho were trapped in Porter Creek.⁹⁸ A disconnected pool in danger of drying up had stranded fish, when E. & J. Gallo Winery agreed to release stored water in pulse flows into the creek.⁹⁹ These flows allowed several hundred of the Coho to reach the main stem and continue their journey to the ocean.¹⁰⁰

Arguably the most successful flow augmentation came from the Camp Meeker Recreation and Park District (Camp Meeker) on Dutch Bill Creek.¹⁰¹ Camp Meeker is a small district that serves about 350 homes.¹⁰² The district pumps water from two wells near the confluence of the Dutch Bill Creek and the Russian River roughly six miles to the community water tank.¹⁰³ Camp Meeker has a comfortable water surplus of about ten million gallons of water a year.¹⁰⁴

In August 2015, a snorkeling survey documented 2,000 Coho and 1,400 steelhead juveniles in Dutch Bill Creek.¹⁰⁵ But due to flow conditions, those fish were in danger. In an effort to save the fish, representatives from the local RCD, CDFW and NMFS went to a Camp Meeker board meeting to ask for help,

95. *Id.*

96. CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE, RUSSIAN RIVER VOLUNTEER DROUGHT INITIATIVE PUBLIC INFORMATION MEETING, 35 (May 14, 2015); available at <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=100016>.

97. Bonham Letter, *supra* note 21.

98. Howard at 2.

99. *Id.*

100. *Id.*

101. Telephone Interview with Mary Ann King, Director, Coastal Streamflows Restoration Project, Trout Unlimited (May 10, 2016).

102. Guy Kovner, *Water Added to Camp Meeker's Dutch Bill Creek a 'Lifesaver' for Young Fish*, PRESS DEMOCRAT (Sept. 7, 2015) at 2, <http://www.pressdemocrat.com/news/4430476-181/water-added-to-camp-meekers?artslide=0> [hereinafter “*Lifesaver for Young Fish*”].

103. *Id.*

104. *Id.*

105. *Id.*

and the board happily agreed.¹⁰⁶ To complete the project, they added 450 foot flexible pipe to connect Camp Meeker's storage tank to a creek channel.¹⁰⁷ The pipe delivered what seems like a small amount of water, 0.10 cubic feet per a second, but that doubled these creek's flow.¹⁰⁸ In an interview with a local newspaper, David Hines of NMFS called the effort "literally a lifesaver."¹⁰⁹

DFW and NMFS also worked to secure voluntary flow enhancements on other tributaries. For example, several parties agreed to release stored flows into Green Valley Creek.¹¹⁰ And after their releases began, the flows reconnected a series of pools where Coho were found.¹¹¹ One interviewee believed one of the releases may have been more effective if it had occurred earlier.¹¹² Regardless, the releases generated a lot of information about what makes flow augmentation effective, such as the amount released, dynamics of the channel, and how much water is needed to recharge the groundwater in order for the added water to actually increase stream flow.¹¹³ In particular, drought conditions can result in a lower water table, which means that when water is added to the stream, that water must first raise the water table before water will remain above ground and flowing downstream.

Jackson Family Wines also donated \$20,000 in both 2015 and 2016.¹¹⁴ The 2015 donation played a vital role in the success of the flow augmentation efforts by allowing the RCD and CDFW to quickly purchase the pipes, pieces, and other equipment needed to physically implement the flow augmentations, something that would have taken more time had CDFW had to go through the standard state funding process.¹¹⁵

106. Gray, *supra* note 67.

107. *Lifesaver' for Young Fish* at 3.

108. *Id.* at 1.

109. *Id.* (internal quotation marks omitted).

110. California Department of Fish and Wildlife, *Status of Coho Salmon in the Priority Russian River Tributaries 2015 Drought Update*, 2 (Nov. 2, 2015); available at http://www.waterboards.ca.gov/waterrights/water_issues/programs/drought/docs/russian_river/in_fomtg110215/110215_rrtribs_presentation_color.pdf [hereinafter "*Status of Coho Salmon in the Priority Russian River Tributaries 2015 Drought Update*"] (Bob and Dianne Gianni); Guy Kovner, *Sonoma County Vineyard Owners Lauded for Water Conservation*, PRESS DEMOCRAT (Oct. 5, 2015) at 1-2, <http://www.pressdemocrat.com/news/4555747-181/sonoma-county-vineyard-owners-lauded> [hereinafter "*Vineyard Owners Lauded for Water Conservation*"] (Chris Panym, Michael Paine and Jackson Family Wines, which is "one of Sonoma County's largest vineyard owners with 3,600 planted acres.").

111. *Vineyard Owners Lauded*, *supra* note 110 at 2 (quoting Jordan Traverso, Deputy Director of CDFW).

112. King, *supra* note 101. No flow releases occurred in Mill or Mark West creeks.

113. *Id.*

114. Gray, *supra* note 67. "The wine company also donated \$40,000 to a Trout Unlimited program to purchase rainwater collection tanks for rural residents." *Vineyard Owners Lauded for Water Conservation*, *supra* note 110 at 2.

