From:	Limon, Jessica@Wildlife
To:	Tennis Wick; PermitSonoma-Wells-PublicInput
Cc:	Hultman, Debbie@Wildlife; Weightman, Craig@Wildlife; Maxfield, Jessica(Jessie)@Wildlife; Coombes, Julie@Wildlife; Murvine, Angela@Wildlife; Hansen, James@Wildlife; Nathan Quarles; Robert Pennington; Rick.Rogers@noaa.gov
Subject:	Sonoma County Well Ordinance
Date:	Wednesday, March 29, 2023 2:29:27 PM
Attachments:	image001.png image002.png Sonoma County Well Ordinance-Wick-MAXFIELD03292023.pdf

EXTERNAL

Good afternoon,

Please see the attached letter for your records. If you have any questions, contact Jessica (Jessie) Maxfield, cc'd above.

Thank you,

Jessica Limon
Staff Services Analyst/ Administrative Support Analyst
California Department of Fish and Wildlife – Bay Delta Region

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209-616-6011
jessica.limon@wildlife.ca.gov

State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
Bay Delta Region
2825 Cordelia Road, Suite 100
Fairfield, CA 94534
(707) 428-2002
www.wildlife.ca.gov

GAVIN NEWSOM, Governor
CHARLTON H. BONHAM, Director

March 29, 2023

Tennis Wick, Director
Permit Sonoma
2550 Ventura Avenue
Santa Rosa, CA 95403
Tennis.Wick@sonoma-county.org

Permit Sonoma Wells Public Input
PermitSonoma-Wells-PublicInput@sonoma-county.org

Subject: Proposed Sonoma County Well Ordinance

Dear Tennis Wick:

The California Department of Fish and Wildlife (CDFW) is submitting comments regarding the Sonoma County Board of Supervisor's consideration of a proposed well permitting ordinance. As **Trustee Agency** for the State's fish and wildlife resources, CDFW has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and the habitat necessary for biologically sustainable populations of such species (Fish & G. Code §§ 711.7 and 1802). CDFW has an interest in the sustainable management of groundwater, as many sensitive ecosystems, species, and public trust resources depend on groundwater and interconnected surface water (ISW). Furthermore, the Public Trust Doctrine itself imposes an obligation to consider how groundwater management affects public trust resources, including surface waters, fisheries, and wildlife habitat. Groundwater hydrologically connected to surface waters is also subject to the Public Trust Doctrine to the extent that groundwater extraction or diversions affect or may affect public trust uses. (*Environmental Law Foundation v. State Water Resources Control Board* (2018), 26 Cal. App. 5th 844; *National Audubon Society v. Superior Court* (1983), 33 Cal. 3d 419).

BACKGROUND

In compliance with the 2018 decision by the State of California's Court of Appeal, Sonoma County must evaluate impacts to public trust resources in navigable waterways, including the habitat and wildlife they support, and require mitigation to offset impacts from groundwater extractions before issuing a well construction permit. Many Sonoma County tributary streams have historically sustained perennial flow that supports habitat for several special-status species, including California freshwater shrimp (*Syncaris pacifica*), Central California Coast Coho salmon (*Oncorhynchus kisutch*), California Coastal Chinook salmon (*Oncorhynchus tshawytscha*), Central California Coast steelhead (*Oncorhynchus mykiss*) and other aquatic species.

Groundwater extraction has the potential to impact groundwater dependent ecosystems (GDE) resources and reduce streamflow, especially during the late spring and summer months which is a critical time period for the state and federally endangered coho salmon and federally threatened steelhead.

On October 4, 2022, the Sonoma County Board of Supervisors (Board) adopted a temporary moratorium of new well permits until April 4, 2023 and directed Permit Sonoma to convene a Technical Advisory Committee (TAC) to advise on proposed amendments to the Sonoma County Well Construction Ordinance and adopted a temporary moratorium of new well permits until April 4, 2023. Permit Sonoma assembled both a Policy Working Group (PWG) and a Technical Working Group (TWG) to assist in the development of a revised ordinance. Staff from CDFW's Bay Delta Region participated as a member of the TWG and attended PWG meetings. Both groups met several times between November 2022 and March 2023 to discuss the revisions necessary to the ordinance to consider and protect public trust resources and provided recommendations to Permit Sonoma to incorporate into the revised ordinance.

COMMENTS AND RECOMMENDATIONS

CDFW would like to acknowledge the extensive effort taken by Permit Sonoma staff to convene the two working groups and to summarize and present both the PWG's and TWG's recommendations to the Board of Supervisors. Great progress has been made through this process to develop a framework for evaluating groundwater pumping related impacts to the instream flow needs for salmonids (which were chosen as a surrogate for public trust resource protection). CDFW commends Permit Sonoma staff for expanding the proposed public trust review area to include all Russian River tributaries that contain habitat for salmonids as this is an important step towards developing an ordinance that has the potential to be protective of public trust resources. However, the relatively short timeframe to discuss and develop detailed well ordinance recommendations left many other important issues and considerations unresolved. Discussions in the TWG highlighted the critical need for additional data to be collected, evaluated, and used to inform future revisions to the well permitting ordinance so that it can be fully protective of public trust resources. The limited amount of data evaluating the potential for adverse impacts associated with well drilling resulted in overwhelming uncertainty regarding when and where these adverse impacts might occur and how they should be mitigated, making it extremely difficult to develop specific ordinance recommendations. In light of this, CDFW recommends Sonoma County proceed with a conservative and protective approach to permitting wells until the relationship between well drilling and adverse impacts is better understood and can be factored into the permitting process. Additionally, CDFW recommends Sonoma County commit to a robust and ongoing adaptive management process to inform future revisions to the well permitting ordinance.

CDFW offers the below comments and recommendations on the proposed well permitting ordinance:

Comment 1: The use of 2.0-acre feet (AF) of water per year (similar to the Sustainable Groundwater Management Act's (SGMA) 'de minimis' threshold) to define a well as a "well for low water use" and to use as a screening category for ministerial well permitting is not appropriate.

Issue: The 2.0-AF "de minimis" threshold from SGMA was an administrative determination for setting fees and requiring monitoring. There has been no evaluation of the relationship between 2.0 AF of groundwater being extracted and impacts to ISW, GDE, or public trust resources. Therefore, using this amount of water as the basis for establishing a "low water use" ministerial well permitting category is inappropriate. During the TWG and PWG meetings, Permit Sonoma staff described this "low water use" category as being intended to apply to "small rural residences" in the County. Two-AF of water equates to roughly 1,785 gallons per day and almost 450 gallons per capita per day for a household family of four. Water Code Section 10609.4 states that "the standard for indoor residential water use shall be 55 gallons per capita daily". The 0.5-AF per year threshold is a conservative amount, is consistent with Water Code, and would allow for approximately 110 gallons per capita per day for each member of a household family of 4.

Recommendations: Given the uncertainty regarding how even small amounts of groundwater extraction might impact ISW and GDE, the County should use the more protective and conservative 0.5-AF per year to define "wells for low water use" and as a threshold for a ministerial permitting pathway. Adaptive management can help refine this extraction amount if through the collection of additional data and analysis an extraction amount can be determined that will not cause adverse impacts to public trust resources.

Comment 2: Stream buffer distances were discussed extensively during TWG meetings (and are mentioned in both the Summary Report and the Sonoma County Well Ordinance Public Trust Review Area Delineation document). However, they are not specifically mentioned or described in the proposed ordinance itself.

Issue: According to the Summary Report, "The proposed Public Trust Review Area covers approximately 313-square miles (18% of the county) with "stream buffer areas" accounting for approximately 94 square miles. Areas within "stream buffers" include the Gualala River and tributaries, and the Austin, Freezeout, Jenner Gulch, Sheephouse, Pena, Gill, Crocker, Sausal, Bidwell, Porter, Willow, Adobe, and portions of the Salmon Creek and Maacama Creek watersheds. The Summary Report for the proposed ordinance also states, "In Medium risk areas, the Public Trust Review Area consists of

stream buffers of 100, 250 or 750 feet designed to be protective of acute streamflow depletion impacts from near stream wells". The ordinance does not address where and how these different buffer distances will be applied. Furthermore, the Sonoma County Well Ordinance Public Trust Review Area Delineation technical support document does not clearly describe the analysis used to establish these buffer determinations and does not provide a meaningful technical justification for how these distances will be protective of public trust resources.

Recommendations: The proposed ordinance should provide the criteria for implementing specific buffer distances in order to clearly define where the buffer zones will apply and what the distance will be. Additionally, the technical support documentation should be updated to include a discussion on the analysis used to determine how and why these distances will be protective of public trust resources.

Comment 3: Level 1 and Level 2 Conservation Requirements and the "Net Zero Increase" approach intended to avoid potential adverse impacts from wells have not been evaluated or quantified.

