



ENVIRONMENTAL LAW FOUNDATION



San Jerardo Cooperative, INC

June 28, 2024

State Water Resources Control Board
Attn: Kelsey Moore, Division of Water Quality
1001 I Street, 15th Floor
Sacramento, CA 95814

Submitted electronically via <ILRP@waterboards.ca.gov>

RE: Public Comments on Convening an Expert Panel for the Irrigated Lands Regulatory Program

Dear Chair Esquivel and Members the State Water Resources Control Board (“State Water Board” or “Board”)):

The undersigned organizations¹ appreciate this opportunity to comment on the State Water Board’s draft questions and the potential structure for the Second Statewide Expert Panel (“Expert Panel” or “Panel”). We understand that the purpose of this Expert Panel is to evaluate data on the State’s irrigated lands regulatory programs (“ILRP”) and approaches for reducing nitrogen loading in California’s waters.

Under Order WQ 2023-0081, the State Water Board commits to “initiat[ing] a public process to give further precedential direction” if the Expert Panel recommends significant changes to the ILRP.² Given that a future action by the Board will take into account recommendations by this Panel, we urge the Board to pose questions to the Panel regarding nitrate limits while informing the Panel of the Water Boards’ legal obligation to regulate

¹ The undersigned organizations include California Coastkeeper Alliance, Santa Barbara Channelkeeper, Monterey Coastkeeper (DBA Monterey Waterkeeper), San Jerardo Cooperative, Inc., California Sportfishing Protection Alliance, Community Water Center, Environmental Law Foundation, Leadership Counsel for Justice and Accountability.

² State Water Resources Control Board, Order WQ 2023-0081, 20 (2023).

agricultural pollution and protect water quality in California. First, the Board must inform the Panel no discharge of waste can create a vested right to continue to discharge.³ Similarly, the Board must also set the explicit expectation that potential limits must ultimately allow the Water Boards to meet its legal duty to protect the State’s water quality. Among its duties, the State Water Board must “be prepared to exercise its full power and jurisdiction to protect the quality of waters in the state from degradation.”⁴

Waste discharge requirements (“WDRs”) like the 2021 Central Coast Agricultural Order (“Ag 4.0”) must implement water quality objectives contained in water quality control plans (i.e. basin plans) as well as protect beneficial uses.⁵ Regional water boards must be able to determine that there is a “high likelihood” that a nonpoint source pollution (“NPS”) control implementation program, which is developed to implement WDRs, WDR waivers, or basin plan prohibitions, will achieve water quality requirements.⁶ Key Element 3 requires every NPS control implementation program to have a specific time schedule and “corresponding quantifiable milestones designed to measure progress toward reaching the specific requirements”.⁷ Indeed, the Central Coast Water Board stated in Ag 4.0’s Findings that it created enforceable limits as quantifiable milestones to comply with Key Element 3.⁸

In addition, California’s Antidegradation Policy prohibits the Board from allowing discharges into existing high quality waters unless it finds that the discharge will: (a) be consistent with maximum benefit to the people of the State; (b) not unreasonably affect present and anticipated beneficial use of such waters; and (c) not result in water quality less than prescribed in state policies.⁹ Additionally, any discharges of waste in existing high quality waters must be required to meet waste discharge requirements that will result in the best practicable treatment or controls necessary, in order to avoid pollution or nuisance and to maintain the highest water quality consistent with the maximum benefit to the people of the State.¹⁰

Consistent with the above state laws and policies, we propose changes to clarify the Board’s legal obligations in relevant questions in Section A below.

³ Cal. Water Code § 13263, subd. (g).

⁴ Cal. Water Code § 13000.

⁵ Cal. Water Code § 13263.

⁶ State Water Resources Control Board, Policy for Implementation and Enforcement of the Nonpoint Source Pollution Control Program, 12 (Key Element 2) (2004), https://www.waterboards.ca.gov/water_issues/programs/nps/docs/plans_policies/nps_iepolicy.pdf [hereinafter NPS Policy].

⁷ NPS Policy at 13; Monterey Coastkeeper v. State Water Resources Control Board, 28 Cal. App. 5th 342, 369-70 (2018).

⁸ Central Coast Regional Water Quality Control Board, Order No. R3-2021-0040, Attachment A, Findings, 44-45 (2021) [hereinafter Ag 4.0 Findings] (“This Order is consistent with Key Element 3 because it includes specific time schedules and quantifiable milestones in the form of numeric application and discharge targets and limits, and receiving water limits.”)

⁹ State Water Resources Control Board, Resolution 68-16 Questions and Answers, 5 question 6 (1995), https://www.waterboards.ca.gov/water_issues/programs/dept_of_defense/docs/5g.pdf.

¹⁰ State Water Resources Control Board, Resolution 68-16 Questions and Answers, 5 question 6 (1995), https://www.waterboards.ca.gov/water_issues/programs/dept_of_defense/docs/5g.pdf.

While the State Water Board must make clear its legal obligations and goals related to the questions for the Expert Panel, it must also ensure that questions posed to the Expert Panel are strictly scientific and technical questions in nature. As the Board stated in Order WQ 2023-0081, the purpose of the Panel is to evaluate irrigated lands data, approaches to nitrogen applied (“A”) and nitrogen removed (“R”), and the scientific bases for various categories of A and R—all of which are scientific and technical issues.¹¹ The Board also stated that “[t]he expert panel will be comprised of *scientific experts* drawn from entities such as academic institutions, scientific and policy institutes, and government agencies.”¹² Therefore, the only appropriate role of the scientists who will participate in the Expert Panel is simply to provide scientific and technical advice for the Board’s consideration.