115. Gray, *supra* note 67.

V. State Water Board Emergency Action - July 6, 2015

Despite the State Board and CDFW's call for conservation and threat of emergency regulations, conditions in the four watersheds worsened during the spring and summer of 2015. The drought had reduced flows in the priority creeks such as Mark West Creek and Mill Creek by 90% from 2010 levels.¹¹⁶ In April 2015, biologists warned that around 30,000 juvenile Coho salmon faced stranding and death because streams were shrinking and becoming disconnected from the Russian River's main stem.¹¹⁷

In a letter to the State Board, CDFW outlined its efforts through the Voluntary Drought Initiative and stated that it "believe[d] that conditions in these priority watersheds are quickly deteriorating and without significant water conservation efforts most if not all portions of these tributaries could experience fish mortality due to early drying."¹¹⁸ CDFW noted that through its communications with landowners, it had learned that several landowners were not responding to CDFW's conservation calls, and while CDFW would continue to work with landowners, additional action was potentially necessary to make sure sufficient flow existed for summer rearing and adult passage.¹¹⁹ At the conclusion of the letter, CDFW called for the State Board to take two emergency regulatory actions in the Green Valley, Mill, Dutch Bill, and Mark West Creek watersheds: 1) "issue an informational order to determine the extent of current surface and subsurface diversion operations in each watershed" and 2) "immediately implement conservation measures to limit the amount of water extracted from these watersheds during the 2015 drought that track conservation measures the State Water Board has required elsewhere."¹²⁰ CDFW designated the four tributaries high priority because they are critical Coho salmon habitats with high restoration potential, CDFW had invested almost \$10 million in the watersheds over the last ten years, and the tributaries were vulnerable to a high number of water diversions.¹²¹

116. Guy Kovner, *Rural Residents Decry Water Restrictions at Occidental Meeting*, PRESS DEMOCRAT (July 6, 2015) at 1-2, <http://www.pressdemocrat.com/news/4162348-181/rural-residents-decry-water-restrictions> [hereinafter "*Rural Residents Decry Water Restrictions*"].

117. Guy Kovner, *State Seeks Voluntary Cut in Stream Diversions from Sonoma County Landowners*, PRESS DEMOCRAT (Apr. 23, 2015) at 4, <http://www.pressdemocrat.com/news/3831548-181/state-seeks-voluntary-cut-in?artslide=3> [hereinafter "*State Seeks Voluntary Cut*"].

118. Bonham Letter, *supra* note 21.

119. *Id.*

120. *Id.*

121. State Water Resources Control Bd., *Russian River Tributaries Water Conservation and Informational Order*, 25, 28 (July 6, 2015); available at http://www.waterboards.ca.gov/waterrights/water_issues/programs/drought/docs/russian_river/emreg_presentation_color.pdf [hereinafter "*State Board July 2015 Emergency Regulation Presentation*"].

On June 24, 2015, the State Board adopted a regulation titled “Emergency Actions due to Insufficient Flow for Specific Fisheries in Tributaries to the Russian River (Emergency Regulation)”, and on July 6, 2015, the Office of Administrative Law approved it. Due to its emergency status, the regulation was effective for only 270 days. It applied to the four priority Russian River tributary watersheds: Dutch Bill, Green Valley, Mark West and Mill Creeks.¹²² The Emergency Regulation included two components: enhanced water conservation measures and an information order.¹²³

In adopting the Emergency Regulation, the State Board relied on the waste and reasonable use doctrine under Article X, section 2 of the California Constitution.¹²⁴ This was the same authority the State Board relied on to adopt the Frost Protection Regulation upheld the year before in *Light*. One interviewee noted that the Frost Protection Regulation laid the foundation for the Emergency Regulation.¹²⁵ The Emergency Order again focused on the need to protect endangered salmonids and applied its terms to all water uses “regardless of water right seniority, given limited available supply and the need for the water to support other more critical uses,” citing the need “to ensure the protection and preservation of streams and to limit diversions to protect critical flows for species, including for state-and federally-threatened and endangered salmon and steelhead species.”¹²⁶

VI. The Conservation Order

With the Conservation Order, the State Board hoped to improve flow conditions by “[a]llowing more groundwater seepage to contribute to stream flow,” and “[r]etain existing surface flow in streams.”¹²⁷ In particular, the State Board wanted “to maintain the small amount of water necessary to support the minimum temperature and oxygen conditions needed for summer rearing and migration of Coho salmon and steelhead in the four watersheds.”¹²⁸ The Conservation Order tracked rules that the State Board had previously imposed on municipal water users, and prohibited using potable and non-potable water to water ornamental turf or landscapes in a manner that causes

122. *Id.* at 64, 65.

123. *Id.* at 66.

124. State Water Resources Control Bd., *Emergency Actions due to Insufficient Flow for Specific Fisheries in Tributaries to the Russian River* (July 6, 2015) [hereinafter “*Emergency Regulations July 6, 2015*”].

125. King, *supra* note 101.

126. *Emergency Regulations July 6, 2015*, *supra* note 124 at (C)(1).