Issue: While PWG and TWG members had consensus that all Level 1 and Level 2 water conservation requirements included in the proposed ordinance should be implemented, there has been no quantification or assessment of how effective or to what degree implementing these measures will avoid adverse public trust impacts associated with new or replacement wells. Similarly, there is no quantification or assessment of the "Net Zero Increase" approach pathway to a ministerial permit. Therefore, it is difficult to support the inclusion of these requirements as a method to minimize impacts to the public trust for a ministerial permit that can extract up to 2-AF of groundwater.

Recommendations: As part of an adaptive management process, the County should commit to collecting additional data to evaluate and quantify the benefits of Level 1 and Level 2 Conservation Requirements and the "Zero Net Increase" approach to evaluate their suitability for offsetting potential adverse impacts. These measures should not solely qualify applicants for a ministerial permit until the potential cumulative impacts to public trust of up to 2-AF of groundwater extraction per well can be better understood. Additionally, water conservation realized by the implementation of Level 1 and Level 2 water conservation requirements could help to offset concerns articulated in the Well Ordinance Summary Report that 0.5 AF would be overly restrictive.

CONCLUSION

The proposed well ordinance is an improvement to Sonoma County's previous permitting process, but a great deal of uncertainty remains regarding the potential for adverse impacts associated with well drilling and groundwater extraction and the

benefits of the proposed measures to avoid and mitigate these impacts. In recognition of this uncertainty and the short timeframe to update the ordinance, CDFW recommends Permit Sonoma collect and evaluate additional data and continue to meet with members of the PWG and TWG to further refine the ordinance as data and more information becomes available. As part of the well ordinance revision, Sonoma County should firmly commit to developing a plan outlining the additional data that needs to be collected in order to fully protect public trust resources and identify a process indicating how and when the ordinance will be reevaluated and updated.

Until additional data can be collected and evaluated, CDFW strongly recommends Sonoma County proceed with a conservative approach to permitting new well construction to better protect public trust resources until the relationship between well drilling and the adverse impacts of groundwater extraction to public trust resources has been better characterized and incorporated into the permitting process.

If you have questions regarding this protest, please contact Jessie Maxfield, Water Rights Coordinator, at Jessica.Maxfield@wildlife.ca.gov; or Craig Weightman, Environmental Program Manager, at Craig.Weightman@wildlife.ca.gov.

Sincerely,

DocuSigned by:
[redacted]
B77E9A6211EF486...

Erin Chappell
Regional Manager
Bay Delta Region

cc: **California Department of Fish and Wildlife**
Angela Murvine, Water Branch - Angela.Murvine@wildlife.ca.gov
James Hansen, Bay Delta Region - James.Hansen@wildlife.ca.gov

Permit Sonoma
Nathan Quarles, Nathan.Quarles@sonoma-county.org
Robert Pennington, Robert.Pennington@sonoma-county.org

NOAA Fisheries
Rick Rogers, Rick.Rogers@noaa.gov

From: Richard Retecki
To: Jennifer Klein; PermitSonoma-Wells-PublicInput; Tennis Wick
Subject: So Co Well Ordinance letter
Date: Wednesday, March 29, 2023 1:01:14 PM
Attachments: SoCo PTD - [redacted] (3.26.23).docx

EXTERNAL

For your information about the upcoming Well Ordinance discussion. Thank you all for the hard work you do for all of us. Richard Retecki

March 28, 2023

Board of Supervisors

Tennis Wick,
Sonoma County

Jennifer Klein
Chief Deputy Counsel Sonoma County

Christina Rivera
CAO, County of Sonoma
Director, Permit Sonoma

Nathan Quarles
Deputy Director, Engineering and Construction
Permit Sonoma

Robert Pennington
Professional Geologist, Natural Resources Permit
Sonoma

Submitted via Email: Jennifer.Klein@sonoma-county.org; PermitSonoma-Wells-PublicInput@sonoma county.org; Nathan.Quarles@sonoma-county.org; Tennis.Wick@sonoma-county.org; Christina.Rivera@sonoma-county.org; Robert.Pennington@sonoma-county.org; bos@sonoma county.org

SUBJECT: Comments on the Ongoing Process to Amend Sonoma County Code Chapter 25B (the Well Ordinance)

To Sonoma County Board of Supervisors and County Staff:

The above-listed organizations represent citizens in Sonoma County and statewide with a keen interest in ensuring groundwater is sustainably and equitably managed for the benefit of all Californians and the ecosystems we all depend on for our health and welfare. We thank you for the opportunity to comment on the proposed amendment to the Sonoma County Groundwater Well Ordinance (Well Ordinance).[1]

Groundwater is not limitless. Nor are the fish, wildlife, and recreational opportunities provided by our rivers, streams, and interconnected groundwaters. This Well Ordinance update has the potential to help ensure long-term water security for all County residents and help make us more resilient to a changing climate and increased drought conditions.

An effective Well Ordinance will establish a program ensuring we live within our water means. The proposed ordinance allows for a continued increase in groundwater extraction without requiring reductions in the actual amount extracted (individually or from the whole) or collecting the information necessary to demonstrate if water is available for use—or an area needs recharge.

We certainly appreciate the time and effort spent developing another draft of the proposed Well Ordinance[2] intended to fulfill the County's legal public trust duties and to address the problems caused by unsustainable groundwater extraction. These devastating losses have, and will continue to have, resounding impacts everywhere in our County including: the loss of tourism and our robust recreation economy, loss of our local salmon fishery, loss of habitats of cultural and historical importance, reduced groundwater quality, and more dry wells.

The proposed Well Ordinance does not (1) effectively reckon with the ongoing and future cumulative impacts of groundwater pumping on public trust resources, or (2) contain provisions that will ensure the County meets its legal duty to protect public trust resources and mitigate harms. We recognize the extremely tight timeline to develop these amendments, but we do not believe that must (or should) lead to an ineffectual program. We urge the County to take an interim step now and commit to return, in two years or less after filling acknowledged data gaps and completing essential analysis, with a

[1] Many of us provided a letter on March 15, 2023 describing the impacts facing public trust resources from unsustainable groundwater extraction, and offering a list of items that we believe need to be addressed and included before the Well Ordinance ensures the County adequately and effectively meets its Public Trust obligations. That letter is attached here, for reference as Exhibit A. [2] We have also been following the County-convened technical and policy working groups' efforts—via limited publicly accessible meetings—and appreciate the hard work and long hours members of these groups have contributed.

program that is founded on empirical data and the robust analysis necessary to ensure long-term sustainability and protection of public trust resources.

Imagine the County developing a program for preventing overdraft of its bank account. As proposed, the Well Ordinance sets up the procedures for withdrawals, but does not define the current balance, a minimum balance, or an effective mechanism for accounting for deposits or withdrawals that ensures overdrafts do not occur.

To mitigate short term harms, and achieve lasting sustainable results, including protection of public trust resources, the County must:

(1) Adopt an ordinance that limits ministerial approvals to truly low volume, non-commercial uses that are based on verifiable criteria for approval;

(2) Strengthen basic accounting requirements as identified below; and

(3) Commit to developing an ordinance that addresses the cumulative impacts of all withdrawals on public trust resources within two years.

Below we offer some examples of how the County may improve the ordinance to address these issues and will set the County on track to balancing the Public Trust "checkbook".

Recommended Modifications to the Well Ordinance

1. To ensure the Well Ordinance is timely updated, we recommend the County expand the Purpose Statement to include language specifying a program that includes adaptive management and refinement of this Ordinance within two years, and at defined intervals thereafter. Staff and Working Groups agreed adaptive management is critical to meeting the County's ongoing duty to protect public trust resources and mitigate adverse impacts caused by groundwater extraction.

To address and minimize cumulative impacts and protect public trust resources over the first two implementation years, and while the County is working to account for insights from collected data, we recommend the following:

2. Define a "Well for Low Water Use" as 0.5 AFY and limit it to new wells for residential use. The current exception to discretionary public trust review for "Low Water Use," defined as less than 2.0 AFY, is not supported by empirical information regarding actual low water use or by findings that it will protect public trust resources. By setting a standard for "Low Water Use" at 2.0 AFY, the County is authorizing *new* groundwater extractions that will further contribute to the cumulative amount of water extracted and the adverse impacts caused by this extraction.

3. Modify "Well for Existing Use" to allow ministerial permits for replacement of 0.5 AFY residential wells, and up to 2.0 AFY for legally established existing uses, not including commercial "agricultural operations." Existing, legally established uses have created the depleted streams and adverse impacts to public trust resources the Well Ordinance is attempting to address. Unquantified "conservation measures," while desirable, have not been assessed for effectiveness, and cannot be credited without some numeric value. Existing uses greater than 2.0 AFY must be subject to discretionary review until objective and quantifiable mitigation measures are developed.

4. Eliminate the "Net Zero Increase" exception until clear terms, analysis, and quantification is available. Without quantification or assessment of the benefits or mitigation factors of "Net Zero Increase," there can be no determination of what level of measures are necessary to mitigate existing adverse impacts, and prevent future adverse impacts. There are no clear standards or criteria regarding timing, rate of withdrawal, or other variables that will ensure the authorized increased withdrawals will not continue or worsen already existing impacts.

