

EXHIBIT A

DISPARATE IMPACTS OF EXISTING KNOWN NITRATE CONTAMINATION BASED ON RACE AND NATIONAL ORIGIN

Statistical Analysis of Disparate Impacts of Nitrate Contamination Based on Race and National Origin/Linguistic Isolation in the Central Coast Region of California

Summary

The following data represents an effort to assess the concurrence of high-nitrate in water wells and the presence of Latinx, non-white, linguistically isolated communities, and to also allow for comparison to predominantly white communities.

Using data from the state waterboard GAMA database¹ on well water nitrate levels, and CalEnviroScreen 4.0 data from the state Office of Emergency and Health Hazard Assessment (OEHAA)² this data was used to run statistical tests on disproportionate impacts of Nitrate Groundwater Contamination on Environmental Justice Communities of the Central Coast Region.

The following data analyses were prepared by Iris Stewart-Frey, Ph.D. and John “Jake” Dialesandro, Ph.D. Both are faculty at Santa Clara University and have published extensively in the fields of hydrology, geophysics, and environmental policy, using approaches that include spatial analysis of data and policy impacts. Iris Stewart-Frey is a full professor of Hydrology in the Environmental Studies and Sciences Department at Santa Clara University and is also the Coordinator of the Environmental Justice and the Common Good Initiative. Jake Dialesandro, Lecturer at Santa Clara University and is currently serving as CRLA’s Community Equity Initiative Science Fellow.

Scientific Methodology:

The following steps were performed in rendering these analyses:

1. Compared Latinx percent population (classified as Hispanic in census) for each tract with an average nitrate concentration.
 - a. % Latinx in each census tract was taken from:
 - (Cal Enviro) for the counties of: Santa Barbara, San Luis Obispo, Monterey, San Benito, Santa Cruz, Ventura Counties (Central Coast Counties)
 - b. Nitrate Concentrations for each census tract
 - Empirical Bayesian Kriging on wells ≤ 200 ft, water years 2010 - 2023, Gamma Database, averaged annual nitrate average values over those 14 years
 - Zonal statistics on interpolated surface to come up with an average surface of nitrate for a given census tract.
 - Used Chi Square Test of Independence to measure if census tracts with high LatinX populations were more likely to have unsafe nitrate levels in their groundwater

¹ [GAMA - OnLine Tools | California State Water Resources Control Board](#) accessed: 03/06/2024

² Data: [CalenviroScreen4.0](#) accessed 03/07/2024

I. Summary of Results:

A. Census tracts with predominantly Latinx populations are **4.36 times more likely to have groundwater with contamination above the State MCL, and nitrate contamination in these areas is significantly higher than in non-Latinx communities (an average of 4.1 mg/l higher, when MCL is 10 mg/l).**

- Census tracts with populations $\geq 68.4\%$ Latino/a (68.4% determined as 1 standard deviation above the mean Latino/a population for central coast region) are **4.36 times** more likely to have groundwater nitrate levels above the MCL (10 mg/l) as compared to census tracts with a lower percentage of Latinx population. The 95% Confidence Interval is 2.4750 to 7.7135)
Test = Chi Square Test of Independence, $\chi^2 = 27.188$, Number of Observations = 456, p value < 0.0001

OddsRatio 4.36 [2.47-7.71; 95% CI]

- High Latinx census tracts ($> 68.4\%$ of population) have groundwater nitrate levels **4.1 mg/l (corresponding to 234%)** higher than census tracts with lower Latinx populations. **(7.52 mg/l versus 3.41 mg/l in tracts with lower % of Latinx population, so nitrate concentrations are 4.1 mg/l higher in census tracts with high percentage of Latinx)**[2.47- 6.27: 95% CI]
Test = Welch's T-test, $T = 4.577$, Number of Observations = 456, p values < 0.0001

B. Census tracts with high percentages of people who identify as speaking English as a second Language are also very likely to have higher rates of nitrate contamination than census tracts with low percentages of ESL speakers, with average contamination levels being **3.6 mg/l higher than low linguistic isolation tracts.**

Census tracts with high rates of linguistic isolation ($> 50\%$ with English as 2nd Language) have groundwater nitrate levels **3.6 mg/l higher** than census tracts with low rates of linguistic isolation ($< 25\%$ with English as 2nd Language). In census tracts with medium rates of linguistic isolation (25-50% with English as 2nd Language) groundwater nitrate levels are **2.1 mg/l higher** than in census tracts with low rates of linguistic isolation.

Test = Analysis of Variance (ANOVA) and Tukey Honest Significant Difference Test, F Value = 16.34, Number of Observations = 456, $P < 0.00001$

C. When rates of contamination are assessed by race alone, census tracts with high non-white populations have even higher mg/l of nitrates, up to 4.4 mg/l higher than tracts with primarily white populations.

- Communities of Color ($> 50\%$ non-white population in the CalEnviroScreen) have groundwater nitrate levels **4.4 mg/l higher** than census tracts with $< 25\%$ non-white populations. In census tracts with 25-50% non-white population groundwater nitrate levels are **3.3 mg/l higher** than census tracts with $< 25\%$ non-white populations.

Test = Analysis of Variance (ANOVA) and Tukey Honest Significant Difference Test, F Value = 23.39, Number of Observations = 456, $P < 0.00000001$

D. While poverty is correlated with the above characteristics, when this factor is isolated, poverty alone is a less significant factor in determining nitrate contamination. High poverty areas are 2.27 times more likely to have nitrate contamination above state levels, and levels of contamination are significantly greater than in areas with low rates of poverty.

- Census tracts with greater than 50% of the population living below the poverty level (as defined by CalEnviroScreen) are 2.27 times more likely to have groundwater nitrate levels above the MCL (10mg/l) as compared to census tracts where the % of people living in poverty is < 50%.
The 95% Confidence Interval is 1.3 to 3.975)
Test = Chi Square Test of Independence, $X^2 = 7.87$, Number of Observations = 456, p value < 0.0001)

OddsRatio 4.36 [1.304 -3.975; 95% CI]

- Census tracts with high rates of poverty (>50% living below the poverty level) have groundwater nitrate levels 3 mg/l higher than census tracts with low rates of poverty (<25% living below the poverty level). In census tracts with medium rates of poverty (25-50% Living below the poverty level) groundwater nitrate levels are 1.8 mg/l higher than in census tracts with low rates of poverty.