127. State Board July 2015 Emergency Regulation Presentation, *supra* note 121 at 52.

128. State Water Resources Control Bd., *Most Property Owners and Water Suppliers Comply with Russian River Informational Order; Complaints Issued for the Rest*, 1-2 (Dec. 21, 2015) available at http://www.swrcb.ca.gov/press_room/press_releases/2015/pr122115_rr_trib_acl.pdf [hereinafter “*State Board Dec. Press Release*”].

runoff, more than two days per week, between 8:00am to 8:00pm, and during and within 48 hours after measurable rainfall.¹²⁹ The order permitted landowners to use untreated rainwater, gray water, or recycled water without these restrictions.¹³⁰ The Order also included prohibitions against washing cars, driveways, and sidewalks, restrictions on using water for fountains, decorative ponds and other water features, as well as encouraged conservation in hotels.¹³¹ These regulations applied to water users in the critical areas' four watersheds but excluded commercial agriculture.¹³²

A. Enforcement of the Conservation Order

Enforcement of the order was both challenging and controversial. The Emergency Regulation subjected individuals found violating the conservation order to a fine of up to \$500 a day.¹³³ State Board staff conducted 23 field inspections after issuance of the order.¹³⁴ The staff found that while many landowners complied with the conservation measures, many others did not.¹³⁵ At one of the outreach meetings, a local Occidental resident reported that the creek he lives on, "a tributary of Green Valley Creek, is 'losing water like crazy' while some of his neighbors are 'still watering their lawns with sprinklers.'"¹³⁶ Upon finding a violation, the staff first issued a warning that notified the person of possible civil liability, like fines or cease and desist letter.¹³⁷ Ultimately, the State Board issued 14 warnings, ten of which were specific to ornamental turf, and five notices of complaint to landowners.¹³⁸ Still, one interviewee criticized this relaxed enforcement, noting that putting a notice in a mailbox is unlikely to change compliance rates compared to knocking on a door and having a conversation.¹³⁹

129. State Board July 2015 Emergency Regulation Presentation, *supra* note 121 at 69; *Emergency Regulations* July 6, 2015, *supra* note 124 at (d)(1).

130. State Board July 2015 Emergency Regulation Presentation at 69.

131. *Id.* at 70-71.

132. *Emergency Regulations* July 6, 2015, *supra* note 124 at (d)(1).

133. *Id.* at (d)(6).

134. State Water Resources Control Bd., *Russian River Tributaries Emergency Regulation Follow Up Meeting*, 13 (Nov. 2, 2015); available at http://www.waterboards.ca.gov/waterrights/water_issues/programs/drought/docs/russian_river/infomtg110215/110215_rrtribs_presentation_color.pdf [hereinafter "State Board Nov. 2015 Emergency Regulation Follow Up Presentation"].

135. *Id.* at 13.

136. *Rural Residents Decry Water Restrictions*, *supra* note 116 at 2.

137. Telephone interview with State Board staff members.

138. State Board Nov. 2015 Emergency Regulation Follow Up Presentation, *supra* note 134 at 13.

139. Telephone Interview with Don McEnhill, Executive Director, Russian Riverkeeper (May 6, 2016).

B. Results of the Conservation Order

While anecdotal evidence indicates that compliance with the order was mixed, the actual amount of conserved water is unknown. This remains unknown because no data directly correlates conservation measures with stream flows, or even water withdrawals.¹⁴⁰ Even though the CDFW has wet and dry maps indicating that conditions stayed wetter for longer than it would have without intervention, the extent of Conservation Order's contribution to that is unclear. The CDFW was more successful in 2015 than in 2014 with their voluntary flow augmentation program,¹⁴¹ and these wet and dry maps provide more evidence of a direct benefit from the flow augmentation efforts than anything else.¹⁴²

For one interviewee, the inability to measure the results of the Conservation Order presented a major problem.¹⁴³ In particular, whether requiring only domestic water conservation can increase instream flows remains unknown.¹⁴⁴ That same interviewee expressed skepticism that the Conservation Order could achieve meaningful results without addressing all uses of water including agriculture.¹⁴⁵

The Conservation Order generated considerable discontent, in part because of the decision to exclude agriculture. Hundreds of local residents expressed their unhappiness and skepticism during State Board outreach meetings on the Emergency Regulation, many complaining that the Emergency Regulation excluded agricultural irrigation from the Conservation Order.¹⁴⁶ According to a local newspaper, "[i]t would be hard to exaggerate many attendees' outrage."¹⁴⁷ For example, one attendee "said the rural water-conservation measures approved by the state Water Resources Control Board last month are 'doomed to fail because the main culprits are not included.'"¹⁴⁸ Other residents saw it as a fairness issue and thought they should not be

140. Telephone interview with State Board staff members. *See also* Gray, *supra* note 67 (noting that at the time there was no way to quantify how much water was conserved in comparison to previous years).

141. *Id.*

142. *Id.*

143. McEnhill, *supra* note 139.

144. *Id.*

145. *Id.*

146. Will Parrish, 'Don't Know, Don't Wanna' Know', ANDERSON VALLEY ADVERTISER, Aug. 19, 2015 at 1, <http://theava.com/archives/46768> [hereinafter "'Don't Know, Don't Wanna' Know"'].

147. Will Parrish, *Going Dry Fast (Part 1)*, ANDERSON VALLEY ADVERTISER, Sept. 2, 2015 at 1, <http://theava.com/archives/47338> [hereinafter "*Going Dry Fast (Part 1)*"].