The Board must also not delegate its policy-making authority to the Panel. However, we are concerned that the Board, through the proposed questions, may be delegating its policy-making authority to the Panel in an unconstitutional manner. Powers given to governmental bodies and their officers that involve “the exercise of judgment or discretion are in the nature of public trusts and cannot be surrendered or delegated to others.”¹³ Similarly, a Board’s delegation of rule-making authority is unconstitutional if the delegation leaves the resolution of fundamental policy issues to others – in this case the Expert Panel.¹⁴

Given the above, this Expert Panel should be tasked only with making factual and technical determinations and recommendations related to nitrogen fertilizer application and discharge. However, many questions as currently posed appear to illegally require or at least suggest that the Expert Panel balance different interests and/or make policy decisions.

For instance, the Board proposes to ask the Expert Panel if there is “sufficient data” to warrant the creation of final nitrate limits in Question 1. Answering this question as phrased would unlawfully require the Panel to use its discretion and make a judgment on the amount of data that the Board should have to make a policy decision. Equally importantly, as we discussed above, the Board must establish nitrate limits in order to meet water quality objectives and protect beneficial uses¹⁵; the Board cannot shirk this legal responsibility by suggesting that it is up to the Expert Panel to determine whether there is sufficient information to establish nitrate limits. The Board also proposes to ask the Panel whether the nitrogen applied (“A”) minus nitrogen removed (“R”) (“A-R”) or “A” approaches to setting limits is “appropriate in” Questions 4 and 6, suggesting that Panelists should or could make a value judgment balancing various considerations that are not explicitly stated in these questions. We discuss where the Board proposes to unlawfully delegate its authority and propose changes to address our concerns within each relevant question in Section A below.

¹¹ Order WQ 2023-0081 at 20.

¹² Order WQ 2023-0081 at 19 (Emphasis added).

¹³ *Sacramento Chamber of Commerce v. Stephens*, 212 Cal. 607, 610 (1931).

¹⁴ *Carson Mobilehome Park Owners’ Ass’n v. City of Carson*, 35 Cal. 3d 184, 190 (1983).

¹⁵ Cal. Water Code §§ 13000, 13263.

Below is a list of our key recommended revisions to the Board’s proposed questions for the Expert Panel:

- 1. The Board should limit the scope of Question 1 to asking the Expert Panel how existing data and scientific research provides a scientific basis for setting final nitrogen-related final limits that are protective of beneficial uses. The Board should not ask the Expert Panel to balance supporting “sustainable crop production levels” and other considerations.**
- 2. The Board should clarify Question 2 on nitrogen-related “interim limits” to ensure that it complies with Key Element 3 of the NPS Policy and that progress is made to prevent nitrogen discharges from causing or contributing to exceedances of water quality objectives.**
- 3. The Board should clarify Question 3 to ask the Expert Panel to provide scientific or technical considerations on the direct enforcement of nitrate limits instead of the enforceability of these limits.**
- 4. The Board should revise Question 4 to ensure that the Expert Panel only assesses the scientific basis for the A minus R approach, which was already approved by the Board in the ESJ Order.**
- 5. The Board should revise Question 5d to ask the Expert Panel the type and frequency of auditing that would allow the Boards to ensure data they receive from growers is accurate and reliable.**
- 6. The Board should clarify Question 6 to ensure that the Expert Panel only assesses the scientific basis of the use of fertilizer application limits as interim limits.**
- 7. The Board should revise Question 7 to ensure that the Expert Panel only assesses the scientific basis of the discount factors used within the Ag 4.0 compliance pathways.**
- 8. The Board should revise Question 8 to ensure that the Expert Panel only answers the scientific question of whether small farms operate differently and/or have reduced water quality impacts compared to larger farms.**

Due to the urgency and pervasiveness of ongoing nitrate contamination throughout the State, we recommend that the Board direct the Expert Panel to evaluating the scientific basis for nitrogen-related interim and final limits under our proposed revisions to Questions 1, 2, and 6.

Additionally, we provide recommendations on the Expert Panel’s areas of expertise and governance structure in Section B below. Finally, we include in Appendix A nitrogen-related data, reports, and scientific studies for consideration by the Expert Panel and the Board.

Section A: Recommendations on the Draft Questions to the Expert Panel

- 1. The Board should limit the scope of Question 1 to asking the Expert Panel how existing data and scientific research provides a scientific basis for setting final nitrogen-related final limits that are protective of beneficial uses. The Board should not ask the Expert Panel to balance supporting “sustainable crop production levels” and other considerations.**

The Board proposes to ask the Panel whether there is sufficient information to set final nitrogen-related limits that “are protective of groundwater beneficial uses and also support sustainable crop production levels from an economic, environmental, and public health perspective.”¹⁶ We have multiple concerns about this question and recommend various language changes below.

As we discussed above, the Board has a mandatory duty to achieve water quality standards and protect beneficial uses. In order to meet these legal obligations, the Board could ask the Panel *how to formulate* nitrate final limits, and the timeline for doing so. But the question of whether the Board should establish final limits is not appropriate for the expert panel because the Board has no discretion to adopt WDRs that fail to achieve water quality objectives; the question as written invites the panel to opine on how the Board can violate the law. Similarly, the Board should not ask whether data that is still being collected provides a “viable pathway” to setting final limits. Instead, the Board should ask how this data will support the establishment of final limits.

