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LEADERSHIP COUNSEL
FOR
JUSTICE & ACCOUNTABILITY

June 11, 2026

Chair Joaquin Esquivel and Members of the Board
State Water Resources Control Board
c/o Courtney Tyler, Clerk of the Board
1001 "I" Street, 24th Floor
Sacramento, CA 95812

Re: Adopt Numeric Limits on Nitrogen Fertilizer Overapplications and Discharges from Irrigated Agriculture

Dear Chair Esquivel and Members of the State Water Resources Control Board:

The undersigned groups write to urge the State Water Resources Control Board (Water Board or the Board) upon their own motion, immediately update their Water Quality Order 2023-0081 by the end of 2026 to require the regional boards to adopt enforceable numeric limits on nitrogen applications and discharges to achieve each region's final operational benchmark protective of groundwater quality under the Irrigated Lands Regulatory Program (ILRP).¹

The Board now has a clear scientific record. After ten months of research, analysis, and public input, the Board's Second Agricultural Expert Panel (Expert Panel) concluded that sufficient data exists to establish numeric interim limits now, current scientific evidence supports the conclusion that certain discharge limits in the Central Valley and Central Coast would be protective of groundwater quality, and that nitrogen discharges above certain thresholds are excessive and require mitigation.² Further delay is no longer justified. The Board has known about the harms of nitrogen pollution for decades.³ Yet it has not set enforceable limits. With the Expert Panel's findings, the record and the obligation to act are evident. Process and stakeholder input are important but should not be exploited to allow for further inaction when the problem is known and solutions are clear.

Demands for nitrogen fertilizers are projected to increase.⁴ Without numeric limits, communities and ecosystems will continue bearing the brunt of increased nitrogen pollution and related harms and costs. The State Water Board has the authority and responsibility to protect water quality and ensure regional boards can meet their water quality objectives.⁵ Numeric limits drive behavior change, as demonstrated by other countries that have successfully established science-based limits on nitrogen fertilizers and seen resulting improvements in water quality.⁶ Numeric limits are also fair in that they provide measurable targets, reward good actors who reduce nitrogen loading, enable effective and fair enforcement, and support progress toward safe and clean water for all Californians and ecosystems.

Every day that the State Water Board delays updating its water quality orders, it allows the costs of inaction on communities and ecosystems to build, including public health and economic costs. The evidence is clear: inaction is far more expensive than preventing pollution at the source, with rising costs continuing to strain state and local budgets.

The costs of inaction are substantial and escalating

Nitrogen pollution drives increasing public spending on drinking water treatment, emergency water provisions, system consolidations, health care, and ecosystem restoration. In California alone, millions of dollars are spent annually to provide emergency drinking water to communities with nitrate-contaminated wells.⁷ Nationwide, agricultural nitrogen pollution costs the United States an estimated \$59 billion annually, with Central California incurring some of the highest regional costs.⁸ These costs are

borne by taxpayers, ratepayers, vulnerable communities, not the polluters. If current trends continue, nitrate contamination could affect nearly 80% of community water system users in the San Joaquin and Salinas Valleys by 2050, driving even higher mitigation costs.⁹

Healthcare harms and costs from nitrate pollution are substantial, contributing to blue baby syndrome and higher rates of leukemia, lymphoma, colon, and childhood brain cancers.¹⁰ Nitrate-attributable cancers cost up to \$1.5 billion in direct medical expenses and \$6.5 billion in indirect costs annually in the United States.¹¹ California bears a disproportionate burden since our state has among the highest nitrate-linked cancer rates.¹² An estimated 1,730 cases of blue baby syndrome were reported in California between 2011 and 2019, concentrated in regions with contaminated drinking water.¹³

Nitrogen pollution also drives harmful algal blooms (HABs) that damage fisheries, threaten biodiversity and recreation, and make kids and pets sick.¹⁴ HABs are costly and require the state to spend millions on monitoring, treatment, and response while simultaneously threatening biodiversity. California spent almost \$53 million to prevent or treat HAB breakouts in just six cities.¹⁵ California imperiled species like the Bay Checkerspot Butterfly and Arroyo Toad are threatened by nitrogen pollution.¹⁶

Excess nitrogen also fuels climate change through nitrous oxide (N₂O) emissions, a greenhouse gas 273 times more potent than carbon dioxide.¹⁷ In 2025, researchers estimated that N₂O emissions from fertilizer overuse resulted in \$12 billion in annual climate damages nationwide.¹⁸ In California, 60 percent of the state's total N₂O emissions are caused by agriculture, including fertilizer overapplications.¹⁹

The State Water Board has a duty to evaluate regulatory costs holistically, including the economic burdens of inaction and delay. Numeric limits shift costs toward prevention and accountability, allowing the state to save for the long-term.