5. Expand the Public Trust Review Area (PTRA) to be more inclusive by:

- Eliminating the "stream buffer" concept and treating all impacted public trust resources equally. The Public Trust Doctrine does not differentiate between types of resources, nor does it

utilize an abstract value ranking system. The buffers proposed are not based on empirical data, facts, or analysis, and taking a precautionary approach that allows for development of facts and data ensures future sustainability.

- Include all areas within Sustainable Groundwater Management Act (SGMA) high and medium priority basins within the PTRA. These areas have already been defined by the State of California as severely depleted. There is no rational justification for excluding wells in these areas from implementing basic conservation measures intended to increase the overall sustainability of groundwater and public trust resources.
- Include Russian River and Dry Creek mainstem valleys in the PTRA. The Public Trust is applicable to all navigable waterways. Omitting the mainstem means adverse impacts caused by groundwater pumping will continue.

To ensure the County meets its ongoing obligation to protect public trust resources and facilitate adaptation of the ordinance after collection of additional data, we recommend the following:

6. Expand "Well Metering, Monitoring, and Reporting" to all well types and uses. The County acknowledges that there are significant data gaps regarding how much groundwater is available, how much is used, and how and when groundwater extraction depletes flows in nearby streams and rivers. This lack of information makes developing a program that effectively protects public trust resources challenging. Necessary measures must be implemented to close these data gaps. Collecting this information ensures: (1) the County will have a more complete accounting of groundwater resources and uses needed to fully understand impacts to public trust resources; and (2) the County will be able to refine mitigation measures that maximize the benefits of groundwater use and provide for reliable water supply, while avoiding and minimizing harm to public trust resources to the extent feasible.
7. Define standards and criteria for when permits subject to discretionary review will (or will not) be granted. As drafted, the Well Ordinance does not specify the conditions under which the County will, or will not, issue a requested permit that is subject to discretionary review. Sec. 25B-4(d)(4) identifies findings and determinations the County will make when issuing, issuing with conditions, or denying a permit, but does not provide a standard or criteria that will be used to determine whether a permit will be issued or not. This leaves permit applicants without guidance or certainty when seeking a permit, and it provides no standards to equitably apply when evaluating a permit application. (including review by the Board of Supervisors)

Finally, in conjunction with adopting the Well Ordinance with the revisions and modifications identified above, as explained in Item # 1, we urge the Board of Supervisors to direct County staff to thoroughly and expeditiously work to fill data gaps, including information collected through implementation of the Well Ordinance, and complete necessary studies and modeling to further develop and refine the Well Ordinance to achieve the fundamental purpose ensuring we live within our water means.

***

The County has an opportunity to once again be a leader in California when managing water resources, creating livable communities, and supporting a robust economy and healthy ecosystems. We urge the Board to provide Staff the necessary direction to further amend the proposed Well Ordinance to address our above points, and ensure that Sonoma County is setting the gold standard for protection of our public trust resources.

Sincerely, Richard Retecki

From:	Rick Rogers - NOAA Federal
To:	Chris Coursey
Cc:	Susan Gorin; David Rabbitt; James Gore; district4; Lynda Hopkins; PermitSonoma-Wells-PublicInput; Christina Rivera; Tennis Wick; Robert Pennington; Nathan Quarles
Subject:	NMFS comments re. Sonoma County"s revised Well Ordinance
Date:	Thursday, March 30, 2023 11:08:10 AM
Attachments:	2023-03-29 NMFS comments re Sonoma County Ordinance.pdf

EXTERNAL

Good Afternoon Chairman Coursey,
Please find attached below comments from NOAA's National Marine Fisheries Service concerning the revised well ordinance scheduled for Board consideration on April 4, 2023.

Sincerely,

Rick Rogers
--
Rick Rogers (he/him)
Fish Biologist
Instream Flow Coordinator
NOAA Fisheries West Coast Region
U.S. Department of Commerce
Santa Rosa Area Office
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rick.rogers@noaa.gov
www.westcoast.fisheries.noaa.gov

I may be on mandatory telework due to Covid, or working flexible hours to balance family and personal needs. I appreciate your patience if my response time is delayed. If you have a request, please reply and specify important timeframes or deadlines. I will do my best to respond accordingly. Thank you.

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
West Coast Region
777 Sonoma Avenue, Room 325
Santa Rosa, California 95404-4731

March 29, 2023

Chris Coursey
Chairman, Sonoma County Board of Supervisors
575 Administration Drive, Room 100 A
Santa Rosa, California 95403

Dear Chairman Coursey,

This letter communicates NOAA's National Marine Fisheries Service's (NMFS) comments regarding Sonoma County's (County) amended draft ordinance (draft Ordinance) establishing new standards for permit applications to drill groundwater wells. NMFS is responsible for conserving threatened and endangered marine species under the federal Endangered Species Act (ESA), and ESA-listed Central California Coast (CCC) coho salmon (*Oncorhynchus kisutch*), CCC steelhead (*O. mykiss*), and California Coastal Chinook salmon (*O. tshawytscha*) reside within many rivers and streams throughout the County.

A recent California Court of Appeal decision held that the public trust doctrine must be considered—and public trust resources protected whenever feasible—in any decision governing groundwater withdrawals hydrologically connected to public trust surface waters. ESA-listed salmonids and the riverine aquatic habitat they require for survival are clearly public trust resources (PTR). The County's current protocol for permitting groundwater well construction in Sonoma County does not analyze or consider impacts to public trust resources, and is largely a ministerial process. On October 4, 2022, the County convened a technical working group (TWG), which included our staff member Rick Rogers, to develop recommendations on how the County could amend their existing well ordinance in a way that fulfills their obligations under the Public Trust Doctrine. On March 21, 2023, the County released their draft Ordinance for public comment.

We commend the County for undertaking this important endeavor, as well as convening a technical group with expertise in hydrology, hydrogeology, and ecology to inform the process. While the TWG's progress on developing a framework for analyzing streamflow depletion impacts on ESA-listed salmon and steelhead (chosen as surrogates for PTRs) during a tight 6-month timeframe was impressive, there nonetheless remains significant follow-up revisions and development of an adaptive management program before the process can be considered complete. Below we identify our specific comments to address needed revisions.

Specific Comments to Address Necessary Revisions for Public Trust Resource Protection

Table 25B-2: We reiterate our previous comment[1] that the minimum setback of 30 feet from the top-of-bank of a pond, lake or stream, while perhaps suitable for sanitary protection purposes, is likely inappropriate for avoiding streamflow depletion impacts in tributary reaches. We recommend further study to determine an appropriate and protective minimum setback.

Section 25B-4(d)(5): We believe that requiring an appeal be made within 10 days of a decision made by the Enforcing Agency is an unrealistically short time interval for resource agencies (including NMFS) to respond. Any appeal of a decision will likely involve complex hydrogeologic analysis to identify and evaluate the potential for streamflow depletion effects on freshwater organisms and their ecosystems. We recommend the County extend the decision appeal response period, to at least 45 days so that resource agencies as well as the public, have a suitable time period to analyze the submitted analysis.

Section 25B-4(e)(5): We recommend the County require proof from the well permit applicant and/or landowner demonstrating that any well qualifying for ministerial permitting under Section 25B-4(e)(5) is understood by the California State Water Resources Control Board to be diverting water under a valid California surface water right.

Section 25B-4(e)(6): We continue to have significant concern regarding the proposal to ministerially permit wells using up to two acre-feet per year (AFY). The County has provided no data or analysis that supports the assertion that using two AFY, which equates to using an average of 1,876 gallons per day, is in any way a "low water use" – in fact, the available data and analysis suggests an appropriate "low water use" threshold is one-fourth that value (i.e., 0.5 AFY).[2]

Moreover, ministerially permitting well applications for such profligate water use likely disincentives water conservation. Extraction from several groundwater basins in Sonoma County is currently unsustainable and, as a result, is being managed under California's Sustainable Groundwater Management Act (SGMA). Groundwater managers within those basins and throughout the state are realizing that creating sustainable groundwater will take both increased recharge and more water conservation. Creating a ministerial pathway for applicants that are truly "low water use" (e.g., 0.5 AFY) could encourage necessary conservation, discourage waste, and lower the likelihood that public trust resources (such as ESA-listed salmonids) will be impacted, without increasing the regulatory burden on the vast majority of

[1] September 28, 2002, letter from Bob Coey, NMFS North Coast Branch Supervisor, to Chairman James Gore, Sonoma County Board of Supervisors.