We are also concerned that the Board’s asking the Expert Panel whether there is sufficient information to set nitrate limits that “also support sustainable crop production levels from an economic, environmental, and public health perspective” would also result in the unconstitutional delegation of the Board’s policy-making authority.¹⁷ First, the Expert Panel will be made up of scientists who may not have the expertise on economic, environmental, and public health impacts of nitrogen fertilizer. This part of the question also suggests that the Panel balances protecting groundwater beneficial uses and sustainable crop production levels. Similarly, it seems to ask the Panel to consider economic, environmental, and public health standpoints in order to make a recommendation on whether there is sufficient information to establish nitrate limits. It is the Board’s responsibility to weigh different considerations in adopting WDRs, not that of the Expert Panel.¹⁸

¹⁶ State Water Resources Control Board, Notice of Opportunity for Public Comment on Convening an Expert Panel for the Irrigated Lands Regulatory Program, Attachment, Proposed Question 1.

¹⁷ *Sacramento Chamber of Commerce v. Stephens*, 212 Cal. 607, 610 (1931).

¹⁸ Cal. Water Code §§ 13241 and 13263(j).

As we stated above and in Section B below, the Expert Panel must have expertise in what it is being requested to make recommendations on. Given this necessity, the Board's proposal to ask the Panel to weigh economic considerations is especially concerning because the scope of the Panel regarding nitrate limits should only be how limits could be established to protect water quality requirements and beneficial uses.

As we discussed earlier, the Expert Panel should not be tasked with considering the economic impacts of nitrate limits because that is outside of the scope of work and expertise for the Panel discussed in the Board's Order WQ 2023-0081. However, when the *Board* deliberates a future action on nitrate limits, it should consider that excessive and rising groundwater nitrate levels have substantial and growing economic impacts on individuals exposed to high levels of nitrate, as well as on water systems and water agencies.

We urge the Board to make the following revisions to Question 1:

~~Is there enough~~ How does existing data and scientific research ~~to provide a scientific basis for setting final nitrogen-related limits that are protective of groundwater and surface water beneficial uses and also support sustainable crop production levels from an economic, environmental, and public health perspective?~~ ~~If yes, w~~What methodology would be used for developing those limits and what would the limits be? ~~If no, w~~What additional data needs to be collected and/or what additional research needs to be conducted to support the development of final nitrogen-related limits that are protective of groundwater beneficial uses? Does the data being collected, and any additional research currently underway, ~~support a viable pathway to provide a scientific basis for setting final nitrogen-related limits that are protective of groundwater beneficial uses?~~

- 2. The Board should clarify Question 2 on nitrogen-related “interim limits” to ensure that it complies with Key Element 3 of the NPS Policy and that progress is made to prevent nitrogen discharges from causing or contributing to exceedances of water quality objectives.**

The Board proposes to ask the Expert Panel what interim nitrogen-related limits should be set in order to make progress to reach final discharge limits and protect beneficial uses.

As discussed previously, the Board and the Regional Boards have the responsibility to ensure that nitrate discharges do not cause or contribute to exceedances in water quality objectives, in addition to protecting beneficial uses. Given the Boards' legal duty to adopt WDRs that meet water quality objectives and protect beneficial uses,¹⁹ dischargers must meet interim limits which ensure that progress is made to reduce nitrate discharges and ultimately discharges do not exceed water quality objectives. Drinking water cannot be protected if water quality

¹⁹ Cal. Water Code § 13263; *see also* § 13241.

objectives are exceeded. Below, we propose language changes to Question 2 that clarify that interim limits must allow growers to make progress toward meeting water quality objectives.

Additionally, we recommend that the Board clarify whether the term “interim limits” is coextensive with the specific time schedule and “corresponding quantifiable milestones designed to measure progress toward reaching the specific requirements” required by Key Element 3 of the NPS Policy.²⁰

To assist in setting an interim limit on nitrate discharge, the Expert Panel may consider the nitrogen uptake data of various crops found in various scientific reports, such as “Improving Nitrogen Use Efficiency in Lettuce Production,”²¹ “Evaluation of N Uptake and Water Use of Leafy Greens Grown in High-Density 80-inch Bed Plantings and Demonstration of Best Management Practices,”²² “Nutrient Uptake of Brussels Sprout,”²³ and “Nutrient and Water Use of Fresh Market Spinach.”²⁴ “Addressing Nitrate in California’s Drinking Water,” by the University of California Cooperative Extension, also identifies nitrogen discharges of more than 31 lbs./acre/year as “high intensity” nitrogen leaching, meaning that it will result in a higher likelihood of groundwater nitrate contamination.²⁵ Additionally, the Total Nitrogen Applied and Removed data collected from growers on the Central Coast provided that the median amount of nitrogen discharged into groundwater ranged from 180 lbs./acre/year to 209 lbs./acre/year between 2017 and 2022.²⁶ We recommend that the Expert Panel consider the data found in these listed reports when proposing an interim nitrate discharge limit to the Board.

We recommend that the Expert Panel assess the best management practices that are necessary for growers to make progress in achieving final nitrogen-related limits. When looking at best management practices, we recommend the panel explicitly consider non-synthetic fertilizer approaches such as using cover crops and compost to improve soil health. Small farmers that our organizations work with who are dedicated to protecting local drinking water utilize these practices with positive results. We urge the Expert Panel to consider the practices listed within the “United States Department of Agriculture’s Conservation Practice Standard

²⁰ NPS Policy at 13.

²¹ Richard Smith & Michael Cahn, *Improving Nitrogen Use Efficiency in Lettuce Production*, 41-46 (2011), <https://calasa.ucdavis.edu/files/73479.pdf>

²² Richard Smith, Michael Cahn & T.K. Hartz, *Evaluation of N Uptake and Water Use of Leafy Greens Grown in High-Density 80-inch Bed Plantings and Demonstration of Best Management Practices*, https://www.cdfr.ca.gov/is/fldrs/frep/pdfs/completedprojects/12-0362-SA_Smith.pdf.