Test = Analysis of Variance (ANOVA) and Tukey Honest Significant Difference Test, F Value = 8.73, Number of Observations = 456, P < 0.001

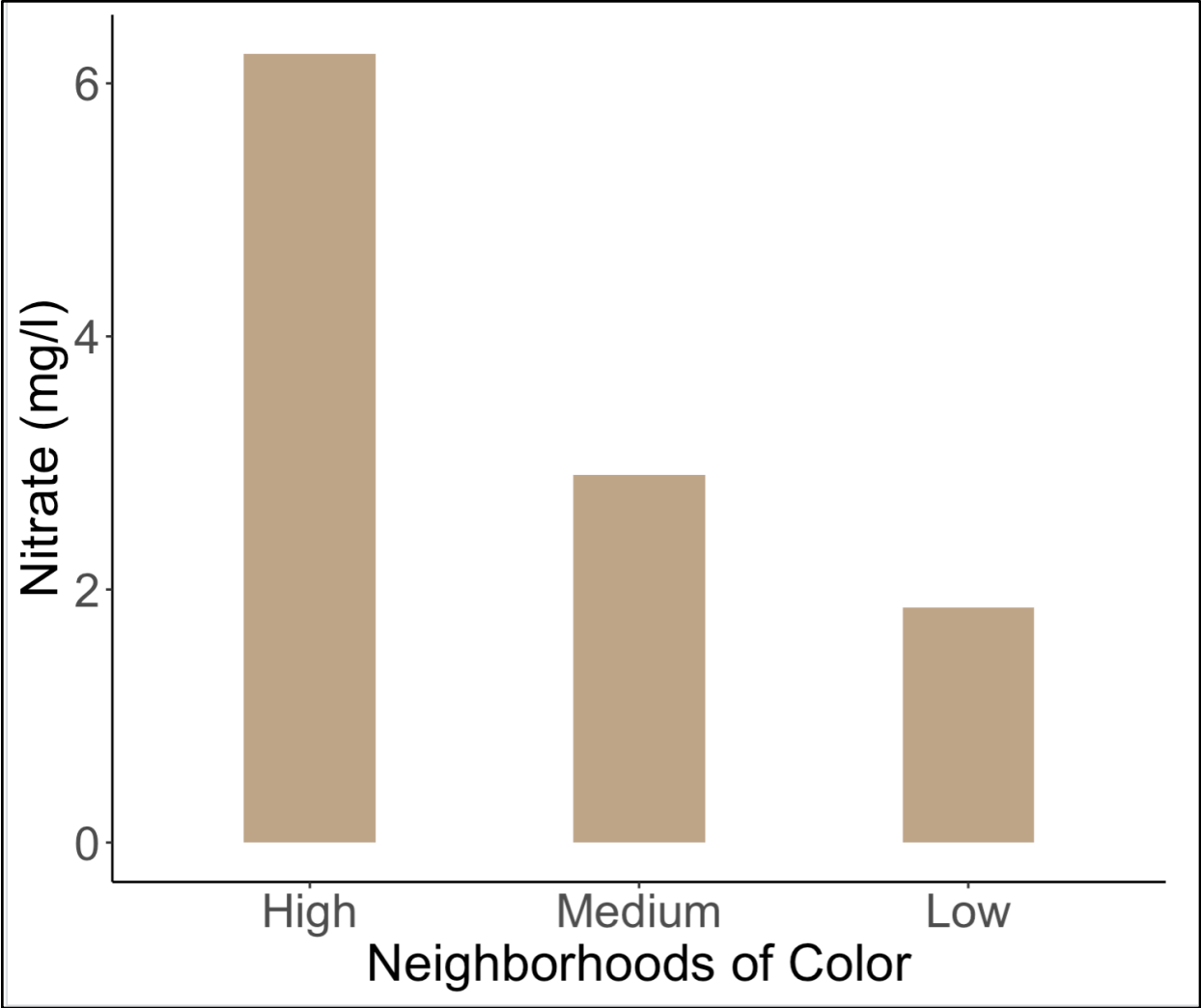


Figure Caption: Mean Nitrate Values in High (>50%), Medium (25-50%), and Low (<25%) areas of Populations of Color