[2] The 2019 Fee Study for the Santa Rosa Plan subbasin assumed an average annual water use per parcel of 0.50 AF (see email from Marcus Trotta to TWB dated February 9, 2023). Also, California's Statutory Residential Water Use Standard is currently 55 gallons per capita per day (see https://water.ca.gov/Programs/Water-Use-And-Efficiency/2018-Water-Conservation-Legislation/Urban-Water-Use-Efficiency-Standards-Variances-and-Performance-Measures). Assuming a family of four with moderate outdoor irrigation needs, the resulting average daily water use would still be significantly lower than 1,876 gallons (i.e., two AF per year).

residential well applicants.[3] Conversely, ministerially permitting applications using up to two AFY (or an average of 1,876 gallons per day) does not incentivize sound water use, but instead creates a management dynamic that is more likely to imperil surface flows for ESA-listed salmonids, by lowering groundwater levels, threatening existing well production, and limiting the ability for potential future groundwater development. Finally, one of the reasons stated by the County supporting a two-AFY low water use threshold was consistency with the SGMA "de minimis" definition. However, our interpretation of the SGMA "de minimis" definition is that it only addresses the ability of a Groundwater Sustainability Agency to levy fees and require metering[4], and does not imply the threshold would protect public trust resources.

Page 7, Section 25B-4(e)(8): Under the available methods by which a well applicant can achieve "net zero groundwater increase", the draft ordinance includes "participation in a streamflow augmentation project authorized by the California Department of Fish and Wildlife or National Marine Fisheries Service." We suggest the County specify which streamflow augmentation project or program they are alluding to. Please note that use of the Voluntary Drought Initiative (VDI), as we previously noted to the TWG, would not be appropriate for achieving a "net zero groundwater increase." The VDI program is only designed to augment streamflow during drought periods to ensure bare minimum water quality thresholds are met in order to prevent a fish kill. Under these minimum streamflows, fish likely experience increased competition for limited food sources, high predation rates, poor growth, and, as a result, poorer ocean survival. Thus, while participation in a VDI project provides the minimum instream habitat conditions for survival, it would not meet the threshold necessary for protecting all public trust resources.

Section 25B-12: Analyzing whether streamflow depletion impacts may result from a proposed well requires significant data, including an understanding of current groundwater use within the watershed where the proposed well is located. Future streamflow depletion analysis will likely rely on groundwater/surface water models, and models are only as good as the data used to populate them. Excluding required metering for residential wells using up to an average of 1,876 gallons per day will likely result in a large volume of future groundwater extraction that will be untracked and remain unverified, increasing uncertainty in the County's impact analysis. We maintain this would compromise the County's ability to protect current well owners, public trust resources, and ESA-listed species. Rather, we recommend the County require metering and reporting for all wells. If the County wishes to move forward with the current language, we recommend the County adopt a precautionary approach that assumes a default use of two AFY when conducting a well impact analysis for all un-metered extractors.

General Comments

Adaptive Management: The TWG acknowledged the need for a robust adaptive management program that fills data gaps and refines the public trust resource impact analysis procedure. A critical issue that requires immediate attention concerns the proposed method for analyzing

[3] According to the Sonoma County GSA fee study, groundwater use data from private wells in Sonoma County parcels show 69 percent of parcels use less than 0.5 AF per year (from Powerpoint slide show shared with TWG via email from Robert Pennington, January 25, 2023).

[4] e.g., CCR 5202(c)(1); CCR 10725.8(e); CCR 10730

streamflow depletion impacts, as well as the method used for characterizing current streamflow depletion when delineating the public trust review area (OEI 2023). Regarding the former, we remain concerned that using a three-month average (July – September) may underestimate the degree of streamflow depletion, since depletion impacts are likely greatest when the highest depletion rate coincides with the lowest discharge of the season. This period likely occurs during late September/early October during most years, but hydrogeologic analysis and streamflow records can help refine the timeframe. Also, focusing on only July-September fails to consider the impact that streamflow depletion can have on migrating steelhead smolts moving downstream in May and June. Similarly, using a 10-year average of streamflow depletion conditions to inform the Public Trust Review Area likely underestimates the depletion's impact on stream-dwelling juvenile salmonids because impacts are typically greatest during drier water years. We recommend the County address these issues by reconvening the TWG, in a timely manner to ensure impacts to ESA-listed species are appropriately minimized.

Water Conservation Measures: The water conservation measures included under Tier 1 and Tier 2 appear designed to offset or mitigate some portion of groundwater extraction, ostensibly to further ESA-listed salmonid and public trust resource protection. However, the actual expected water savings of these measures largely have not been quantified, so their efficacy in mitigating or offsetting impacts is similarly unknown. We recommend the County study and determine the expected water savings for each conservation measure.

NMFS appreciates the opportunity to present our concerns regarding Sonoma County's proposed ordinance establishing new standards for well drilling permit applications. If you have any comments or questions regarding this letter, please contact Mr. Rick Rogers at rick.rogers@noaa.gov, or 707-578-8552.

Sincerely,

[redacted]

Robert Coey
North Coast Branch Supervisor
North-Central Coast Office

cc: Bryan McFadin, North Coast Regional Water Quality Control Board (Bryan.McFadin@waterboards.ca.gov)
Jessie Maxfield, California Department of Fish and Wildlife (Jessica.Maxfield@wildlife.ca.gov)
David Hines, California Department of Fish and Wildlife (David.Hines@wildlife.ca.gov)
James Hanson, California Department of Fish and Wildlife (james.hanson@wildlife.ca.gov)
Daniel Schultz, State Water Board (Daniel.Schultz@waterboards.ca.gov)
Sam Boland-Brien, State Water Board (Samuel.Boland-Brien@waterboards.ca.gov)
E-File: FRN 151416WCR2022SR00184

From:	info@santarosaplaingroundwater.org
To:	PermitSonoma-Wells-PublicInput
Subject:	Well Ordinance Comment Letter - Sonoma County GSAs
Date:	Friday, March 31, 2023 1:19:58 PM
Attachments:	2023-03-31 Well Ordinance Comment Letter-FINAL.pdf 2022-10-03 GSAWell Ord Ame 2nd Comment Ltr to PRMD.pdf 2022-08-05 Well ordinance comment letter_FINAL.pdf

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EXTERNAL

Good afternoon –

Please find attached a comment letter from the Sonoma County GSAs on the proposed well ordinance amendment that will be presented to the Board of Supervisors on April 4th, 2023. Also attached are the previous comment letters the GSAs have submitted on the prior versions of the well ordinance amendment.

If you have any questions, please let me know.

Regards,
Indigo

Indigo Bannister
Sonoma County Groundwater Sustainability Agencies (GSAs)
www.sonomacountygroundwater.org

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GROUNDWATER SUSTAINABILITY AGENCIES

March 31, 2023

Sonoma County Board of Supervisors
575 Administration Drive
Santa Rosa, CA 95403

RE: Comments on proposed revised amendments to the Sonoma County Code Chapter 25B (Well Ordinance) to add provisions for evaluation of impacts to public trust resources and well metering, and related changes

Thank you for the opportunity to provide additional comments on the revised amendments to the Sonoma County Well Ordinance. The Sonoma County Groundwater Sustainability Agencies (GSAs) appreciated the opportunity to participate in the Technical and Policy work groups formed by the Director of Permit Sonoma, Tennis Wick, to provide input into the proposed Well Ordinance amendments. The technical and policy work groups have provided input on the proposed methods for defining a Public Trust Review area, defining a ministerial well permit pathway, identifying water conservation measures, refining monitoring and reporting requirements, and recommending activities to reduce data gaps for future adaption and improvements.

Permit Sonoma staff have worked closely with the GSAs and presented updates on the Well Ordinance at GSA Advisory Committee and Board meetings. These public meetings provided an additional opportunity for GSA representatives and the public to comment on the process and options for the ordinance update. The GSAs support the County's public engagement process and believe that the Outcomes/Recommendations Report fairly describes issues raised by stakeholders and represents the range of opinions expressed.

Public Trust Review Area

The proposed Public Trust Review Area (PTRA) includes portions of the each of the three Sonoma County medium and high priority basins/subbasins defined by the California Department of Water Resources (DWR), but does not cover the entirety of those basin/subbasins managed by the GSAs. All three GSAs have adopted Groundwater Sustainability Plans (GSPs) recently approved by the California Department of Water Resources that contain initial sustainable management criteria (SMC) developed to evaluate and address the potential for depletion of interconnected surface waters, including minimum thresholds and measurable objectives to avoid potential undesirable results to groundwater dependent ecosystems. While the GSAs recognize that the focus of the Well Ordinance update is distinct from the GSA's mandate of the achieving basin wide sustainable groundwater management, there is considerable GSP overlap in the stated goals of protecting public trust resources. Defining separate and partially overlapping GSA basin and PTRA areas may result in inconsistent regulations within the GSA basins, be confusing for the public, and result in overlapping

requirements for well metering, monitoring, and reporting from different agencies. The GSA is committed to supporting Permit Sonoma in providing clear information to groundwater users within the GSA basins/subbasins on the well permitting process and will look for opportunities for future policy alignment, as described below.