²³ Richard Smith, *Nutrient Uptake of Brussels Sprout* (Feb. 20, 2015), <https://ucanr.edu/blogs/blogcore/postdetail.cfm?postnum=16850>.

²⁴ Richard Smith, Michael Cahn & Tim Hartz, *Nutrient and Water Use of Fresh Market Spinach*, <https://bpb-us-e1.wpmucdn.com/wordpressua.uark.edu/dist/0/310/files/2017/06/Nutrient-and-water-use-of-fresh-market-spinach-Richard-Smith.pdf>.

²⁵ University of California Agriculture and Natural Resources, *Addressing Nitrate in California’s Drinking Water*, 16-17, <https://ucanr.edu/sites/groundwater/nitrate/files/138956.pdf>.

²⁶ Central Coast Regional Water Board, *Total Nitrogen Applied (TNA) - Potential Nitrogen Discharge*, slide 8, https://www.waterboards.ca.gov/centralcoast/water_issues/programs/ilp/dashboard.html.

Nutrient Management Code 590,”²⁷ which features cover cropping and compost fertilizer when identifying the necessary best practicable treatment and control for meeting water quality objectives.

We urge that the State Water Board make the following revisions to Question 2:

Based on the data and scientific research that is currently available, what ~~are the~~ interim nitrogen-related limits, ~~or quantifiable milestones, needed to maintain high quality waters and can be set now to~~ ensure growers ~~make progress in not causing or contributing to exceedances of water quality objectives in the Central Coast and Central Valley regions make progress towards final nitrogen-related limits that are protective of groundwater beneficial uses?~~ What are best management practices that can be implemented now to allow growers to make progress in achieving final limits?

3. The Board should clarify Question 3 to ask the Expert Panel to provide scientific or technical considerations on the direct enforcement of nitrate limits instead of the enforceability of these limits.

The Board proposes to ask the Panel if there are any “scientific or technical considerations” that the Board should take into account when making policy decisions regarding the enforceability of interim and final limits.

The Board’s question as currently posed is confusing because using the word “enforceability” implies that nitrate limits may not be enforceable. To be clear, the Water Boards have the enforcement power to enforce limits established under WDRs.²⁸ Key Element 5 of the NPS Policy provides that the regional water boards must provide clear expectations on how they will respond to an inadequate NPS control implementation program. In situations of individual noncompliance, the regional water board may take selective enforcement actions consistent with the NPS policy practice of progressive enforcement.²⁹ Progressive enforcement can scale from informal enforcement actions including oral and written contact and Notices of Violation, to formal enforcement actions such as Notices to Comply, technical reports and investigations, Cleanup and Abatement Orders, time schedule orders, cease and desist orders, and administrative civil liabilities.³⁰

²⁷ United States Department of Agriculture, *Conservation Practice Standard Nutrient Management Code 590*, 7 (2020), https://efotg.sc.egov.usda.gov/api/CPSFile/27020/590_CA_CPS_Nutrient_Management_2020

²⁸ Cal. Water Code §§ 13261, 13264, and 13350.

²⁹ NPS Policy at 15.

³⁰ Enforcement Policy, Appendix A, 1-5.

Indeed, the Central Coast region has been gathering nitrogen application data from growers to be able to enforce application limits in an accurate and fair way.³¹ The collection of nitrogen removal data through the INMP summary report makes it possible to calculate A-R from each farm and enforce nitrogen limits.³²

We urge that the Board make the following revisions to Question 3:

Are there any scientific or technical considerations that the State Water Board should take into account in future policy decisions regarding the direct enforcementability of the interim and/or final limits described above?

4. The Board should revise Question 4 to ensure that the Expert Panel only assesses the scientific basis for the A minus R approach, which was already approved by the Board in the ESJ Order.

The Board proposes to ask the Expert Panel if A-R is an “appropriate” metric to quantify nitrogen discharges into groundwater. Additionally, the Board asks if nitrogen discharges can be quantified by solely using A-R instead of A/R or if A-R and A/R should be used together.

By asking the Expert Panel if A-R is an “appropriate” metric, the Board risks asking the Panel questions outside the panelists’ expertise. The Panelists will be experts on agronomics, soil science, hydrology, public health and other technical fields. As such, the Board should only ask the Expert Panel technical questions about how A-R can be used to quantify nitrate discharges. The Board—whose purview includes making policy judgments based on the best available science—can then use the Expert Panel’s technical expertise to decide if A-R is an “appropriate” metric to be used within the ILRP.

³¹ See Ag 4.0 Findings at 25 (Ag 4.0 requires all Discharges(4,439 ranches representing 426,867 acres in 2021) to submit a TNA report), at 141 (discussing the California Nitrogen Assessment’s estimate that over half of the nitrogen applied as fertilizer ends up polluting the air and water) and at 143 (“The Central Coast Water Board has received nitrogen application data through the Total Nitrogen Applied (TNA) reporting requirement since 2014...The reporting requirement was expanded under Agricultural Order 3.0 and about 1,700 ranches representing 230,000 acres (55 percent of enrolled acres) have been required to report since 2017”); Central Coast Regional Water Board, *Total Nitrogen Applied (TNA) - Potential Nitrogen Discharge*, slide 6, https://www.waterboards.ca.gov/centralcoast/water_issues/programs/ilp/dashboard.html (In 2023 TNA data was reported for 442,470 crop acres).