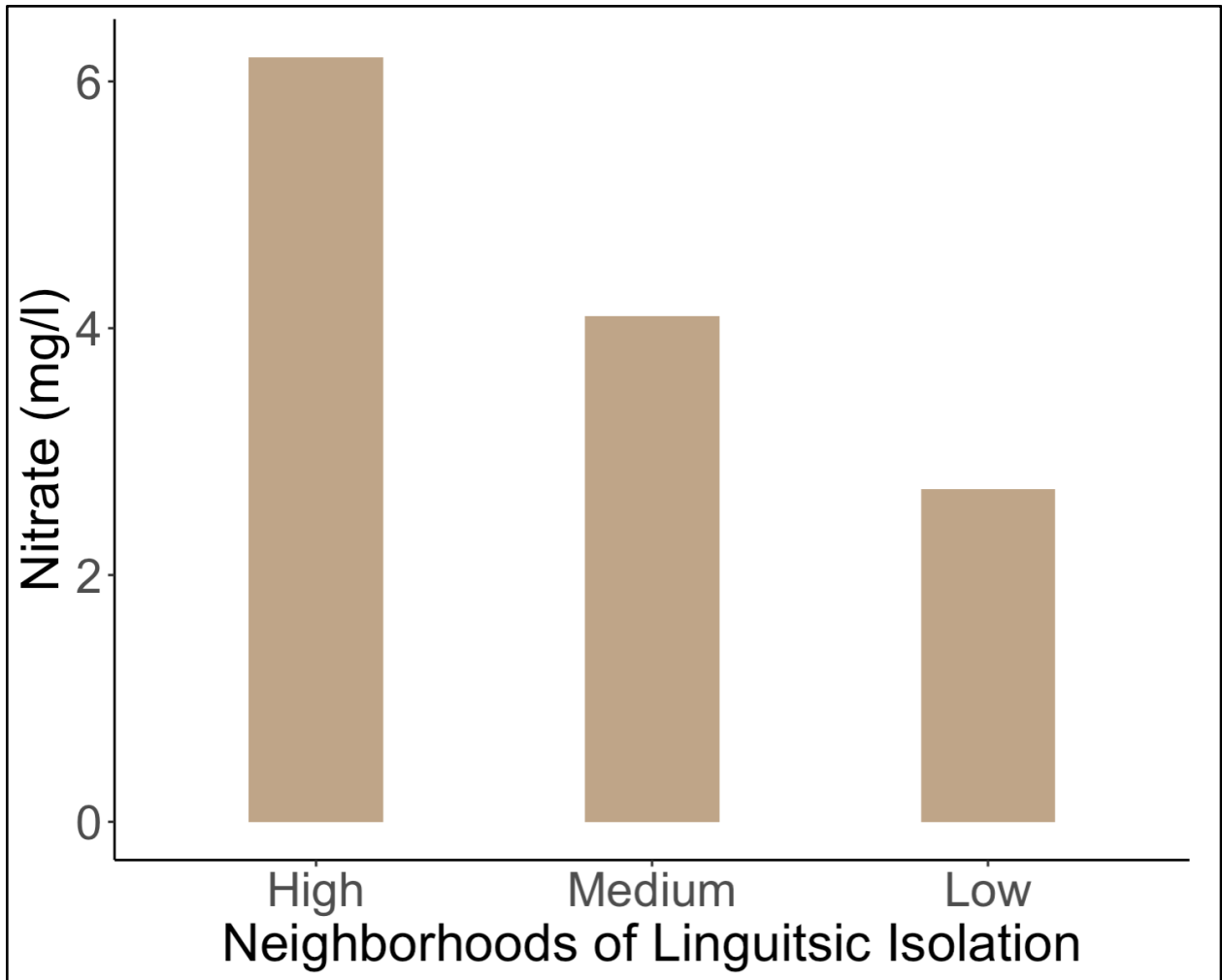


Figure Caption: Mean Nitrate Values in High (>50%), Medium (25-50%), and Low (<25%) areas of Populations with Linguistic Isolation

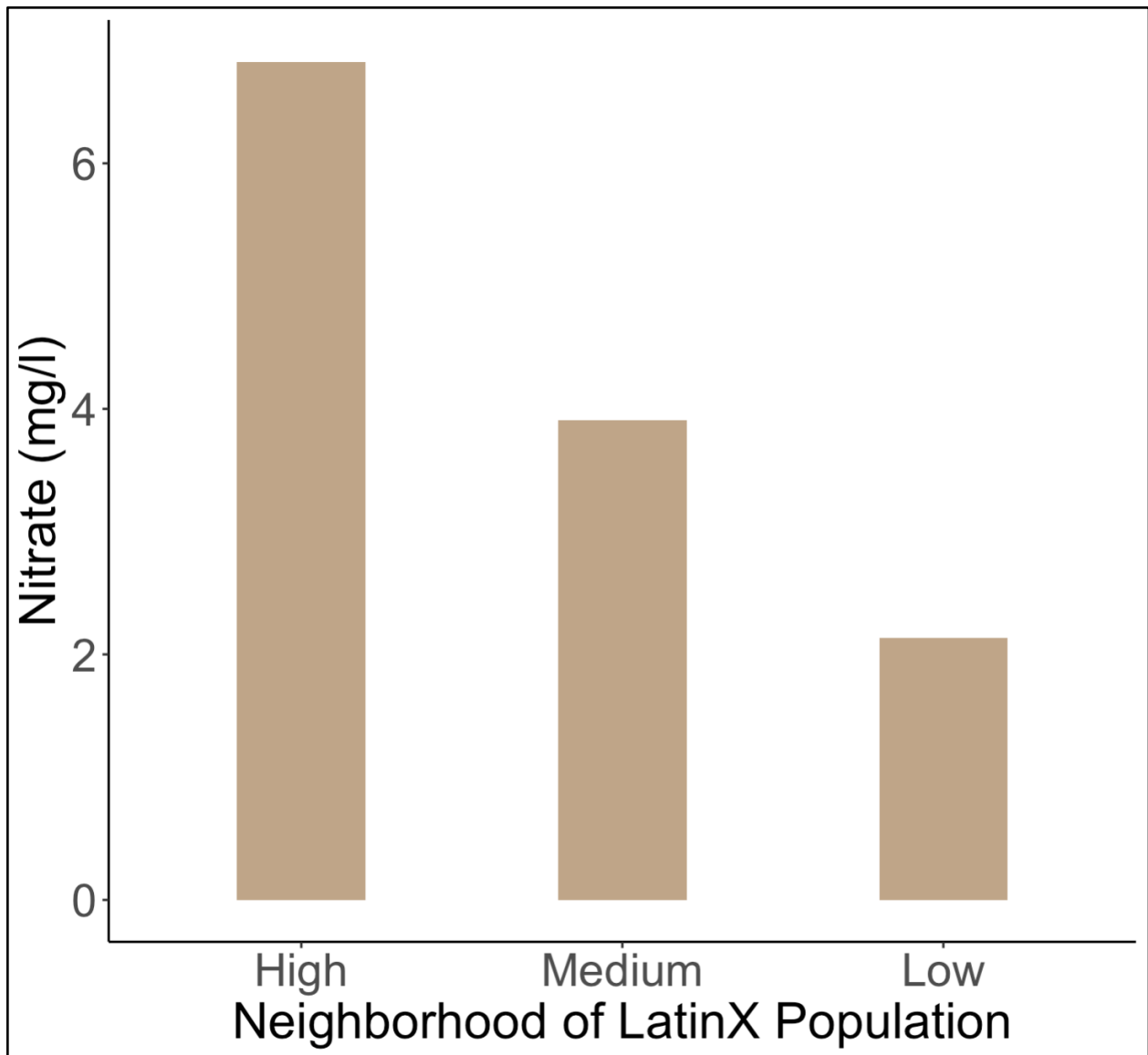


Figure Caption: *Mean Nitrate Values in High (>50%), Medium (25-50%), and Low (<25%) areas of Populations with Latinx Populations*