Low Water Use Wells

The GSAs are supportive of staff's recommendation to define low water use wells as wells using less than 2 acre-feet (AF) per year. The stakeholder committees discussed various options for thresholds for ministerial review, specific water conservation, and monitoring requirements for low water users. Options focused on 1) whether low water use wells should be extended to non-domestic uses, 2) if wells using less than 2 AF per year should require metering and reporting, and 3) various levels of conservation requirements. The Sustainable Groundwater Management Act (SGMA) categorizes certain low water use extractors as de minimis extractors (defined as a well owner who extracts, for domestic purposes, two AF or less per year). The GSAs do not have authority to require meters on de minimis wells and the de minimis threshold is frequently used for other groundwater regulations (such as the exemption from review under Drought Executive Order N-7-22). The GSAs are supportive of water conservation requirements for low water use wells and support, for consistency, that low water use wells are defined as domestic wells extracting 2 AF or less per year, as proposed.

Future Policy and Technical Work

The *Outcomes and Recommendations Report*, submitted by the Policy and Technical Work Groups to the Director of Permit Sonoma includes recommendations for Permit Sonoma to develop a work plan reducing key data gaps, improving analytical and numerical modeling capabilities, quantification of water conservation measures, developing objective standards and metrics for allowing ministerial permitting of innovative sustainable management programs, coordinating with GSAs, continuing technical stakeholder engagement, and periodic review of well ordinance implementation. The GSAs support these recommended adaptive measures and will continue coordinating with Permit Sonoma on groundwater resource management and protection of public trust resources wherever possible, including continued collaboration to coordinate groundwater monitoring efforts, update groundwater and surface water models, adaptive management of streamflow depletion, and maximize data sharing.

GSA Policy Options Study and Development

The GSAs will begin a policy options study this year to develop, prioritize, vet, and adopt policies within the authorities of the GSAs and local land use agencies that support and advance achieving the GSAs sustainability goals. Through this process, the GSAs can consider policies that better align or complement requirements of the amended well ordinance throughout the entirety of the basins/subbasins managed by the GSAs. We look forward to continuing coordination with Permit Sonoma and the County as we begin this process. Wherever possible, we recommend aligning policy efforts for consistency.

The GSAs look forward to continuing our collaboration with Sonoma County, Permit Sonoma, member entities, resource agencies, and the GSA community to support sustainably managing our groundwater basin resources.

Sincerely,

[redacted]
Sandi Potter
Petaluma Valley GSA Administrator

[redacted]
Bill Keene
Sonoma Valley Plain GSA Administrator

[redacted]
Andy Rodgers
Santa Rosa Plain GSA Administrator

[redacted]
Marcus Trotta
Sonoma County GSAs Plan Manager

Enclosure(s): August 8, 2022 Comment Letter
October 3, 2022 Comment Letter

SANTA ROSA PLAIN • PETALUMA VALLEY • SONOMA VALLEY
GROUNDWATER SUSTAINABILITY AGENCIES

August 8, 2022
Sonoma County Board of Supervisors
575 Administration Drive
Santa Rosa, CA 95403

RE: Comments on proposed amendments to the Sonoma County Code Chapter 25B (well Ordinance) to add provisions for evaluation of impacts to public trust resources and well metering, and related changes

Thank you for the opportunity to review proposed amendments to the Sonoma County Well Ordinance to add provisions for evaluation of impacts to Public Trust Resources and Well Metering. We appreciate County staff's efforts to respond to the 2018 California Court of Appeals decision to require that well permits evaluate impacts on public trust resources.

The Sustainable Groundwater Management Act (SGMA) required local Groundwater Sustainability Agencies (GSAs) to form in California-designated high and medium priority groundwater basins and required the GSAs to develop and implement groundwater sustainability plans (GSPs). Within Sonoma County, three GSAs were formed in 2017 to sustainably manage groundwater in the Petaluma Valley, Santa Rosa Plain, and Sonoma Valley groundwater basins. Information can be found at www.sonomacountygroundwater.org.

Groundwater is an essential resource in Sonoma County, home to roughly 45,000 water wells, the most per capita of any county in California. Groundwater is the primary water supply for irrigated agriculture (where access to recycled water or surface water is not available), rural residential properties (including many mutual water companies), irrigated park lands, commercial and industrial users in unincorporated areas, and the City of Sebastopol. Groundwater also provides backup/supplemental supply for other cities and public water suppliers while supporting surface water flows and groundwater dependent ecosystems.

In December 2021, the GSAs completed GSPs for each basin. The GSPs were largely state grant funded and involved a broad range of stakeholders over a period of two years. The GSPs include Hydrogeologic Conceptual Models which identify data and information gaps that need to be addressed during GSP implementation. Two of the primary data gaps identified in each of the GSPs are: (1) the locations, depths, volumes, and timing of groundwater pumping in order to improve the assessment of potential impacts from groundwater pumping to beneficial users and uses; and (2) an understanding of surface and groundwater connectivity and the depletion of interconnected surface water.

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Under Proposition 68, the three GSAs have been partnering with Permit Sonoma to create an information sharing system on well permits and groundwater monitoring. If the proposed well ordinance amendment is adopted, this system could be leveraged and expanded to include the data generated through the proposed well ordinance, which would help to fill the data gaps identified in the GSPs.

On March 28, 2022, Governor Newsom issued Drought Executive Order N-7-22 that included new well permitting requirements for local agencies to prepare for and lessen the effects of drought conditions. The Sonoma County GSAs appreciate the County's recently adopted emergency drought standards for well construction to comply with the Executive Order and are currently coordinating with Permit Sonoma to implement the specific requirements that pertain to GSA consultation.

To ensure that groundwater users are informed and educated on the importance of groundwater resources, SGMA requires the GSAs to conduct active stakeholder engagement. Since 2017, the GSAs have developed a stakeholder list of about 1,500 people, created four websites, issued a monthly blog, held numerous well-attended workshops, and established a social media presence. We support the county conducting substantial outreach to groundwater users on the proposed changes, in coordination with the GSAs.

The proposed well ordinance amendment, recent well construction standards update, and planned GSP projects and management actions (within the three GSA basins) are significant changes to groundwater management in Sonoma County. The GSAs look forward to continuing our collaboration with Sonoma County, Permit Sonoma, member entities, resource agencies, and the GSA community to align and enhance outreach efforts to inform the public and minimize potential confusion, address state and local requirements, and ultimately support sustainably managing our precious groundwater resources.

Sincerely,

[redacted]

Sandi Potter
Petaluma Valley GSA Administrator

[redacted]

Bill Keene
Sonoma Valley GSA Administrator

[redacted]

Andy Rodgers
Santa Rosa Plain GSA Administrator

SANTA ROSA PLAIN • PETALUMA VALLEY • SONOMA VALLEY
GROUNDWATER SUSTAINABILITY AGENCIES

October 3, 2022

Sonoma County Board of Supervisors
575 Administration Drive
Santa Rosa, CA 95403

RE: Comments on proposed revised amendments to the Sonoma County Code Chapter 25B (well Ordinance) to add provisions for evaluation of impacts to public trust resources and well metering, and related changes

Thank you for the opportunity to provide additional comments on the revised amendments to the Sonoma County Well Ordinance. Following the Board of Supervisor's direction from August 9, 2022, County staff provided an overview of revised draft changes to the well ordinance at each of the three Groundwater Sustainability Agencies (GSAs) September Advisory Committee meetings. Staff presented a summary of the revisions proposed to define a public trust review area, expand ministerial pathways, require water conservation measures, and make adjustments to monitoring requirements.

The Sustainable Groundwater Management Act (SGMA) required local Groundwater Sustainability Agencies (GSAs) to form in state-designated high and medium priority groundwater basins and required the GSAs to develop and implement groundwater sustainability plans (GSPs). Within Sonoma County, three GSAs were formed in 2017 to sustainably manage groundwater in the Petaluma Valley, Santa Rosa Plain, and Sonoma Valley groundwater basins. Information can be found at www.sonomacountygroundwater.org.

The GSAs have specified authorities under SMGA but do not, on their own, have the authority to review and issue well permits. On this topic, SGMA includes the following provision in Water Code Section 10726.4 (b) that confirms the County's authority to issue well permits:

> *This section does not authorize a groundwater sustainability agency to issue permits for the construction, modification, or abandonment of groundwater wells, except as authorized by a county with authority to issue those permits. A groundwater sustainability agency may request of the county, and the county shall consider, that the county forward permit requests for the construction of new groundwater wells, the enlarging of existing groundwater wells, and the reactivation of abandoned groundwater wells to the groundwater sustainability agency before permit approval.*

As requested by the County, the GSAs will receive any forwarded groundwater well permit requests and provide input on a case-by-case basis subject to staffing availability and resources,

and in accordance with the approved Groundwater Sustainability Plan. Additionally, for the duration of the State-declared drought, the GSAs will continue to comply with all provisions of Governor Newsom's Drought Executive Order N-7-22 issued on March 28, 2022.

In closing, the comments in this letter, together with comments in our letter dated August 8, 2022 (attached) constitute our input on the proposed well ordinance amendments. The GSAs look forward to continuing our collaboration with Sonoma County, Permit Sonoma, member entities, resource agencies, and the GSA community to support sustainably managing our groundwater subbasin resources.