148. *Rural Residents Decry Water Restrictions*, *supra* note 116 at 1.

forced to conserve when the vineyards were not.¹⁴⁹ These sentiments are not new, and the regulations “tapped a deep well of resentment regarding the long-standing preferential treatment [some residents] say state, county, and even federal officials have accorded the powerful, multi-billion dollar regional wine industry.”¹⁵⁰

In response, state officials justified agriculture’s exclusion on the basis that the State Board sought to curb non-economic uses before curbing uses like irrigation, which have direct economic impacts.¹⁵¹ The State Board also noted that the conservation measures were similar to what urban residents across the state have been under and stated that if the conservation order does not work, the State Board will look to curtail vineyards’ water use, too.¹⁵²

C. Vineyards Voluntary Conservation Efforts

Although the State Board did not include irrigation in its mandatory conservation order, state officials did work with vineyards and reached agreements with 68 growers to cut their water use by 25 percent from 2013 levels, the same amount of the state’s overall mandatory cutbacks for urban water users.¹⁵³ The results of these efforts are very unclear. Winegrowers claimed that they already had implemented conservation, and used less than a third of the water that Central Valley vineyards use.¹⁵⁴ Still, some observers were skeptical that vineyards had actually increased their conservation. A local non-profit monitored several vineyards that had told the State Board and local press they were conserving water and found those growers were actually irrigating much more than previous years, in some cases more than once a week for 3 months.¹⁵⁵ This led observers to call “the voluntary cutbacks are meaningless,” since “there is no way of monitoring the vineyards’ compliance with the voluntary cutback because their water use has never been metered.”¹⁵⁶

149. *Id.* at 2.

150. *Going Dry Fast (Part 1)*, *supra* note 147 at 2.

151. *Don’t Know, Don’t Wanna’ Know*, *supra* note 146 at 1.

152. *Rural Residents Decry Water Restrictions*, *supra* note 116 at 2 (citing Dorene D’Adamo, State Board member).

153. PD Editorial: *California’s Native Fisheries in Peril*, PRESS DEMOCRAT, Aug. 30, 2015 at 2.

154. GUY KOVNER, *Rules to Protect Russian River Salmon Opposed by Farm Bureau*, PRESS DEMOCRAT (June 23, 2015) at 3-5.

155. McEnhill, *supra* note 139.

156. *Going Dry Fast (Part 1)*, *supra* note 147 at 2.

VII. Informational Order

As part of its July 2015 emergency order, the State Board also issued an Information Order “to inform future actions that may be needed if the enhanced conservation measures are not sufficient.”¹⁵⁷ The State Board needed the order because it did not have adequate data about surface water diverters or groundwater pumpers in the four priority watersheds. In the crisis situation they confronted in the summer of 2015, state officials faced the impossible task of managing the watershed without even the most basic information about water usage – including the amount of water being used, who was using it, where it was being used, and the source of the water.

The Information Order required all landowners and water suppliers in the four priority watersheds to submit information on surface diversions, groundwater pumping, and the use of surface and ground water.¹⁵⁸ The request required information such as: date of first use, location and type of diversion, types of beneficial use, distances of wells from surface streams, well depth, place of use, estimated 2014 diversion and use amount, water source, volume of storage, pumping rate, and anticipated water needs for 2015.¹⁵⁹ Originally, these parties had 30 days to provide the requested information.¹⁶⁰ The State Board required water users to provide that information through an internet based form.¹⁶¹ In addition to holding outreach meetings and resources for locating information or estimating diversions,¹⁶² State Board employees personally assisted water users in completing the form. Through April 2016, the State Board staff had responded to over 3,500 calls and 900 emails, and participated in over 130 one-on-one appointments to help individuals complete the form.¹⁶³

A. Implementation of the Informational Order

Responses were originally due in October 2015. Despite the fact that failing to provide the information within 30 days subjected a landowner to

157. State Board Dec. Press Release, *supra* note 128 at 2.

158. State Board July 2015 Emergency Regulation Presentation, *supra* note 121 at 75.

159. *Id.* at 76.

160. *Id.* at 75.

161. *Id.*

162. *Id.*

163. State Water Resources Control Board, *Proposed Update and Re-adoption of Emergency Regulation Requiring Additional Water Use Information for the Protection of Specific Fisheries in Tributaries to the Russian River*, 14 (Mar. 1, 2016); available at http://www.waterboards.ca.gov/waterrights/water_issues/programs/drought/docs/russian_river/201603_01_swrbc_item7_presentation.pdf [hereinafter “State Board Mar. 2016 Emergency Regulation Presentation”].

civil liability of up to \$500 a day,¹⁶⁴ 50% of affected parties did not respond by the deadline. After the deadline passed, the State Board mailed reminder letters to landowners and water suppliers who had not submitted responses.¹⁶⁵ By December, the State Board had received information from 80% of landowners and suppliers.¹⁶⁶ Then on December 15th, the State Board issued 1,881 Administrative Civil Liability Complaints to the remaining parties, and by January 2016, the State Board had a 90% response rate (a total of 10,938 responses).¹⁶⁷ One of the most striking findings of the information order was the reporting of 136 previously unregistered surface water diversions.¹⁶⁸