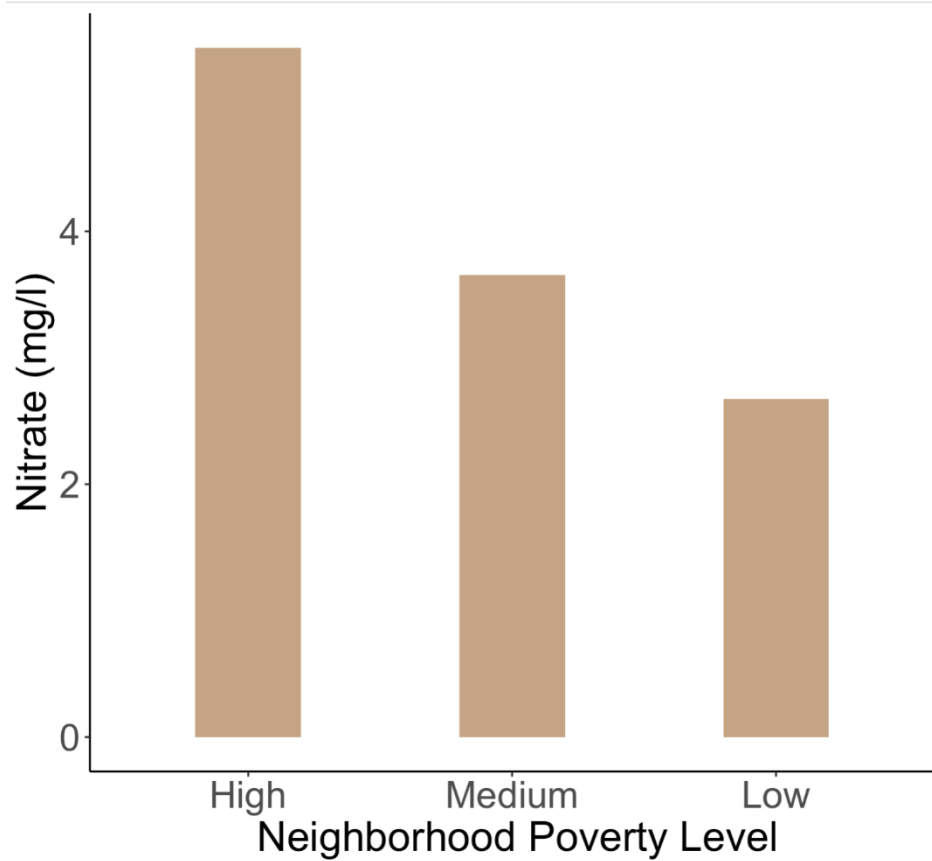


Figure Caption: *Mean Nitrate Values in High (>50%), Medium (25-50%), and Low (<25%) areas of Populations living below the poverty line*

	% Wells testing above MCL for Nitrate (10 mg/l)			
Census tract characteristic	Low (<25%)	Medium (25-50%)	High (>50%)	Very High (>75%)
% Linguistic Isolation	13.2%	27.4%	42.8%	53.5%
% Poverty	20.6 %	16.2%	43.3%	62.6%
% Community of Color	10.4%	14%	46%	55%
% Latinx	10.9%	17.4%	50.1%	54.7%

Table 1: Percentage of domestic wells, where average nitrate concentrations (2010- 2023 Gama data base) in shallow (≤ 200 ft) wells are above the MCL (10 mg/l) for census tracts with different characteristics. In census tracts where linguistic isolation, poverty, and the percent of Latinx and non-white populations are high (above 75%), average nitrate concentrations are above the MCL in more than half of the shallow wells. By contrast, in census tracts where linguistic isolation, poverty, and the percent of Latinx and non-white populations are low (below 25%), average nitrate concentrations are above the MCL in less than $\frac{1}{4}$ of the shallow wells. Thus, nitrate concentrations are higher in census tracts with predominantly Latinx populations or Communities of Color.

II Areas/communities of highest concern:

Watsonville, California (Including Las Lomas and Pajaro Valley)

Latinx Population: 75.2%

% Poverty: 74%

%Linguistic Isolation: 81.9%

% Non white: 78.4%

Percent of Wells Testing above MCL (10 mg/l): 44.2%

Salinas Valley , California: (Salinas, Gonzalez, Soledad, King City)