Sincerely,

Sandi Potter
Petaluma Valley GSA Administrator

[redacted]

Andy Rodgers
Santa Rosa Plain GSA Administrator

Bill Keene
Sonoma Valley Plain GSA Administrator

Enclosure(s): August 8, 2022 Comment Letter

SANTA ROSA PLAIN • PETALUMA VALLEY • SONOMA VALLEY
GROUNDWATER SUSTAINABILITY AGENCIES

August 8, 2022
Sonoma County Board of Supervisors
575 Administration Drive
Santa Rosa, CA 95403

RE: Comments on proposed amendments to the Sonoma County Code Chapter 25B (well Ordinance) to add provisions for evaluation of impacts to public trust resources and well metering, and related changes

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Under Proposition 68, the three GSAs have been partnering with Permit Sonoma to create an information sharing system on well permits and groundwater monitoring. If the proposed well ordinance amendment is adopted, this system could be leveraged and expanded to include the data generated through the proposed well ordinance, which would help to fill the data gaps identified in the GSPs.

On March 28, 2022, Governor Newsom issued Drought Executive Order N-7-22 that included new well permitting requirements for local agencies to prepare for and lessen the effects of drought conditions. The Sonoma County GSAs appreciate the County's recently adopted emergency drought standards for well construction to comply with the Executive Order and are currently coordinating with Permit Sonoma to implement the specific requirements that pertain to GSA consultation.

To ensure that groundwater users are informed and educated on the importance of groundwater resources, SGMA requires the GSAs to conduct active stakeholder engagement. Since 2017, the GSAs have developed a stakeholder list of about 1,500 people, created four websites, issued a monthly blog, held numerous well-attended workshops, and established a social media presence. We support the county conducting substantial outreach to groundwater users on the proposed changes, in coordination with the GSAs.

The proposed well ordinance amendment, recent well construction standards update, and planned GSP projects and management actions (within the three GSA basins) are significant changes to groundwater management in Sonoma County. The GSAs look forward to continuing our collaboration with Sonoma County, Permit Sonoma, member entities, resource agencies, and the GSA community to align and enhance outreach efforts to inform the public and minimize potential confusion, address state and local requirements, and ultimately support sustainably managing our precious groundwater resources.

Sincerely,

Sandi Potter
Petaluma Valley GSA Administrator

Bill Keene
Sonoma Valley GSA Administrator

[redacted]

Andy Rodgers
Santa Rosa Plain GSA Administrator

From:	Kerry Fugett
To:	PermitSonoma-Wells-PublicInput; Nathan Quarles; Tennis Wick; Christina Rivera; Robert Pennington
Cc:	Trathen Heckman; Brianna Schaefer
Subject:	Comments on the Process to Amend Sonoma County Code Chapter 25B (the Well Ordinance)
Date:	Friday, March 31, 2023 3:12:27 PM
Attachments:	SoCoWell Ordinance Letter_Daily Acts 2023 March.pdf

EXTERNAL

Dear Sonoma County Board of Supervisors and County Staff,

Daily Acts has a keen interest in ensuring groundwater is sustainably and equitably managed for the benefit of all Californians and the ecosystems we all depend on for our health and welfare. We thank you for the opportunity to comment on the process to amend the Sonoma County Well Ordinance to ensure public trust resources and people are protected when issuing groundwater well permits.

Attached is our letter of comment requesting additional efforts around outreach and engagement specifically to systemically vulnerable communities, as well as improved strategies for groundwater protections.

Thank you,

The Daily Acts Team

Christina Rivera
Clerk of the Board of Supervisors
575 Administration Drive, Room 102A
Santa Rosa, CA 95403

Nathan Quarles
Deputy Director, Engineering and Construction
Permit Sonoma

Tennis Wick
Director, Permit Sonoma
2550 Ventura Avenue
Santa Rosa, CA 95403

Robert Pennington
Professional Geologist, Natural Resources
Permit Sonoma

Submitted via Email: PermitSonoma-Wells-PublicInput@sonoma-county.org; Nathan.Quarles@sonoma-county.org; Tennis.Wick@sonoma-county.org; Christina.Rivera@sonoma-county.org; Robert.Pennington@sonoma-county.org

SUBJECT: Comments on the Process to Amend Sonoma County Code Chapter 25B (the Well Ordinance)

To Sonoma County Board of Supervisors and County Staff:

Daily Acts has a keen interest in ensuring groundwater is sustainably and equitably managed for the benefit of all Californians and the ecosystems we all depend on for our health and welfare. We thank you for the opportunity to comment on the process to amend the Sonoma County Well Ordinance to ensure public trust resources and people are protected when issuing groundwater well permits.

As a precedential act within the State of California, Sonoma County has the opportunity to set a strong example of how best to manage groundwater to protect our shared public trust resources from adverse impacts caused by unsustainable groundwater extraction. In addition to protecting the shared public trust resources that make Sonoma County a great place to live—including the fish, wildlife, and recreational opportunities provided by our rivers and streams—from the adverse impacts of groundwater extraction, this well ordinance update can help ensure long-term water security for all County residents and help make rural residents more resilient to a changing climate and continuing drought.

We would like to note the significant lack of public transparency throughout this process, especially with low-income and communities of color who live on wells and who would be disproportionality impacted by possible contamination, saltwater intrusion, pollution and even loss of water supply if groundwater is not managed well. Transparency and proactive outreach are needed to communities like Fetters Hot Springs-Agua Caliente, Mooreland, and other unincorporated communities who are lower income and would be significantly impacted by groundwater issues. It is critical that communities whose health and quality of life is most impacted by these decisions, be a part of these decision-making planning conversations. We cannot sacrifice the health of our communities for fear of impacting the profit of large

businesses. It is well documented that groundwater resources throughout Sonoma County are oversubscribed and that unsustainable groundwater extraction is not only threatening water security and human health of Sonoma County communities, but it is also negatively impacting the rich public trust resources valued by our diverse communities. Overuse of groundwater resources leads to the depletion of surface flows that are essential for healthy fish and wildlife populations, biodiversity and water security.

We appreciate and recognize the work and effort committed by County staff to develop a protective and effective ordinance meant to fulfill its trustee duties and address the problems identified above. We also appreciate the County's recognition of its public trust duty to protect salmon and other species in creeks and rivers, as well as an equitable water supply for the people of Sonoma County.

The County must take measures to strengthen groundwater pumping protections and not allow the unsustainable status quo to continue. The County's duty is to identify and evaluate adverse impacts of groundwater extraction on public trust resources and to mitigate those impacts to the extent feasible. To fulfill its obligations, the County must base groundwater extraction permitting decisions on reliable scientific information and robust modeling regarding the impacts of a proposed well on groundwater and surface water, both individually and cumulatively with all other existing groundwater extractions. In addition, the County must develop and implement a program that provides continuing oversight on both existing and proposed wells to ensure that all necessary steps are taken to mitigate the impacts of groundwater extraction on public trust resources.

We remain concerned that the recommendations from the working groups do not address all aspects of the problem or ensure that any subsequent ordinance adopted by the County will effectively and adequately protect public trust resources now and into the future. For example, there appears to be outstanding ambiguity on the following key questions: 1) what is reasonable residential consumption; 2) what is an adverse impact; 3) how will collected data be utilized to inform an adaptive management process; 4) what criteria will be used to evaluate impacts and any proposed mitigation when reviewing discretionary (*requires review of possible impacts*) permits; and 5) what analysis has been done to identify and determine measures necessary to mitigate impacts of groundwater extraction that will be authorized with ministerial (*Over-the-counter with no judgement by the county)* permits?

In addition to these ambiguities, we have identified a list of items that we believe need to be addressed and included before any ordinance the County adopts will adequately and effectively meet its Public Trust obligations:

1. A robust process to identify and mitigate the cumulative impacts of both existing and new wells to public trust resources including a review of ongoing cumulative impacts throughout the County. On its own, one single well may seem benign but multiple wells in an area, drawing from common groundwater and aquifers can cause significant groundwater depletion.

2. To qualify for a ministerial permit, it is paramount that a "low water use" well not exceed 0.5 acre-feet per year. Any use greater than 0.5 acre-feet per year must be subject to discretionary permitting, as uses above 0.5 acre-feet would equate to more than 111 gallons per day (GPD) per person for a family of four. In 2021, the average residential user used less than 91 GPD, including all outdoor uses. In contrast, 2.0 acre-feet which has been proposed as "low water use" would equate to almost 450 GPD per person for a family of four.

3. We support water conservation while allowing adequate quantities of water for families, farms, communities, fish, wildlife and other public trust resources. Conservation measures such as low flow shower heads and toilets and drip irrigation must be recommended and incentivized.

4. Mitigation measures that go beyond simply requiring conservation for those that use large quantities of groundwater must be evaluated and required to address ongoing and potential new adverse impacts. The current status quo—of unmitigated and oversubscribed use—must be addressed so that groundwater supplies can recover and public trust resources are preserved for all County residents.