³² See Central Coast Regional Water Quality Control Board, Order No. R3-2021-0040, 22 (2021) (requiring discharges to develop an annual Irrigation and Nutrient Management Plan (INMP)); Ag 4.0 at 23-25 (discussing the Central Coast Water Board’s use of the INMP summary report to assess compliance with nitrogen discharge limits using the A-R calculation); Central Coast Water Quality Preservation, Inc., *INMP – Irrigation & Nutrient Management Plan* (last visited June 26, 2024), <https://ccwqp.org/inmp/> (listing the categories required to be submitted for R data: pounds of nitrogen in harvested crop material, pounds of nitrogen sequestered in vines/woody plant material, pounds of nitrogen scavenged by cover crops or high-Carbon amendments, and pounds of nitrogen removed through another quantifiable treatment method).

We urge that the Expert Panel review the rationale and studies that support the utilization of A-R to best quantify nitrogen discharges into groundwater. The use of A-R captures the quantity of nitrate (in pounds of nitrate per acre per year) that is discharged into the groundwater. The Board already acknowledges the advantage of using A-R instead of A/R to better estimate the impact of agricultural nitrate discharges to groundwater quality in WQ 2018-0002: “...a grower applying 75 pounds of nitrogen and removing 50 has the same A/R ratio of 1.5 as a grower applying 450 pounds of nitrogen and removing 300. But the nitrogen left in the field by the second grower is six times the magnitude of the nitrogen left in the field by the first grower.”³³

We urge that the Board make the following revisions to Question 4:

~~Is~~ **What is the scientific basis of using A-R as an appropriate** metric to evaluate and quantify nitrogen discharges to groundwater on a statewide basis (either on its own or used in conjunction with A/R)?

5. The Board should revise Question 5d to ask the Expert Panel the type and frequency of auditing that would allow the Boards to ensure data they receive from growers is accurate and reliable.

We appreciate the Board’s proposed questions on INMP reporting and underlying data. Under the Central Coast Water Board’s Ag 4.0, growers in “Phase 1” groundwater areas needed to have submitted INMP summary reports that contained information on nitrogen removed by March 2024.³⁴ While reporting is not anonymous under Ag 4.0, to our knowledge, the veracity of data included in growers’ INMP summary reports is not audited by the Central Coast Water Board. Similarly, the Central Coast Water Board does not audit grower-submitted TNA data. As a result, neither the Central Coast Water Board nor the public know if the data reported accurately reflects the amount of nitrogen applied or discharged on a farm. Therefore, we recommend that the Board revise Question 5d so that the Expert Panel could make a recommendation on the level of auditing that is practicable for the regional boards to conduct to ensure the veracity of the information reported.

We urge that the Board make the following revisions to Question 5:

a. Are these tables, as they currently stand, an effective tool for evaluating A and R data?

³³ State Water Resources Control Board Order WQ 2018-0002, 39 (2018).

³⁴ Central Coast Water Quality Preservation, Inc., *INMP – Irrigation & Nutrient Management Plan* (last visited June 26, 2024), <https://ccwqp.org/inmp/>; see also Central Coast Regional Water Quality Control Board, Order No. R3-2021-0040, Attachment B, Monitoring and Reporting Program, 34 (2021).

- b. Is the current INMP data that is being reported, including the format for that data reporting, effective for the Water Board to assess reductions in nitrogen discharges to groundwater and improvements in management practices, both on an individual grower basis and an overall basis? Is the data capable of being used to confirm that follow-up actions are being appropriately prioritized (e.g., by distinguishing between overapplication on large farms vs overapplication on small farms)?
- c. What improvements should be made (if any) to data collection, reporting practices and Quality Assurance Plans?
- d. ~~For the data being collected through anonymous identifiers,~~ What type of and frequency ~~is the level~~ of auditing ~~appropriate~~ would allow agencies to ensure ~~that data they receive from growers is~~ accurate and reliable ~~data~~?

6. The Board should clarify Question 6 to ensure that the Expert Panel only assesses the scientific basis of the use of fertilizer application limits as interim limits.

The Board proposes to ask the Expert Panel if using nitrogen application limits is an “appropriate” metric for establishing interim limits that protect groundwater. Additionally, the Board asks what values potential application limits should be.

The Board should refrain from asking the Expert Panel if application limits are “appropriate”. The responsibility of the Expert Panel is to provide scientific guidance to the Board in order to support the Board’s decision on adopting application limits. We urge that the Board revise this question in order to ensure that the Expert Panel solely contemplates the scientific basis for application limits and recommends values for these limits.

Nitrogen application limits are needed within Ag Order 4.0 and the Central Valley Irrigated Lands Regulatory Program in order to make progress in reducing the overapplication of nitrogen and nitrogen discharge into groundwater. The expert panel should consider the limits found with Ag 4.0, which are already met by 90% of growers who grow lettuce, broccoli, strawberries, celery, spinach, and cauliflower,³⁵ and by 98% of growers who do not grow these crops.³⁶ Additionally, the panel should consider studies from the California Department of Food and Agriculture (“CDFA”) Fertilizer Research and Education Program. Specifically, the CDFA’s Fertilizer Application Guidelines recommend fertilizer application rates between 80 lbs./acre/year and 290 lbs./acre/year depending on the crop.³⁷ We urge that the Expert Panel recommend strong nitrogen application limits that are protective of groundwater quality,

³⁵ Ag 4.0 Findings at 109.

³⁶ Ag 4.0 Findings at 110.

³⁷ California Department of Food and Agriculture, *California Crop Fertilization Guidelines* (last visited June 26, 2014), <https://www.cdffa.ca.gov/is/ffldrs/frep/FertilizationGuidelines/>.

considering these resources. Furthermore, the Expert Panel should consider the most current data about fertilizer application rates and their impact on causing or contributing to exceedances of water quality objectives.