Latinx Population: 84.4%

% Poverty: 71.4%

%Linguistic Isolation: 81.2%

% Non white: 90.2%

Percent of Wells Testing above MCL (10 mg/l): 53.4%

Santa Maria, California

Latinx Population: 90.4%

% Poverty: 83%

%Linguistic Isolation: 84.2%

% Non white: 94.2%

Percent of Wells Testing above MCL (10 mg/l): 77.4%

III Supporting Maps

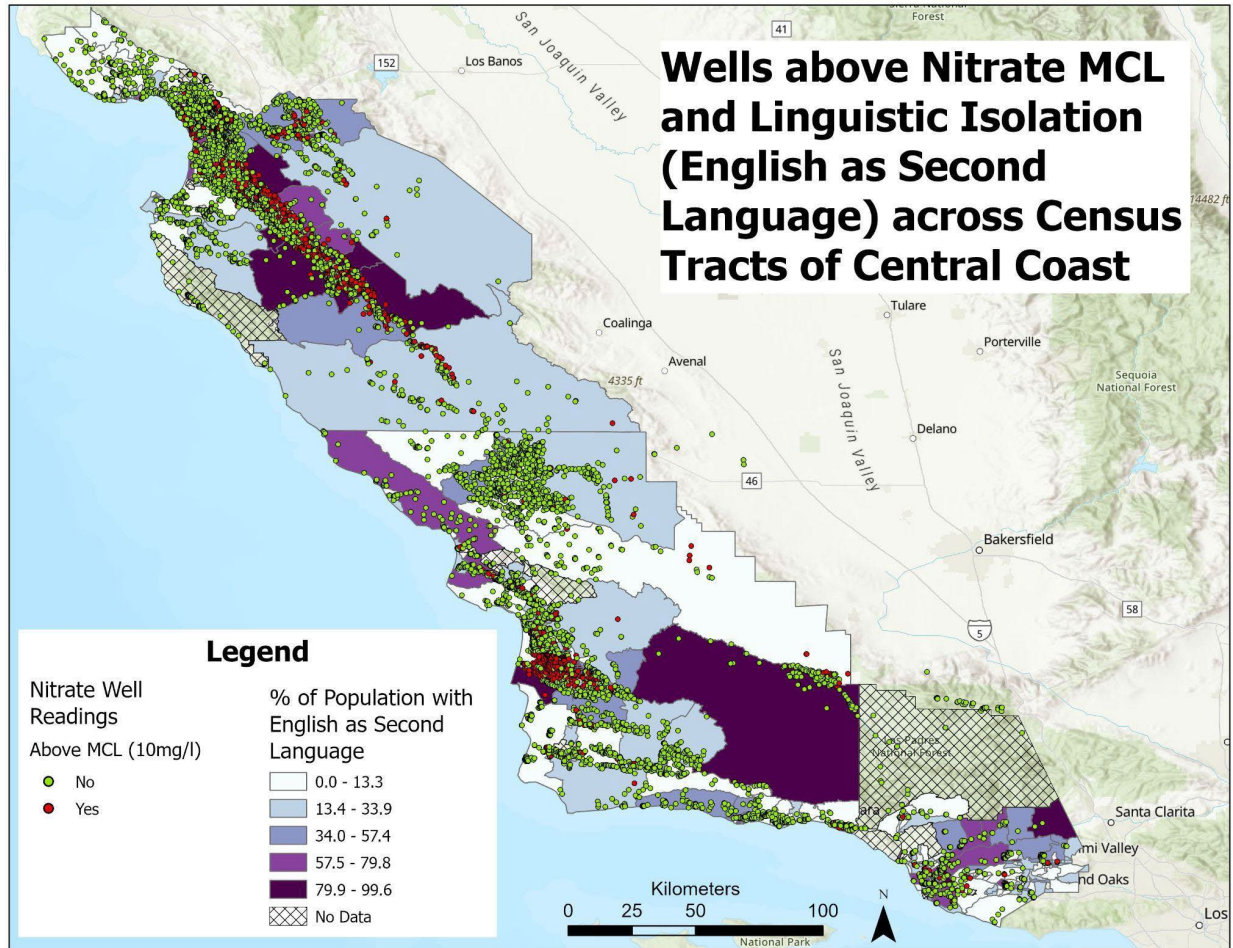


Figure 1: % English as Second Language by Census Tract and Well Nitrate Levels (2010-2023)
Data Source: Groundwater Ambient Monitoring and Assessment (GAMA) Program and Calenviorscreen Data (OEHHA)