Numeric limits will supercharge transition to more sustainable agriculture

Numeric limits are essential to leveling the playing field and accelerating the transition to more sustainable agriculture. Under the current ILRP, farmers who invest in sustainable farming practices face the same requirements as those who pollute, effectively penalizing good stewardship and discouraging innovation. Enforceable limits ensure accountability and fairness, as noted by the Central Coast Regional Board.²⁰ As demonstrated by successful California policies like the Renewable Portfolio Standard, AB 32, and the Clean Cars Rule, clear regulatory standards drive investment, innovation, and cost-effective change.²¹ Clear enforceable limits can similarly supercharge widescale transitions to more sustainable agriculture.

Conclusion

More than 25 years ago, California committed to regulating agricultural pollution, yet nitrate contamination continues to deny communities their human right to safe, clean water.²² Californians should not have to choose between a strong agricultural economy and clean water. The Board must act now. We urge the Board to adopt enforceable numeric limits on nitrogen fertilizer application and discharge and incorporate them into an updated water quality order no later than the end of 2026. Further delay will only increase costs, deepen inequities, and prolong preventable harm.

Sincerely,

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Community Water Center

¹ State Water Board, Water Quality Order 2023-0081.

https://www.waterboards.ca.gov/public_notices/petitions/water_quality/docs/2023/wqo2023-0081.pdf

² Page 13 of Second Statewide Agricultural Expert Panel Report. March 30, 2026. Available here:

https://www.waterboards.ca.gov/water_issues/programs/agriculture/docs/2026/draft-report-v11-march-30.pdf

Current science suggests that nitrogen discharges must be below 31 pounds per acre per year in the Central Valley to protect drinking water quality in groundwater. Accounting for its hydrologic conditions, the Central Coast Regional Water Quality Control Board determined a 50 pound per acre per year nitrogen discharge limit to protect groundwater quality.

³ California Department of Water Resources, Bulletin No. 143-6: Delano Nitrate Investigation (1968) available at <https://sgma.water.ca.gov/portal/gsp/preview/145> (accessed June 1, 2026); As early as 1988, the State Board recommended consideration of limiting nitrogen fertilizer application. (State Board, Nitrate in Drinking Water, Report to the Legislature, Report No. 88-11WQ (1988), at p. 49, available at <https://ucanr.edu/sites/default/files/2012-03/138960.pdf> (accessed May 1, 2026).

⁴ Woodward EE, Edwards TM, Givens CE, Kolpin DW, Hladik ML, “Widespread use of the nitrification inhibitor nitrapyrin: assessing benefits and costs to agriculture, ecosystems, and environmental Health,” *Environ Sci Technol.* 2021 Feb 2;55(3):1345-1353. Available at: <https://pubmed.ncbi.nlm.nih.gov/33433195/>.

⁵ California Water Code § 13242.

https://leginfo.legislature.ca.gov/faces/codes_displaySection.xhtml?lawCode=WAT§ionNum=13242.

⁶ Daniel Rath, *Scientific Literature Review for Questions Posed to the Upcoming Second Statewide Agricultural Expert Panel*. Available at: <https://www.nrdc.org/sites/default/files/2025-08/scientific-literature-review-of-nitrogen-related-limits.pdf>.