We urge that the Board make the following revisions to Question 6:

The 2021 Central Coast Ag Order established nitrogen application limits (AFER) based on percentiles of known grower practices in the region and considered the California Fertilization Guidelines on the California Department of Food and Agriculture website: California Crop Fertilization Guidelines. This approach was remanded in the Central Coast Ag Petition Order. **What amount of applied nitrogen on a per crop basis is unlikely to be taken up by the crop and is likely to be available to leach to groundwater? What is the scientific basis of the use of AFER as an appropriate metric for interim limits to protect groundwater? If yes, what should those limits be?**

7. The Board should revise Question 7 to ensure that the Expert Panel only assesses the scientific basis of the discount factors used within the Ag 4.0 compliance pathways.

The Board proposes to ask the Expert Panel if the discount factors included in the Ag Order 4.0 quantifies the amount of nitrogen discharged into groundwater. Furthermore, the Board asks if there are alternative methods to incentivize alternatives to conventional fertilizer. Additionally, the Board intends to ask the Expert Panel how the use of groundwater containing high levels of nitrogen can be incentivized.

As a general matter, we support alternatives to conventional fertilizer, especially since the use of cover crops and compost are considered best management practices,³⁸ which can increase uptake of excess nitrogen and promote soil benefits. Even though we are supportive of these practices, the Board should ask the Expert Panel to provide scientific evidence which supports the use of discount factors for compost, cover crops, and organic fertilizer within ILRP compliance pathways. Furthermore, the Board should also ask what the limitations may be if these discount factors are included in ILRP compliance pathways to quantify nitrate discharges. The applicable order must ensure that groundwater quality is protected, and compliance with water quality objectives is achieved, whether or not a grower uses conventional fertilizer, or alternatives like compost and cover crops.

Additionally, the Board should not ask the Panel if there should be incentives for high nitrogen irrigation water. Before the Board contemplates policy questions regarding the creation

³⁸ United States Department of Agriculture, *Conservation Practice Standard Nutrient Management Code 590*, 7 (2020), https://efotg.sc.egov.usda.gov/api/CPSFile/27020/590_CA_CPS_Nutrient_Management_2020.

of such incentives, the Board should first ask the Expert Panel to assess the scientific basis for using high nitrogen irrigation water to reduce nitrate discharges.

We urge that the Board make the following revisions to portions of Question 7, and clarify its intent in Question 7(b):

The 2021 Central Coast Ag Order included discount factors to A (compost [ACOMP], organic fertilizer [AORG]) and additional components of R (RSCAVENGE, RTREAT, and ROTHER) in compliance pathways. ~~What scientific evidence supports~~ **Are** the **use of** discount factors and additional components of R ~~included~~ in the 2021 Central Coast Ag Order's compliance pathways' ~~appropriate measurements to include in~~ A and R calculations when measuring the potential to discharge nitrogen to groundwater? **What may we need to take into account if these discount factors are included in A and R calculations? What are the expected limitations when using these discount factors?**

Question 7(a):

Do the discount factors fully account for the nitrogen that has the potential to discharge to groundwater?

Question 7(b):

Will including these additional components of R result in valid and comparable A/R and A-R values?

We urge that the Board make the following revisions to Question 7(c):

~~If the discount factors included in the 2021 Central Coast Ag Order do not account for discharge of nitrogen in groundwater, Are what are there~~ other ways to incentivize the use of compost, organic fertilizers, cover crops, other treatments, etc., that properly account for these practices in the calculations of the potential to discharge nitrogen to groundwater (e.g., A/R and A-R)?

We urge that the Board make the following revisions to Question 7(d):

~~Should there be incentives for~~ Can the use of high nitrogen groundwater for irrigation **reduce the amount of nitrogen discharged into groundwater (e.g., by excluding nitrogen in irrigation water from the calculation of total nitrogen applied)?**

- 8. The Board should revise Question 8 to ensure that the Expert Panel only answers the scientific question of whether small farms operate differently and/or have reduced water quality impacts compared to larger farms.**

The Board proposes to ask the expert panel whether there is enough evidence to suggest that farms fewer than five or ten acres large are operated in a “fundamentally different manner,” or have “reduced environmental impact,” to warrant different requirements or be subject to exclusions.³⁹

We appreciate the Board’s inquiry on how small farms may operate differently from larger farms. However, we are concerned about the Board’s proposal to ask the expert panel whether small farms may be subject to regulatory exclusions based on size alone. First, as we discuss throughout our comments, the Board must not task the expert panel with policy questions. The expert panel’s role is only to evaluate the scientific basis regarding nitrate-related inquiries by the Board.

Additionally, we are concerned that the Board’s suggestion that small operations less than five or ten acres may be subject to regulatory exclusions that may result in negative unintended regulatory consequences. Suggesting that small ranches could qualify for regulatory exemption could incentivize owners and operators to split their farms so that each split parcel could qualify for exemption. We therefore urge the Board to revise Question 8 to not suggest that small operations, based on size alone, could qualify for different requirements or exclusions to nitrate limits and other ILRP requirements.

Given the above, we urge the Board to make the following revisions to Question 8:

Is there sufficient evidence to suggest small operations (less than five or ten acres) are operated in a fundamentally different manner or have a reduced **nitrate discharges and other water quality environmental impacts** ~~sufficient to warrant different requirements or be subject to certain exclusions~~ compared to larger farms, on a per acre basis?

³⁹ State Water Resources Control Board, Notice of Opportunity for Public Comment on Convening an Expert Panel for the Irrigated Lands Regulatory Program, Attachment, Proposed Question 8.