The State Board also received significant feedback on the Informational Order, primarily due to problems with the internet form. Because of the timing of the Emergency Regulation, the State Board had to develop the informational order form under significant time and resource constraints.¹⁶⁹ Overall, the form was “not the friendliest,” rather, it was “clunky and difficult.”¹⁷⁰ For example, if a user did not go through the right procedure when adding an additional water source or use, then the form would delete any source she had previously entered.¹⁷¹ Many people were unhappy because of how hard the form was to complete, and its difficulty also created a significant amount of work for State Board staffers who had to work weekends to help people fill them out.¹⁷² Some watershed residents worried the State Board wanted this information so that it could charge them in the future.¹⁷³

Possibly because of the issues with the form, many respondents provided incomplete or inaccurate responses.¹⁷⁴ Consequently, the State Board has now turned to following up with people to complete their responses.¹⁷⁵ Other responses needed revision since they documented well

164. *Emergency Regulations* July 6, 2015, *supra* note 124 at (e)(2).

165. State Board Nov. 2015 Emergency Regulation Follow Up Presentation, *supra* note 134 at 17.

166. State Water Resources Control Bd., *Update on Water Rights and Fisheries Management Actions in the Russian River Watershed*, 5 (Jan. 28, 2016); available at: http://www.waterboards.ca.gov/waterrights/water_issues/programs/drought/docs/russian_river/ncrwqcb_infoorderupdate_pres.pdf [hereinafter “State Board Jan. 2016 Emergency Regulation Presentation”].

167. State Board Jan. 2016 Emergency Regulation Presentation, *supra* note 166 at 5; State Board Mar. 2016 Emergency Regulation Presentation, *supra* note 163 at 22.

168. State Board Mar. 2016 Emergency Regulation Presentation, *supra* note 163 at 31.

169. Telephone interview with State Board staff members.

170. *Id.*

171. *Id.*

172. *Id.*

173. *Id.*

174. Telephone interview with State Board staff members.

175. *Id.*

locations significantly outside the watershed.¹⁷⁶ Multiple interviewees noted that it is hard to know if these inaccuracies were by mistake or on purpose.¹⁷⁷ Nevertheless, most of the well locations appear accurate and within in the parcel for which the information was sought.¹⁷⁸

VIII. State Water Board Emergency Action - March 14, 2016

In March 2016, the State Board issued another Emergency Regulation, renewing the Informational Order but not the Conservation Order. Although the new regulation was unnecessary to continue following up on previously submitted information responses, renewing the regulation made it clear that the State Board remained interested and is working on the issue.¹⁷⁹ A State Board staff member also noted that the requirement of reporting information on new wells was important to continue.¹⁸⁰ This is because, based on information about new well permits from the county and the lack of questions about how to report them, the State Board believes most people have not been following this part of the Order.¹⁸¹

IX. Lessons Learned

1. Inadequate Data Makes Effective Drought Response

Impossible.

The lack of key information is one of the most striking aspects of drought response in the Russian River basin. The State Board had to act without a clear understanding of how different management actions might improve flow. With some exceptions (notably the Camp Meeker flow augmentation), we still do not have a clear understanding of whether both voluntary and mandatory actions improved stream flows. Indeed, one of the State Board's two binding orders required the collection of basic information about water pumping, withdrawals, and use. The Informational Order certainly took a step in the right direction, because the State Board needs accurate water use information in order to develop the most effective solutions and strategies. And already the Informational Order has illuminated several important

176. *Id.*

177. *Id.*

178. *Id.*

179. *Id.*

180. *Id.*

181. *Id.*

lessons. For example, the Order revealed that there are nearly 130 unregistered water diverters in the Russian River tributaries. Several interviewees were not surprised by this, and a State Board staff member noted that this is likely representative of a larger problem across California.¹⁸² This information gap only adds to the already known information deficiencies, such as the location of diversions and wells, as well as the connection between surface and groundwater. Such basic information is a prerequisite to effective and efficient drought management.

To truly respond effectively to a drought, the community needs to have a set of responses planned out in advance. Presumably, the goal would be to choose the set of actions that would make the greatest contribution towards the goal (for example, improving stream flows to reduce mortality for key life stages of anadromous salmonids) with the least impact on water users. Designing those actions requires good data and the right analysis of that data. The data collected pursuant to the informational order will help better plan for and respond to droughts, but there are still major issues that need work. One of the most prominent of these is developing a better understanding of the interaction between surface water and groundwater, and more specifically understanding which wells are impacting stream flows in the tributaries. The State Board needs this information on hydrological connectivity to develop the more targeted curtailments it desires to implement.¹⁸³

2. The Legal Separation of Surface and Groundwater Poses a Barrier to Effective Water Management Generally, and Drought Response in Particular.