5. Metering must be a basic requirement for all <u>new</u> wells as part of the permitting process. Real-time and/or regular reporting must be required of those that use large quantities of water to ensure prompt correction of overuse. Low water residential users should be encouraged to voluntarily report water use. There are grant opportunities to help pay for metering and reporting requirements for low-income and disadvantaged communities as well as to improve broadband access throughout the County.

It is understood that County Staff and consultants were working under an extremely tight timeline, however, with such an important and lasting impact to our public trust resources and people, outreach to the greater community should have been conducted. In addition to increased public meetings, the County should have been sharing recommendations, meeting notes, scientific studies, and other documents with the public on its website as well as proactively reaching out to community-based organizations who have relationships with communities most impacted by these decisions to listen to their concerns. The people of Sonoma County who all have a stake in our groundwater and public trust resources were not represented or informed.

Sincerely,

Trathen Heckman
Executive Director, Daily Acts

From:	Drevet Hunt
To:	Sheryl Bratton
Cc:	Chris Coursey; Susan Gorin; David Rabbitt; James Gore; district4; Lynda Hopkins; PermitSonoma-Wells-PublicInput; Jennifer Klein; Nathan Quarles; Tennis Wick; Sean Bothwell
Subject:	Coastkeeper Alliance: Comments on Proposed Amendments to Well Ordinance
Date:	Friday, March 31, 2023 6:28:49 PM
Attachments:	April 4 hearing Sonoma Well Ordinance_PTD Comments_FINAL_w Attachments_submitted.pdf

EXTERNAL

Chairman and Members of Sonoma County Board of Supervisors,

Attached are comments from the California Coastkeeper Alliance on the Proposed Amendments to the County's Groundwater Well Permitting Ordinance. The attached pdf is a PDF Portfolio and includes the Main Document and four attachments (A through D). Please let me know if you have any questions or difficulty accessing the documents.

Thank you,

Drevet Hunt | Legal Director
California Coastkeeper Alliance
415.606.0864
he/him

March 31, 2023

Sonoma County Supervisors
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Susan.Gorin@sonoma-county.org
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Nathan Quarles
Deputy Director, Engineering and Construction
Permit and Resource Management Department
County of Sonoma
Email: Nathan.Quarles@sonoma-county.org

Permit Sonoma Wells Public Input: PermitSonoma-Wells-PublicInput@sonoma-county.org

Subject: CALIFORNIA COASTKEEPER ALLIANCE COMMENTS ON

(A) THE PROPOSED AMENDMENT TO THE SONOMA COUNTY CODE CHAPTER 25B (WELL ORDINANCE) AND

(B) ORDINANCE ESTABLISHING A TEMPRORARY MORATORIUM ON PROCESSING AND APPROVAL OF APPLICATIONS FOR WATER SUPPLY WELL PERMITS

To Sonoma County Board of Supervisors:

California Coastkeeper Alliance (CCKA) thanks you for the opportunity to comment on the proposed amendments to Sonoma County Code Chapter 25B (Proposed Amendments) with governs "Water Well Construction Standards" and the urgency ordinance establishing a temporary moratorium on processing and approval of applications for water supply well permits (Temporary Moratorium).[1], [2]

[1] We support the proposed temporary moratorium, though as we expressed in our comments prior to the October 4, 2022 hearing, we continue to believe a much longer moratorium that would give the County the time necessary to develop and adopt an ordinance that would fulfill its public trust obligations would be more appropriate. However, with these comments we have also proposed a two-step process that would allow the County to process permits while it takes the time necessary to develop and adopt an ordinance that would fulfill its public trust obligations.

[2] We submitted written comments on a previous drafts of the proposed amendment on August 4, 2022 and September 30, 2022, and provided oral comments on that drafts at the hearing held August 9, 2022 and October 4, 2022, respectively. To the extent the text of that proposed draft remains unchanged from those earlier versions, we incorporate our previously submitted comments here by reference, and have attached a copy of those comments here for convenience. Key comments related to unchanged elements of the Proposed Amendments include: (1) the absence of standards or criteria that Permit Sonoma will be called on to apply when making a determination on a well permit application, and the specific request to include reference to and application of instream flow standards, if

We certainly appreciate the time and effort spent developing another draft of the Proposed Amendments, which we understand that County proposes to fulfill its legal public trust duties and to address the problems caused by unsustainable groundwater extraction. We would like to specifically thank staff and members of the Board for convening the Technical and Policy Working Groups, and members of these groups for their time and effort as well. The working group process confirmed and better defined what we know – that groundwater extraction in the County depletes flows in the County's creeks, streams, and rivers, and that streamflow depletion harms public trust resources that depend on flows in these waterways.

Groundwater is not limitless. Nor are the fish, wildlife, and recreational opportunities provided by our rivers, streams, and interconnected groundwaters. This well ordinance update has the potential to not only protect these resources we all hold dear, it also has the potential to help ensure long-term water security for all County residents and help make us more resilient to a changing climate and increased drought conditions.

Unfortunately, the Proposed Amendments do not (1) effectively reckon with the ongoing and future cumulative impacts of groundwater pumping on public trust resources, or (2) contain provisions that will ensure the County meets its legal duty to protect public trust resources and mitigate harms. We recognize the extremely tight timeline to develop these amendments, but we do not believe that must (or should) lead to an ineffectual program. We urge the County to take an interim step now and commit to return, in two years or less after filling acknowledged data gaps and completing essential analysis, with a program that is founded on empirical data and the robust analysis necessary to ensure long-term sustainability and protection of public trust resources.

Imagine the County developing a program for preventing overdraft of its bank account. As proposed, the Well Ordinance sets up the procedures for withdrawals, but does not define the current balance, a minimum balance, or an effective mechanism for accounting for deposits or withdrawals that ensures overdrafts do not occur.

To mitigate short term harms, and achieve lasting sustainable results, including protection of public trust resources, the County must:

1) Adopt an ordinance that limits ministerial approvals to truly low volume, non-commercial uses that are based on verifiable criteria for approval;
2) Strengthen basic accounting (i.e., monitoring and reporting) requirements as identified below; and
3) Commit to developing an ordinance that addresses the cumulative impacts of all withdrawals on public trust resources within two years.

where available (2) the need to squarely and comprehensively address the ongoing and cumulative impacts of proposed and existing permitted wells in permitting decisions and permit conditions, including by ensuring offsets in oversubscribed areas prior to permit issuance and developing a program to ensure all users do their share to mitigate impacts; (3) and the failure to perform CEQA as required.

Absent taking precautionary action now, with a firm and unqualified commitment to fully meet its obligations within two years, the County will again fall short of meeting its obligations as trustee of the County's public trust resources.

The County has a legal obligation to consider and mitigate impacts to public trust resources to the extent feasible when regulating the extraction of groundwater. The County's findings and conclusions supporting its decisions must be grounded in facts and analysis otherwise they will be arbitrary or capricious and unlawful.

To assist with our preparation of these comments, we engaged Dr. Hugo Loaigicia, Ph.D., P.E., P.H., D.WRE, to provide a detailed review of the County's proposal. This review identifies methodological flaws, unsupported assumptions, and arbitrary aspects of the County's proposal and supporting analysis. His analysis is provided as **Attachment A** to these comments.

A Summary of Comments and a set of Proposed Interim Solutions, followed by detailed comments on specific issues, are provided below.

I. Summary of Comments

Sonoma County has an ongoing duty to protect public trust resources—and specifically endangered salmon and other aquatic species—in Sonoma County. The County's duty extends to regulation of groundwater extraction where groundwater is connected to surface waters that support public trust resources. Protecting public trust resources has the co-benefit of increasing water security for Sonoma County by promoting measures to manage groundwater sustainably.

All available data and information confirms that current levels of groundwater pumping are causing or contributing to low instream flows in surface waters throughout Sonoma County. Moreover, every agency, scientist, non-profit, or consultant that has examined the issue confirms that salmonids in Sonoma County waters are severely impacted by low instream flows and high water temperatures, and are threatened with extinction. There is no dispute that the cumulative impacts of existing pumping of groundwater reduces instream flow in County waters, most notably during the dry season, and leads to persistent habitat loss for salmon and steelhead, as well as harm to other public trust resources.

We strongly support the County's acknowledgment that protecting public trust resources and uses of navigable waters – such as the fisheries and recreational opportunities in our creeks, streams, and rivers – requires implementing measures throughout the watershed in both navigable reaches and non-navigable tributaries. We also strongly support the County's intention to consider cumulative impacts of ongoing extraction and proposed new extraction when evaluating applications subject to the discretionary review process.

However, in several respects, both related to the analyses relied on by the County to ensure that it considers impacts to public trust resources and to its creation of ministerial permitting pathways that require implementation of measures ostensibly intended to mitigate adverse impacts to the extent feasible, the County's has fallen short of meeting its public trust obligations.