Section B: Recommendations on the Makeup and Governance Structure of the Expert Panel

We recommend that the majority of panelists should have expertise in at least one of the following areas: a) environmental justice, b) public health impacts of drinking water nitrate contamination, c) water quality and environmental impacts of nitrate pollution, and d) organic agriculture. The Board has committed to protecting the Human Right to Water and must conduct an analysis on the impacts of any future action related to the ILRP on environmental justice communities.⁴⁰ Having these experts on the Expert Panel will advance the Board's understanding of how a future statewide policy could affect environmental justice communities and public health, and allow the Board to better meet its water quality protection obligations. Additionally, having experts on organic agriculture on the Panel will allow the Board to adequately answer questions as they relate to organic agriculture.

Additionally, we recommend that the Board establish a fair, inclusive, and transparent decision-making structure for the Expert Panel. To ensure that the State Water Board considers the recommendations of the entire Panel, the Board should require the Panel to include different experts' recommendations in their draft recommendations. We also urge that the Board require the Panel to create a minority report within the final Panel recommendations. The inclusion of a minority report can allow differing opinions and considerations about the establishment of nitrogen application limits, methods to quantify nitrate discharges, and interim and final nitrogen-related limits be understood by the Board and the public.

Furthermore, it is critical that the Board ensure that panelists only provide recommendations to issues related to their expertise. For example, panelists who don't have expertise on organic agriculture and alternatives to conventional agriculture should abstain from providing feedback on such issues.

Thank you for considering our comments and recommended revised questions for the upcoming Expert Panel. Please contact us if you have any questions or concerns.

Sincerely,

Chelsea H. Tu
Executive Director
Monterey Waterkeeper

⁴⁰ Cal. Water Code §§ 106.3, 13149.2; State Water Resources Control Board, Resolution No. 2016-0010, 5 (2016), https://www.waterboards.ca.gov/board_decisions/adopted_orders/resolutions/2016/rs2016_0010.pdf.

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Appendix A. Nitrogen-related Data, Reports, and Scientific Studies.

1. Abu Naser, Ghbn, Khoudary (2007), Relation of nitrate contamination of groundwater with methaemoglobin level among infants in Gaza, Available at: <https://pubmed.ncbi.nlm.nih.gov/18290391/> (After conducting a study on 338 infants in Gaza, Abu Naser, Ghbn, and Khoudary found that the consumption of drinking water with high levels of nitrate was associated with high methaemoglobin levels in infants.).
2. Agency for Toxic Substances and Disease Registry (ATSDR). US Department of Health and Human Services. (2013), Case Studies in Environmental Medicine Nitrate/Nitrite Toxicity, Available at https://www.atsdr.cdc.gov/csem/nitrate_2013/docs/nitrite.pdf (ATSDR presents a case study to share information about the correlation between nitrate and health effects. The case study notes the medical impacts that are correlated with drinking nitrate contaminated water. The study presents health effects which affect vulnerable populations such as infants, children, and pregnant women.).
3. Balazs, Morello-Frosch, Hubbard, Ray (2011), Social Disparities in Nitrate-Contaminated Drinking Water in California's San Joaquin Valley, Available at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3296123/> (This study found that community water systems that served majority Latino populations and with less than 200 connections had high levels of nitrate in the drinking water. Additionally, the study pointed out that small water systems were more at risk for health impacts from nitrate contamination because these systems go years without solutions.).
4. Borum, J., Bruno, E., Castle, S., Chirtas, J., Crowley, R., Decock, C., Delgado, C., DeVincentis, A., Dufour, R., Edwards, A., Flaherty, R., Flynn, M., Grimm, R., Hale, L., Light, S., Little, C., Lowell, K., Minshew, H., Nocco, M., Peterson, C., Roby, M., Roseman, J., Roth, A., Sandoval, S., Silva, S.A., Smet, E., Smither-Kopperl, M., Suvočarev, K., Waterhouse, H., Wauters, V., Williams, S., and Zaccaria, D. (2024). Cover Cropping in the SGMA Era: A Comprehensive Overview of Water Impacts, Policy Implications, and Recommendations for California's Water Managers. P. 31-35 Available at: <https://suscon.org/wp-content/uploads/2024/05/SC-Cover-Crop-SGMA-Report.pdf>
5. Brennan, Smith (2023), Predicting cereal cover crop biomass using shoot length in California vegetable systems. Available at: <https://acsess.onlinelibrary.wiley.com/doi/full/10.1002/ael2.20099>
6. California Department of Food and Agriculture, California Crop Fertilization Guidelines. Available at: <https://www.cdfa.ca.gov/is/fldr/frep/FertilizationGuidelines/>
7. Central Coast Regional Water Board, Total Nitrogen Applied (TNA) - Potential Nitrogen Discharge, slide 8. Available at: https://www.waterboards.ca.gov/centralcoast/water_issues/programs/ilp/dashboard.html
8. Keeler and Polasky (2014), Land-use change and costs to rural households: a case study in groundwater nitrate contamination. Available at: <https://iopscience.iop.org/article/10.1088/1748-9326/9/7/074002/pdf> (Keeler and Polasky conduct a study in which they determine that the conservative cost estimate to treat or avoid nitrate contaminated drinking water in Minnesota is \$12 million dollars. This cost estimate does not include the costs associated with the associated health impacts of drinking nitrate contaminated water.).
9. Knobeloch (2001), Eight Blue Babies. Available at: <https://www.researchgate.net/profile/Lynda->