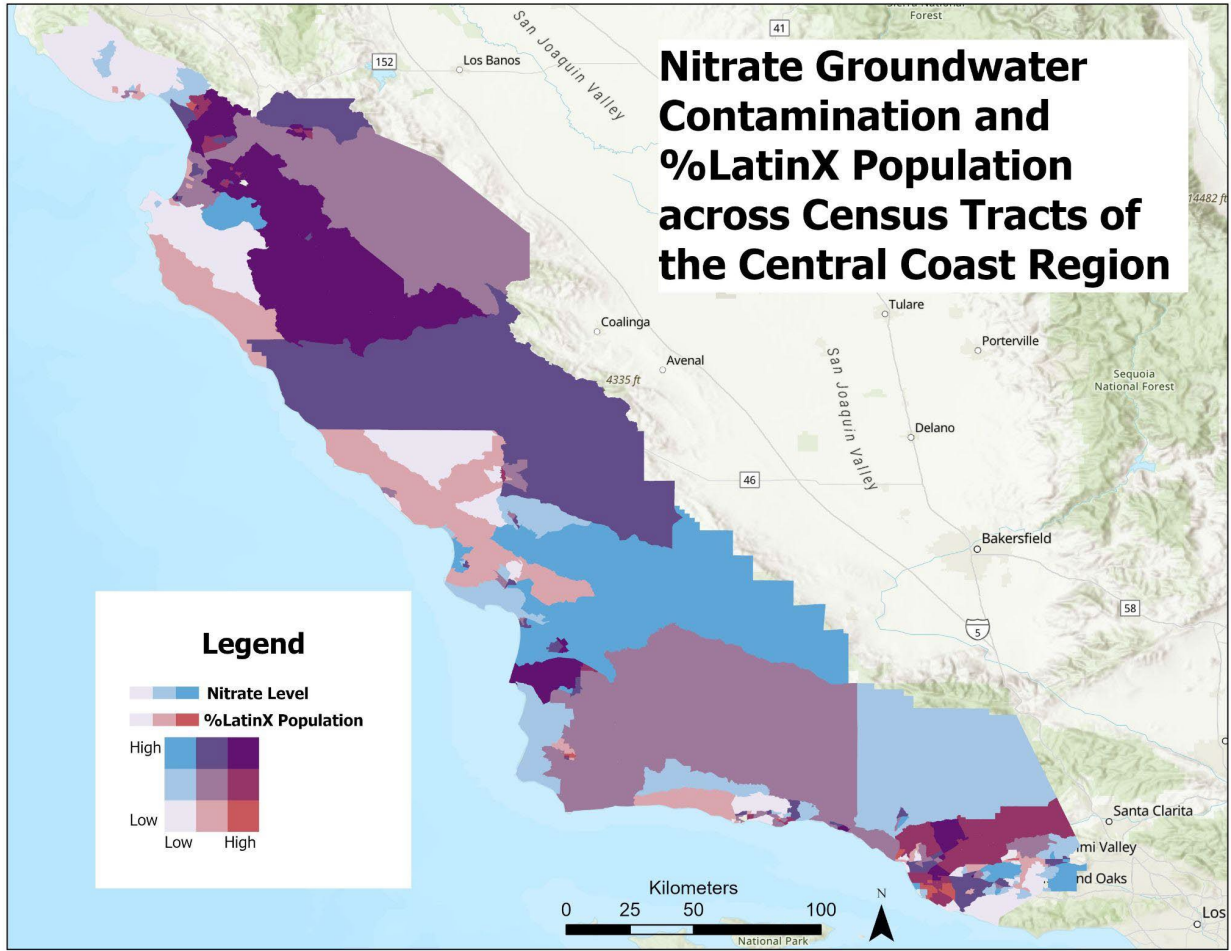


Figure 2: %Latino/a Population by Census Tract and Ambient Groundwater Nitrate Levels (2010-2023) in the Central Coast Region
 Data Source: Groundwater Ambient Monitoring and Assessment (GAMA) Program and Calenviorscreen Data (OEHHA)

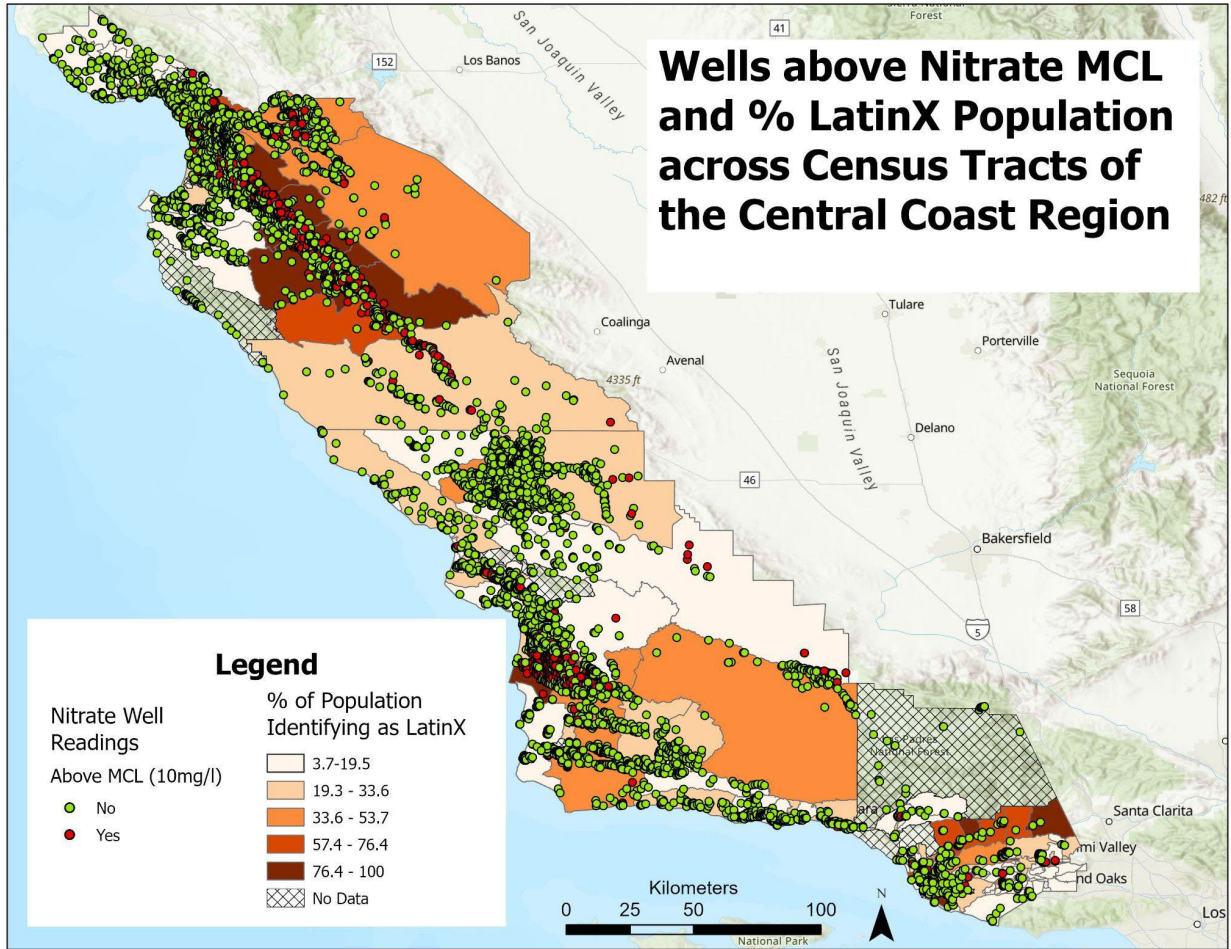


Figure 3: %LatinX Population by Census Tract and Well Nitarte Levels (2010-2023) in the Central Coast Region

Data Source: Groundwater Ambient Monitoring and Assessment (GAMA) Program and Calenviorscreen Data (OEHHA)