Another gap that the Russian River basin drought response made apparent is the lack of authority for regulating groundwater pumping. California law makes percolating groundwater separate from surface water, ignoring their hydrologic connection.¹⁸⁴ In fact, “water law terms are geographic conceptions fundamentally at odds with science’s understanding of water’s movements.”¹⁸⁵ Traditionally, the State Board has only had permitting jurisdiction over surface water and subterranean stream water.¹⁸⁶

182. Telephone interview with State Board staff members; Gray, *supra* note 67 (noting that unregistered uses must either register a riparian use or apply for a permit from the State Board. Diversions may also need to obtain a Stream Alteration Agreement from CDFW. See also *Siskiyou Cnty. Farmland Bureau v. CDFW*).

183. Telephone interview with State Board staff members.

184. JOSEPH L. SAX, *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*, SWRCB No. 0-076-300-0 1 (Jan. 19, 2002).

185. *Id.* at 3.

186. *Id.* at 1.

The current legal test for whether the State Board has jurisdiction over groundwater “as a subterranean stream flowing through a known and definite channel, and thereby to be subject to the Board’s permitting authority” is based on the presence of four particular physical characteristics.¹⁸⁷ Such a test fails to reflect the hydrological reality of the connection of percolating groundwater to surface water, and the effect of groundwater pumping on surface water. This legal separation deprives the State Board of any direct tools either to reduce pumping to protect streamflow or to require conjunctive management as a tool for drought preparation and response. The lack of state authority over groundwater may also account for the lack of good data about groundwater pumping and the need for the Informational Order.

3. The Sustainable Groundwater Management Act Does Not Fully Close this Gap.

In 2014 the California legislature enacted the Sustainable Groundwater Management Act (SGMA), creating for the first time a framework for statewide sustainable groundwater management. The statute requires local agencies to prepare and implement groundwater sustainability plans in each basin that achieves “sustainable” management, meaning that the basin avoid six enumerated “undesirable results.” The term “undesirable results,” includes “[s]urface water depletions that have significant and unreasonable adverse impacts on beneficial uses of the surface water.”¹⁸⁸ Because fish and wildlife are included as beneficial uses, this piece of the statute would give a local agency the authority to impose measures that avoid “significant and unreasonable” depletions of stream flow, presumably including, measures to avoid salmonid stranding and mortality during extreme low flows.

This is an important new tool for groundwater management, but it may not benefit sparsely populated watersheds, including portions of the Russian River. SGMA is only mandatory for groundwater basins that the Department of Water Resources designates as high and medium priority, and of the four tributaries covered by the Emergency Regulation, only portions of Mark West Creek are in one of those basins.¹⁸⁹ Therefore, SGMA’s authority to address surface water depletions will not help manage unreasonable groundwater pumping on the other tributaries unless localities in these basins decide to voluntarily adopt basin plans.

State agencies and localities need to explore proactive management and regulatory tools to deal with stream depletion by groundwater pumping

187. *Id.* at 5.

188. Sustainable Groundwater Management Act (Assem. Bill No. 1739, Sen. Bill Nos. 1168, 1319 (2013-2014 Reg. Sess.) at Table 1, (1)(6).

189. State Board July 2015 Emergency Regulation Presentation, *supra* note 121 at 89.

in areas not covered by SGMA. As mentioned above, one possibility is voluntarily including in SGMA compliance basins that are not designated high or medium priority. State intervention based on prohibitions against unreasonable use or the public trust doctrine presents another solution. A recent California Superior Court decision, *Environmental Law Foundation v. State Water Resources Control Board*, found that the public trust doctrine applies to “groundwater so connected to a navigable river that its extraction harms trust uses of the river.”¹⁹⁰ But the applicability of reasonable use doctrine to groundwater is still controversial.¹⁹¹

4. Both the Frost Protection and Emergency Regulations Demonstrate the Reasonable Use Doctrine is an Effective Tool for Environmental Protection and Drought Response.

In the *Light* decision, two holdings provide a framework for the State Board’s use of the reasonable use doctrine to protect aquatic ecosystems and species of concern during drought. First, the court clarified that, based on Article X, section 2 of the California Constitution and the public trust doctrine, “the beneficial public trust use of maintaining stream levels to avoid salmonid deaths” could take precedence over other uses of water.¹⁹² Second, the court held that the State Board had the power to enact proactive regulations defining and restricting unreasonable use, and was not limited solely to after the fact litigation to make a claim of unreasonable use.¹⁹³

While traditional unreasonable use decisions often involved individual determinations by a court,¹⁹⁴ both the Frost Protection and Emergency Regulations constituted unreasonable use prohibitions for a group of users against certain types of uses that the State Board proactively determined.¹⁹⁵ These actions showcased the State Board’s ability to proactively regulate

190. *Envtl. Law Found. v. State Water Res. Control Bd.*, No. 34-2010-80000583, 7 (Cal. Super. Ct July 15, 2014).

191. JOSEPH L. SAX, *We Don’t Do Groundwater: A Morsel of California Legal History*, 6 U. DENV. WATER L. REV. 269, 308 (2003) (“A lively current question is whether, and to what extent, the Board may restrict pumping of percolating groundwater that is adversely affecting surface instream benefits, such as fish populations and riparian values. The Board’s attorneys are of the view the Board has authority to control such uses where they either: (1) violate the prohibition of the Constitution and the Water Code on waste and on unreasonable use and methods of use; or (2) violate the public trust. Both jurisdictional and substantive issues arise. In terms of jurisdiction, there are two distinct issues. First, does the Board have authority to take jurisdiction itself, and to issue remedial orders against users water users over whom it has no permitting authority?”).