- [Knobeloch/publication/10814458](https://pubmed.ncbi.nlm.nih.gov/10814458/) [Eight blue babies/links/02bfe510736ecce3b8000000/Eight-blue-babies.pdf](#) (A report which analyzes eight different cases of methemoglobinemia in infants. Knobeloch found that an infant developed methemoglobinemia after drinking water treated by a reverse osmosis treatment system. The reverse osmosis system inconsistently treated the nitrate found in the well's water, causing the infant to develop methemoglobinemia after drinking water with an unsafe concentration of nitrate.).
10. Knobeloch, Salna, Hogan, Postle, Anderson (2000), Blue Babies and Nitrate-Contaminated Well Water. Available at: <https://ehp.niehs.nih.gov/doi/pdf/10.1289/ehp.00108675> (A report which analyzes multiple cases of methemoglobinemia in infants. The report found that consumption of nitrate contaminated water from private wells puts infants at risk for developing and dying from methemoglobinemia.).
 11. Pacific Institute (2011), The Human Costs of Nitrate-contaminated Drinking Water in the San Joaquin Valley. Available at: https://pacinst.org/wp-content/uploads/2013/02/nitrate_contamination1.pdf (From a survey conducted with 37 households, the Pacific Institute finds that Spanish speaking households are less likely to know about drinking water contamination and 70% of the survey's participants spent 1.5% of their household income on alternative water supply.).
 12. Pesticide and Environmental Toxicology Branch, Office of Environmental Health Hazard Assessment (OEHHA). California Environmental Protection Agency. (2018), Nitrate and Nitrite in Drinking Water. Available at: <https://oehha.ca.gov/media/downloads/water/chemicals/phg/nitratephg051118.pdf> (OEHHA compiles various studies looking at the effects of nitrate consumption to support the information needed to set the Public Health Goal (PHG) for nitrates. Case studies included in the report show association between nitrate consumption and methemoglobinemia (blue baby syndrome), diarrhea, vomiting, spontaneous abortions, intrauterine growth retardation, congenital deficiencies, and premature delivery.).
 13. Richard Smith, Nutrient Uptake of Brussels Sprout. Available at: <https://ucanr.edu/blogs/blogcore/postdetail.cfm?postnum=16850>
 14. Richard Smith, Michael Cahn, T.K. Hartz, Evaluation of N Uptake and Water Use of Leafy Greens Grown in High-Density 80-inch Bed Plantings and Demonstration of Best Management Practices. Available at: https://www.cdafa.ca.gov/is/ffldrs/frep/pdfs/completedprojects/12-0362-SA_Smith.pdf
 15. Richard Smith and Michael Cahn, Improving Nitrogen Use Efficiency in Lettuce Production (2011), p. 41-46. Available at: <https://calasa.ucdavis.edu/files/73479.pdf>
 16. Richard Smith, Michael Cahn, Tim Hartz, Nutrient and Water Use of Fresh Market Spinach. Available at: <https://bpb-us-e1.wpmucdn.com/wordpressua.uark.edu/dist/0/310/files/2017/06/Nutrient-and-water-use-of-fresh-market-spinach-Richard-Smith.pdf>
 17. Schaidt, Swetschinsk, Campbell, Rudel (2019), Environmental justice and drinking water quality: are there socioeconomic disparities in nitrate levels in U.S. drinking water? Available at: <https://link.springer.com/article/10.1186/s12940-018-0442-6> (This study found that community water systems that serve majority Hispanic communities are more likely to be impacted by nitrate contamination and have less resources to install treatment systems.).

18. Temkin, Evansa, Manidis, Campbell, Naidenko (2019), Exposure-based assessment and economic valuation of adverse birth outcomes and cancer risk due to nitrate in United States drinking water. Available at:
<https://www.sciencedirect.com/science/article/pii/S001393511930218X> (This scientific study evaluates the economic costs associated with different health impacts of drinking nitrate contaminated water such as adverse birth outcomes and cancer. The study notes how the economic costs of these health impacts could cost millions.).
19. United States Department of Agriculture, *Conservation Practice Standard Nutrient Management Code 590* (2020), Available at:
https://efotg.sc.egov.usda.gov/api/CPSFile/27020/590_CA_CPS_Nutrient_Management_2020
20. US Environmental Protection Agency (EPA) (2007), Nitrates and Nitrites. Available at:
https://archive.epa.gov/region5/teach/web/pdf/nitrates_summary.pdf (The US EPA summarizes a compilation of studies about the health effects of nitrate on people. The US EPA found that nitrate in contamination can lead to methemoglobinemia (blue baby syndrome), cardiac defects, nervous system defects, and Sudden Infant Death Syndrome (SIDS). Some studies included in the report associate nitrate consumption with increased risk to cancer, but the US EPA found the overall association as inconclusive.).
21. University of California Agriculture and Natural Resources, Addressing Nitrate in California's Drinking Water, Available at:
<https://ucanr.edu/sites/groundwater/nitrate/files/138956.pdf>
22. Vigil, Warburton, Haynes, Kaiser (1965), Nitrates in Municipal Water Supply Cause Methemoglobinemia in Infant. Available at:
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1919725/pdf/pubhealthreporig00060-0089.pdf> (This report discusses a case where an infant developed methemoglobinemia after ingesting drinking water with nitrate concentrations of 63 mg/L and 73 mg/L.).
23. Walton (1951), Survey of Literature Relating to Infant Methemoglobinemia Due to Nitrate-Contaminated Water. Available at:
https://ajph.aphapublications.org/doi/pdf/10.2105/AJPH.41.8_Pt_1.986 (Walton conducts a survey of literature related to the association between the consumption of nitrate contaminated water with methemoglobinemia. This report was used by the State Water Resources Control Board to set the MCL.).
24. World Health Organization (1998), Nitrate and nitrite in Drinking-water. Available at:
https://apps.who.int/iris/bitstream/handle/10665/75380/WHO_SDE_WSH_04.03_56_en.pdf (The World Health Organization (WHO) created a document which reviews and evaluations of the effects on human health from nitrate contamination in drinking water. The document correlates nitrate contamination to diarrhea and vomiting. Statistics of fatalities from methemoglobinemia (blue baby syndrome) are also presented in the document.).