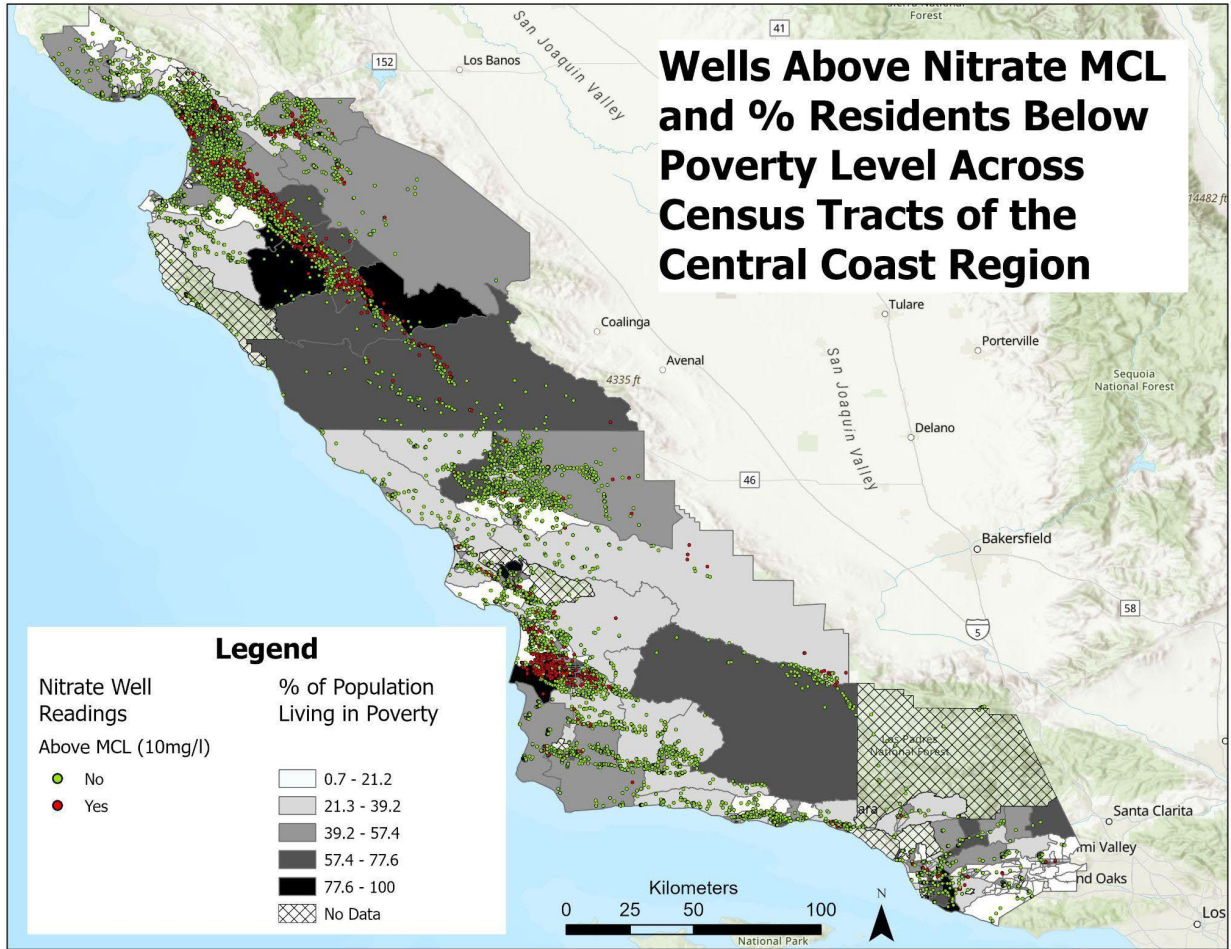


Figure 4: %Population Living below Poverty Level by Census Tract and Well Nitrate Levels (2010-2023) in the Central Coast Region

Data Source: Groundwater Ambient Monitoring and Assessment (GAMA) Program and Calenviorscreen Data (OEHHA)

EXHIBIT B

DECLARATION OF JUAN MANUEL MORAN
MEMBER, COMITÉ DE SALINAS

1 I, Juan Manuel Moran, based on personal knowledge, do declare and if called on could
2 competently testify as follows:

3 1. I make this declaration in support of the Title VI Complaint filed against the
4 California State Water Resources Control Board (State Board) to the U.S. Environmental Protection
5 Agency (EPA) by Complainants Comité de Salinas, Misión San Lucas, and Monterey Waterkeeper.

6 2. I am a member of the Comité de Salinas (the Comité), an unincorporated association.
7 The Comité stays apprised of legal issues impacting low-income residents in Monterey and Santa
8 Cruz Counties. All Comité members are of Latino/Latina descent.

9 3. The Comité has been involved with efforts to reduce nitrate contamination in the
10 Salinas and Pajaro Valleys for the past six to eight months. The Comité submitted written and oral
11 comments on the State Board's Order 2023-0081 (State Board Order) in August and September
12 2023. The Comité's written and oral comments cautioned the State Board that their actions would
13 have drastic effects on Latino/Latina communities on the Central Coast. Specifically, we commented
14 that the State Board's removal of protections like fertilizer application and discharge limits would
15 allow nitrogen discharges to continue to contaminate the sources of drinking water on the Central
16 Coast—especially the drinking water sources in areas with high Latino/Latina populations. Despite
17 our efforts, the State Board eliminated these protections in their State Board Order.

18 4. I am a farmworker organizer and for the past two decades have worked extensively
19 with the farmworker community on the Central Coast. I also spent more than twenty years working
20 in various roles as a farmworker. I am familiar with farm working conditions on the Central Coast.

21 5. My family and I have lived in South Monterey County, including the City of Soledad
22 and the City of Greenfield, for fifty years. Because I am a farmworker, my family lives in areas that
23 are close in proximity to my places of employment. Many other Latino/Latina farmworkers do the
24 same. Additionally, many of these farmworkers are first- or second-generation immigrants from
25 México. A significant percentage of farmworkers on the Central Coast have a low level of English
26 proficiency.

27 6. The city where I live, Greenfield, California is located within the boundaries of the
28 Forebay Subbasin. Latino/Latina residents comprise a high percentage of the City's population.

1 Groundwater is the only source of drinking water in this area. It is my understanding that most on-
2 farm domestic wells in this area have levels of nitrate contamination that exceed what is allowed by
3 the State.

4 7. While preparing comments on the proposed State Board Order, Comité members
5 were informed that the proposed Order would eliminate existing numeric limits on fertilizer
6 application and discharge. This would have a severe, and worsening, economic and health impacts
7 on me and other farmworkers in my area.

8 8. The City of Greenfield, where I reside, is primarily served by a City water system.
9 Other members of the Comité similarly reside in areas with municipal water. We understand that the
10 City must treat the water from its wells to reduce the amount of nitrate in the water to a permissible
11 level. We believe that the ongoing treatment costs are high and that this increases water bills for
12 residents. Members of the Comité are extremely worried that eliminating numeric limits for nitrates
13 will increase the amount of nitrate contamination in the drinking water in their communities, further
14 increasing the costs of treatment and making water bills unaffordable for low-income individuals
15 like ourselves.