192. *Light*, 226 Cal. App. 4th at 1489. See generally, *id.* At 1483-86.

193. See generally, *id.* at 1483-86.

194. See e.g. *Erickson*, 22 Cal. App. 3d.

195. *Reasonable Use on the Russian River*, *supra* note 32 at 62.

unreasonable use, which if deployed effectively allows the State Board to prevent harm to fisheries. Furthermore, because unreasonable uses can change over time or depending on the situation, the State Board can regulate uses made unreasonable by drought conditions. And further, “[e]fficient regulation of the state’s water resources in these circumstances demands that the Board have the authority to enact tailored regulations.”¹⁹⁶

The Conservation Order and the Informational order were based on the same foundation. The holding in *Light*, seems to give the State Board power to go farther in restricting water use during a drought than it has during this drought. Restrictions on specific water uses might be justified if the State Board could show that those uses would cause salmon mortality. The foundation for such a regulation would be even stronger if the regulation, as was the case with the frost protection regulation, contained alternative management measures, including conjunctive use, more coordinated use by diverters, and local storage that would allow specific water users to avoid their impact on salmon.

However, such an approach would require continued data collection and analysis and advanced planning. The State Board would have to make a showing that certain categories of water uses (based on location or timing) risk salmonid mortality. The State Board would also need time to develop additional management measures with water users and other local stakeholders, and a mechanism for implementing those measures. For example, local storage that could be used as an alternative to direct diversions cannot be built in an emergency drought context.

5. Effective Enforcement of Water Conservation Mandates is Extremely Difficult, Particularly in Locations with Decentralized Water Management and Numerous Parcels.

Although the Emergency Regulation played an important role in raising awareness, many people did not adhere to the order’s requirements and state officials had trouble enforcing them.¹⁹⁷ The State Board ran into several roadblocks to enforcing the Conservation Order effectively. First, the Russian River watershed is a dispersed, rural community, which made both communicating the order and surveying compliance difficult.¹⁹⁸ Effective communication was complicated by the fact that many landowners rent out their property or are only part-time residents.¹⁹⁹ Consequently, the Conservation Order would likely have been more effective if the State Board

196. *Light*, 226 Cal. App. 4th at 1486-87.

197. Telephone interview with State Board staff members.

198. *Id.*

199. *Id.*

issued the regulation earlier, such as in April or May.²⁰⁰ That way the staff could have done more outreach and enforcement.²⁰¹

The logistics of enforcement also presented a major issue and showed the importance of increasing the State Board staff members' resources and working with CDFW. During summer 2015 enforcement efforts, the State Board staff teamed up with CDFW to conduct inspections. This had critical advantages because CDFW has wardens, who as law enforcement officers, have the ability to enter property if they know there is a violation.²⁰² Furthermore, CDFW officers were also more familiar with the area and knew where to go.²⁰³ Still, a State Board staff member noted that gaining access to property proved difficult, and many of the properties have high fences or locked gates, which also increased the difficulty of enforcement.²⁰⁴

There were more fundamental difficulties with enforcing the order. For example, an inspection might show that a lawn was watered, but not whether it was watered in compliance with the order.²⁰⁵ Several of the other prohibitions, like those against washing cars and sidewalks, are also wholly dependent upon fortunate timing for effective enforcement. Furthermore, many properties were difficult to inspect visually due to fences, distance from the road, and other barriers. And while aerial surveys like those conducted by the State Board can be more effective, they still face time and staff constraints.²⁰⁶ If the purpose of conservation measures is to raise awareness and rely on residents' good faith efforts, then enforcement concerns present less of a problem. But if enforcement measures become necessary either to increase conservation or fairness, then devoting more resources and implementing more easily enforceable prohibitions is necessary. These and other enforcement obstacles could limit effectiveness of unreasonable use prohibitions as a regulatory tool.

6. State Board Regulations, or the Threat of Them, Can Motivate Conservation and Improved Management.

In other watersheds across California, regulation or even the threat of it has spurred action, and the Russian River watersheds provides evidence of this effect. People see other actions across the state and they want to avoid

200. *Id.*

201. *Id.*

202. *Id.*

203. *Id.*

204. *Id.*

205. *Id.*

206. In the future, it would be better to do those earlier and then follow up with warnings based the results. *Id.*

that type of regulation.²⁰⁷ For example, as discussed in a previous section, the spotlight on frost protection caused many vineyards to change their frost protection methods even before the State Water Board adopted the policy.²⁰⁸ According to one interviewee, some growers may have had alternatives to direct diversion and overhead sprinklers for frost protection, and the threat of regulation provided additional incentives to explore those options.²⁰⁹ Furthermore, with the agency attention came technical support from NRCS, Resource Conservation Districts and UC Cooperative Extension, which has helped growers who wanted to implement changes but may have lacked the knowledge.²¹⁰ Lastly, regulations had the alternative benefit of facilitating public education, which was important in the Russian River watershed where many land owners bought the property from someone else and were unaware their activities affected instream flows.²¹¹ This knowledge alone has the potential to motivate people to change their water use patterns.