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- ⁷ California Regional Water Quality Control Board, *Assessment of Interim Drinking Water Needs and Costs in Central Coast Areas Affected by Agricultural Nitrate Groundwater Contamination*, August 2025, 1–53. https://www.waterboards.ca.gov/centralcoast/board_info/agendas/2025/aug/item8_att1.pdf
- ⁸ Daniel J Sobota et al 2015 *Environmental Research Letters*, February 17, 2015, <https://iopscience.iop.org/article/10.1088/1748-9326/10/2/025006>.
- ⁹ Thomas Harter et al., “Addressing Nitrate in California’s Drinking Water” University of California, Davis, 2012. Available at: <https://ucanr.edu/sites/default/files/2012-03/138956.pdf>
- ¹⁰ Samantha Ammons et al., “Nitrate and Disinfection By-Products in Drinking Water and Risk of Ovarian Cancer,” *Environmental Epidemiology* (Philadelphia, Pa.) 9, no. 3 (2025): e382, <https://doi.org/10.1097/EE9.0000000000000382>; Jean D. Brender, “Human Health Effects of Exposure to Nitrate, Nitrite, and Nitrogen Dioxide,” in *Just Enough Nitrogen: Perspectives on How to Get There for Regions with Too Much and Too Little Nitrogen*, ed. Mark A. Sutton et al. (Springer International Publishing, 2020), https://doi.org/10.1007/978-3-030-58065-0_18; Mary H. Ward et al., “Nitrate Intake and the Risk of Thyroid Cancer and Thyroid Disease,” *Epidemiology* (Cambridge, Mass.) 21, no. 3 (2010): 389–95, <https://doi.org/10.1097/EDE.0b013e3181d6201d>.
- ¹¹ Alexis Temkin et al., “Exposure-Based Assessment and Economic Valuation of Adverse Birth Outcomes and Cancer Risk Due to Nitrate in United States Drinking Water,” *Environmental Research* 176 (September 2019): 108442, <https://doi.org/10.1016/j.envres.2019.04.009>.
- ¹² Alexis Temkin, Sydney Evans, “Nitrate In U.S. Tap Water May Cause More than 12,500 Cancers A Year,” Environmental Working Group, June 2019, <https://www.ewg.org/research/nitrate-us-tap-water-may-cause-more-12500-cancers-year>. Accessed May 8, 2026.
- ¹³ Comments on Draft Dairy Order. Stanford Environmental and Natural Resources Law and Policy Program, Stanford Law School Climate and Energy Policy Program, Stanford Woods Institute for the Environment. December 19, 2024. <https://woods.stanford.edu/sites/woods/files/media/file/cepp-comments-on-draft-dairy-order.pdf>.
- ¹⁴ Natural Resources Defense Council. Harmful Algal Blooms. August 2019. <https://www.nrdc.org/resources/harmful-algal-blooms#fn3>
- ¹⁵ Anne Schechinger, *The High Cost of Algae Blooms in U.S. Waters*, (Environmental Working Group, 2020), <https://www.ewg.org/research/high-cost-of-algae-blooms>. Accessed May 7, 2026.
- ¹⁶ Daniel Hernandez, et.al. March 1, 2016. *Nitrogen Pollution is Linked to US Listed Species Declines*. <https://doi.org/10.1093/biosci/biw003>
- ¹⁷ Greenhouse Gas Protocol. “IPCC Global Warming Potential Values.” August 7, 2024. <https://ghgprotocol.org/sites/default/files/2024-08/Global-Warming-Potential-Values%20%28August%202024%29.pdf>.
- ¹⁸ Omanjana Goswami and Precious Tshabalala, *Less Fertilizer, Better Outcomes USDA Conservation Programs Benefit Both Farmers and the Planet* (Union of Concerned Scientists, 2026), <https://doi.org/10.47923/2026.16101>.
- ¹⁹ Tomich, Thomas P., et al., eds. *The California nitrogen assessment: Challenges and solutions for people, agriculture, and the environment*. Univ of California Press, 2016. <https://sarep.ucdavis.edu/arc/nutrient/nitrogen/intro>
- ²⁰ Central Coast Regional Water Quality Control Board, “Proposed General Waste Discharge Requirements for Discharges from Irrigated Lands (Agriculture Order), Final Environmental Impact Report, Volume 3—Comments and Responses to Comments on the Draft Environmental Impact Report and Draft Agricultural Order 4.0,” April 2021.
- ²¹ For example, the Corporate Average Fuel Economy (CAFE) standards for fuel efficiency have nearly doubled the fuel efficiency of passenger cars. According to a 2024 Transportation Statistics Annual Report (“[the] first standards [were] set in 1978 when new passenger cars averaged 19.9 miles per gallon (MPG) on federal tests and 16.9 in actual use . . . In 2023, new cars averaged 46.1 MPG on the federal test and 34.9 MPG on the road.”), available at: <https://www.bts.gov/product/transportation-statistics-annual-report>.
- ²² Senate Bill 390. Chaptered February 12, 1999. http://www.leginfo.ca.gov/pub/99-00/bill/sen/sb_0351-0400/sb_390_bill_19991010_chaptered.html. State Water Resources Control Board. Irrigated Lands Regulatory Program. December 27, 2019. https://www.waterboards.ca.gov/water_issues/programs/agriculture/docs/about_agwaivers.pdf