16 9. The Comité members, including myself, are also concerned that removing the
17 fertilizer limits will endanger the health of farmworkers by increasing, rather than reducing,
18 groundwater contamination. Farmworkers—including members of the Comité—rely on on-farm
19 wells for drinking water. Although I previously believed water from wells was healthy, I now
20 understand that it is unhealthy and dangerous to drink from wells that are highly contaminated with
21 nitrates. If farmworkers seek to avoid this danger, they must spend extra money to buy their own
22 clean water to bring to work.

23 I declare under penalty of perjury of the laws of the State of California that the foregoing
24 is true and correct.

25 Executed on March 18, 2024, in Salinas, California.

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28 Declarant

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Translator: I, Rosa Trevizo, declare that I am a Certified Court Spanish Interpreter as described in Government Code 68561. I am certified to translate from the English language to the Spanish language. I further declare that I have translated the attached document from the English language to the Spanish language to the best of my ability and belief.

March 17, 2024

Rosa Trevizo

EXHIBIT C
DECLARATION OF E. VALENTIN RESENDIZ-LUNA
MEMBER, MISIÓN SAN LUCAS

1 I, E. Valentin Resendiz-Luna, based on personal knowledge, do declare and if called on could
2 competently testify as follows:

3 1. I make this Declaration in support of the Title VI Complaint filed against the
4 California State Water Resources Control Board (State Water Board) to the U.S. Environmental
5 Protection Agency (EPA) by Complainants Comité de Salinas, Misión San Lucas, and Monterey
6 Waterkeeper.

7 2. I am a member of Misión San Lucas (MSL), an unincorporated association. MSL
8 supports the needs of low-income residents in San Lucas, California (San Lucas or town). All
9 members of MSL are of Latino/Latina descent. All members of MSL live in San Lucas.

10 3. San Lucas is a small unincorporated town located at the southern portion of Monterey
11 County (County). With a population of around 350 residents, our town has had a history of being
12 ignored by the local government. Our town lacks basic municipal infrastructure like stop signs and
13 adequate drainage. After many years without, the County recently installed sidewalks and
14 streetlights. Most important of all, our town currently lacks access to clean drinking water.

15 4. In fact, San Lucas has lacked access to clean drinking water since at least the 1980s.
16 The town is supplied by a local water district, the San Lucas County Water District (District). The
17 understaffed District is comprised of a Board of Directors and has faced obstacles providing
18 consistent clean water to San Lucas residents.

19 5. The story of San Lucas residents' most recent exposure to nitrate contamination
20 began in 2011. In 2011, the main supply well that provides water to the town tested with nitrate
21 levels above the State's Maximum Contaminant Level (MCL). As a result, the local health
22 department issued a "do not drink" order to all residents. Our community, including the children at
23 our local elementary school, was forced to drink bottled water and could not drink the water from
24 our taps. At some point during this time, the owner of the land on which the primary municipal well
25 is located (Grower) began providing residents and elementary school students with free bottled
26 water.

27 6. In 2012, the Central Coast Regional Board (Regional Board) issued a Notice of
28 Violation (NOV) to the Grower due to increased levels of nitrate found in the municipal water. The

1 Regional Board identified recent changes in the Grower’s farming practices—moving from
2 vineyards to row crops—as the cause of the nitrate increase. The NOV required the landowner to
3 provide alternative water supplies while the primary well continued to test above nitrate levels.

4 7. Two years later, in 2014, the Grower drilled a new “interim” well on their property
5 to supply the town with water. Initially, the water from this well tested below the state MCL for
6 nitrate and residents were able to drink tap water again. But in 2016, nitrate levels in the water again
7 increased past the State MCL. Since 2016, the residents of our town have been under a “do not
8 drink” order—we remain unable to drink municipal water and are forced to rely on drinking bottled
9 water supplied by the Grower.

10 8. Throughout this time, the State Water Board was providing the local County health
11 department funding to study the feasibility of long-term options for providing clean drinking water
12 to residents of San Lucas. Five options were proposed. In September of 2015, the District selected
13 the option to “intertie” (consolidate) the town’s water system with a nearby city’s water system
14 located eight miles away. The cost of the “intertie” project was estimated at \$10-12 million dollars.
15 The planning for the project was underway for about a year until the State Board issued a stop work
16 order on the project. In their view, the project did not live up to its cost-benefit analysis.

17 9. The State Board thereafter directed Monterey County to explore a different
18 alternative recommended in the feasibility study—one that proposed a new groundwater source that
19 would be combined with treatment. However, the State Board also notified the County that the State
20 funding for this proposal had expired. The County and the District continue to seek funding to
21 implement the proposed alternative. Yet, residents of our town continue to have access to only
22 bottled water rather than drinking from the tap.

23 10. Although the future of our town’s access to drinking water is unclear, it is inarguable
24 that limiting the amount of nitrogen used on our local farmland will reduce the amount of nitrates
25 entering our water supply. Thus, any regulations to reduce the amount of nitrogen applied to
26 growers’ crops supports MSL members’ access to clean drinking water.

27 11. The State Board’s prohibition on fertilizer application and discharge limits has drastic
28 effects on the members of MSL and our community. As a result of water contamination, I pay an

1 unsustainable price for tap water that I cannot even drink. I must frequently replace appliances in
2 my home due to the wearing effect that the tap water has on home appliances. I endure health costs
3 from the frequent rashes I experience from showering with tap water. The health impacts from the
4 stress that I endure from the lack of access to safe drinking water are impossible to quantify.

5 12. The detrimental economic and health impacts that ongoing and increasing nitrate
6 contamination will have on me and residents in my area is severe and will worsen because of the
7 State Board's removal of numeric fertilizer limits.

8 I declare under penalty of perjury of the laws of the State of California that the foregoing
9 is true and correct.

10 Executed on March 16, 2024, in San Lucas, California.

11 DocuSigned by:
12 *Edgardo V Resendiz-Luna*
13 B405C09D065594E4...
14 _____
15 Declarant

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