Both unreasonable use prohibitions and flow requirements provide ways to spur this action, but even the threat of regulation may incentivize action. In expressing growers' preference for voluntary conservation requests over curtailments, Tito Sasaki, the chairman of the Sonoma County Farm Bureau's water committee said, "You could say it a hundred times. . . . [w]e don't want to go under their hammer."²¹² This sentiment likely has roots in the drastic measures growers took when the State Board curtailed 650 water rights holders' use on the Russian River mainstem in 2014, such as trucking in thousands of gallons of water for irrigation.²¹³ So with these forces in the background, one State Board staffer was hopeful that the conversations triggered by the Conservation Order would open up solutions beyond the traditional water rights framework.²¹⁴

7. Solutions Outside the Traditional Water Rights Regulatory Framework Can Contribute to Combating Severe Drought Conditions in an Emergency.

By many accounts, the voluntary flow augmentations were the most successful efforts to increase instream flows and save fish, and were more effective than the Emergency Regulations. These agreements arose from methods beyond traditional water rights management tools, demonstrating

207. Telephone interview with State Board staff members.

208. King, *supra* note 101.

209. *Id.*

210. *Id.*

211. Gray, *supra* note 67.

212. *State Seeks Voluntary Cut*, *supra* note 117 at 4.

213. *Id.* at 2.

214. Telephone interview with State Board staff members.

the value of more informal collaborative efforts. And while state officials across California should consider utilizing similar strategies, state agencies could facilitate this by more formally supporting these efforts. For instance, Jackson Family Wines' donation played a critical role in the success of the Camp Meeker's flow augmentation on Dutch Bill Creek by providing capital to quickly purchase and install the necessary infrastructure. The State could support future agreements with a small fund for state agencies to quickly implement the flow enhancements. This fund would pale in comparison to the cost of other water projects throughout the State, but the marginal benefit of this investment is potentially much greater.

Despite the success of the flow augmentations, such agreements cannot replace comprehensive reform. As CDFW noted "the addition of flow enhancement projects from a few exceptional volunteers can make a big difference. . . . [b]ut, the restoration and conservation of functional ecosystems is a more effective long term solution," and "they are not likely to replace the need for comprehensive regulation of water uses."²¹⁵

8. Gaps in State and Local Cooperation Undermine Water Management Efforts.

The State Board's difficulty obtaining information on new wells evidenced a potential area where state-county cooperation could have significant benefits. One problem is that before the county approves new well permits, no one conducts a water availability analysis or any informal review of whether there is enough water to supply the well without causing stream impacts.²¹⁶ Such a system leads to a reduction in stream flows and harms aquatic resources like the Coho, since landowners drill most wells within feet of a stream and dramatically affect flows.²¹⁷ In watersheds like the Russian River, this creates a potential loophole, where water users chose to drill wells rather than apply for surface water diversions that may not be approved because of a lack of water. And this loophole is especially problematic where the groundwater withdraw is hydraulically connected to a fully-appropriated tributary or river. Further, as noted above, SGMA's failure to regulate all groundwater basins leaves low priority basins like Mill, Dutch Bill, and Green Valley Creeks at the mercy of voluntary management efforts. As one interviewee noted, the county and state need to work together to regulating well drilling, since currently no one regulates them in a meaningful

215. *Status of Coho Salmon in the Priority Russian River Tributaries 2015 Drought Update*, *supra* note 110 at 22.

216. McEnhill, *supra* note 139.

217. *Id.*

way that ensures protection of flows that support juvenile Coho and steelhead.²¹⁸

State-county coordination should also extend to the permitting process for vineyards. According to David Hines of NMFS, Sonoma County officials often grant permits to wineries without considering water availability.²¹⁹ “It seems that a winemaker will walk in the door, and the county doesn't say anything about water and whether there's enough there, and just gives permission to build,” which causes “a definite gap between the county and their permitting process and the state's water-rights process.”²²⁰ When the state finally gets involved, the user protests that she's been taking the water for years.²²¹

One interviewee noted that one of the biggest successes was the contacts made through the flow enhancement agreements and the Emergency Regulation public outreach meetings.²²² Although those contacts and relationships will help stakeholders work together in the future and address these issues, formal coordination efforts would also likely be beneficial.

Conclusion

Beginning with the 2011 Frost Protection Regulation, the State Board utilized the California Constitution's reasonable use doctrine to proactively regulate water uses. This future use prohibition across an entire area, affirmed by the *Light* case, represented an important affirmation to the State Board's regulatory power under the reasonable use doctrine. And during the drought, the State Board returned to the reasonable use doctrine to regulate water use. The State Board's July 2015 emergency regulation and its implementation revealed important lessons for future drought management. In particular, state officials must work to close informational gaps, while legislatures should address potential legal gaps in order to more effectively manage California's precious water resources and protect its vulnerable fish populations.

218. *Id.*

219. *The Wrath of Grapes* at 4-5, *supra* note 23

220. *Id.* at 4-5 (internal quotation marks omitted).

221. *Id.*

222. Gray, *supra* note 67.