Despite the documented cumulative impacts of groundwater pumping on streamflow and public trust resources, the County's Proposed Amendments do not effectively or adequately ensure groundwater permitting decisions will address and mitigate the harms caused by the impacts of newly permitted groundwater wells – whether those wells are intended to replace or supplement existing wells that support existing uses or will be brand new wells that will allow for greater extraction from the already oversubscribed resources. Critical shortcomings in the Proposed Amendments and underlying analyses include:

A. A too narrowly defined Public Trust Review Area based on methodology that does not adequately account for uncertainty associated with limitations on quality and quantity of available data, establishes a "stream buffer" concept in moderate risk areas that does accurately account for individual or cumulative impacts associated with a proposed well, and excludes portions of high and medium priority Sustainable Groundwater Management Act (SGMA) basins despite their hydrological connectivity to upstream and downstream waters that provide habitat to salmonids and support other public trust resources and uses.

B. Overly broad exceptions to discretionary review – and associated categories for ministerial permits – not supported by facts or analysis, which resulted from not addressing and analyzing acute and cumulative adverse impacts or effectiveness of measures to mitigate harm to public trust resources. Flaws in analysis and associated ministerial pathways include, but are not limited to:
   i. Providing ministerial permitting of "Well for Low Water Use" for new wells based on a definition of "low water use" as any use up to 2.0 acre-feet per year (AFY) (or nearly 1,800 gallons per day), which is not consistent with data on "low water use" by Sonoma County residents or proposed standards for low water use under consideration by State regulators, and which fails to account for and address cumulative impacts of these new wells;
   ii. Providing ministerial permitting of "Wells for Existing Use" for new or replacement wells for any amount of water to support legally established existing uses without evaluating or addressing cumulative impacts of existing wells or requiring quantified, measurable, and enforceable reductions in use, and despite recognizing that existing uses are currently causing the streamflow depletion and harm to public trust resources the proposed amendments are intended to solve;
   iii. Establishing a "Net Zero Groundwater Increase" ministerial pathway that would allow for new extractions of groundwater based on voluntary and unquantified measures that are not adequately defined to ensure impacts associated with timing, rate of withdrawal, or other factors that may impact public trust resources are addressed and mitigated to the extent feasible.

C. Reliance on unquantified and voluntarily developed and implemented "conservation measures" that appear intended to minimize or mitigate harm (and thus support granting a ministerial permit) but are not supported by any analysis, facts, or evidence to

demonstrate whether and to what extent they will mitigate adverse impacts of new (*i.e.,* increased) or replacement groundwater pumping.

D. Only requiring metering on wells for 2.0 AFY or more and groundwater level monitoring on wells for 5.0 AFY or more, which institutionalizes the practice of not collecting accurate, comprehensive, and reliable data, undermines any potential effectiveness of conservation requirements to protect public trust resources, and prevents the County from adapting its ordinance and permitting approaches consistent with its ongoing duty to protect public trust resources.

E. Lack of standards or criteria for evaluating permits subject to discretionary review, which leaves permit applicants in limbo when deciding whether to seek a permit, and it provides no standard for any reviewing body to apply (including the Board of Supervisors) when evaluating whether a permit should have been issued.

Finally, and in addition to the shortcomings in meeting the County's public trust duties described above, the County's adoption of the Proposed Amendments is not exempt from CEQA, for the following reasons, *among others*: (A) the CEQA Exemptions relied on do not apply if "the cumulative impact of successive projects of the same type in the same place, over time is significant." There is no dispute that extraction of groundwater in Sonoma County, as authorized by the well ordinance, has had and will continue to have significant cumulative impacts; (B) the specific CEQA Exemptions for actions by regulatory agencies to protect natural resources or the environment (Exemptions 7 and 8) do not apply here, where the County expressly admits that its act is not based solely on protecting the environment but is instead based, at least in part, on "ensuring adequate water supply for existing and domestic uses." While laudable in its intent to protect public trust resources, the County's actions here are not exempt from CEQA.

II. Proposed Solutions to Address Identified Issues

For the reasons summarized above and described in detail below, the current proposal is inadequate in meeting the County's public trust duties. However, these problems can be solved with pragmatic action by the County now.

First, to ensure the well ordinance is timely updated and groundwater resources are managed based on a robust, comprehensive, and thorough analysis of facts and evidence necessary to ensure full consideration of the impact of groundwater extraction on public trust resources and mitigation of impacts to the extent feasible when permitting such extractions:

Add to Sec. 25B-2 (Purpose) a statement that the County intends to meet its ongoing duty to protect public trust resources and mitigate adverse impacts through a program that includes adaptation and refinement of this Ordinance within two years, and from time to time thereafter, that addresses acute and cumulative impacts of groundwater well extraction on public trust resources.

Second, to address and minimize cumulative impacts and protect public trust resources over the next two years while revisions to the well ordinance are developed:

- Expand the Public Trust Review Area (PTRA) to be more inclusive, including by
    a. Eliminating the "stream buffer" concept in moderate risk areas, and instead define the PTRA to include the entire watershed or subwatershed of streams currently only protected with buffers.
    b. Including all areas within Sustainable Groundwater Management Act (SGMA) high and medium priority basins within the PTRA.
    c. Including the Russian River and Dry Creek mainstem valleys in the PTRA.
- Modify Sec. 25B-4(e)(6) "Well for Low Water Use," including by
    a. Defining low water use as 0.5 AFY
    b. Providing this pathway to ministerial permits that solely applies to *new* wells for residential use[3] and require compliance with Level 1 conservation measures.
    c. Defining "residential use" to limit it to not include commercial, industrial, or non-subsistence agricultural operations.
- Modify Sec. 25B-4(e)(7) "Well for Existing Use," including by
    a. Providing this pathway to ministerial permits solely for
        i. replacement of 0.5 AFY residential wells, and
        ii. new or replacement wells using up to 2.0 AFY for legally established existing uses.[4]
    b. Requiring applicants to meet applicable Level 1 or Level 2 requirements depending on intended use(s)
- Eliminate Sec. 25B-4(e)(8) "Net Zero Groundwater Increase." This pathway to ministerial permit is not defined by clear standards or criteria or adequate analysis based on facts and empirical data to ensure adequate consideration of public trust resources or whether the plans and other mechanisms for demonstrating Net Zero Increase will mitigate harms to the extent feasible. Further vetting of this ministerial pathway is necessary and should be completed during the interim phase of the well ordinance.

Third, to evaluate effectiveness of conservation measures, facilitate well-supported and data-driven revisions of the ordinance within two years, and ensure the County meets its ongoing duties by collecting information needed to effectively respond to and mitigate acute and cumulative impacts of groundwater extraction:

- Modify Sec. 25B-12. Well Metering and Monitoring, including by
    a. requiring metering on all new or replacement wells that use less than 2.0 AFY as a condition of obtaining a permit, county-wide, as a condition of approval

[3] Replacement wells for residential use are addressed in the "Wells for Existing Use" category.
[4] We comment below that the cumulative impacts of wells under 2 AFY is significant. However, we also recognize the County's desire to minimize impacts on relatively low volume existing users that may struggle with the costs of a discretionary review process. We believe that allowing for ministerial permits for these users on a short-term, interim basis is rational while the County undertakes the necessary review to further revise the well ordinance for long-term applicability.

b. require groundwater level monitoring on all wells in PTRA that supply water for any non-residential purpose (i.e., commercial, industrial, institutional, or non-subsistence agriculture) as a condition of approval
c. require reporting on a monthly basis to ensure data collected will be available in a timely manner (including to ensure its availability to inform a further review during the next two years).[5]

- Establish County funded and managed network of monitoring wells to provide feedback to timely identify and address acute and long-term overdraft that impacts streamflow in river and streams that support public trust resources.

Fourth, to provide certainty to applicants subject to discretionary review and standards to apply when evaluating applications:

- Modify Sec. 25B-4(d)(4) Findings and Determinations by adding a subsection such as

> The Enforcing Agency shall not issue a permit for the construction or installation of a new water well within the contributing watershed of navigable waters, if in the determination of the Enforcing Agency it will have or exacerbate an adverse impact on public trust resources or their public trust uses after the imposition of mitigation measures that protect those public trust resources and public trust uses.

Incorporation of all the changes proposed above would ensure ministerial permitting options are available for true "low water users" and existing users of groundwater for residential and subsistence purposes, while allowing the County the time necessary to address the data gaps and incomplete analyses identified by the Technical Working Group. The long list of "Issues" and "Adaptation Recommendations" provided in the Working Groups' "Outcomes and Recommendations Report" highlights that considerable, additional work is needed to ensure the County satisfies its procedural and substantive Public Trust obligations. Moreover, during the time necessary to develop necessary revisions to the well ordinance, the County could satisfy its CEQA obligations.

[5] Reported data should also be publicly available for reasons we have explained in previously submitted comments.

Specific Comments and Concerns[6]

I. The Proposed Amendments Do Not Ensure the County Meets Its Public Trust Obligations

A. The "Public Trust Review Area" as Defined in the Proposed Amendments Does Not Include All Areas where Public Trust Review Is Necessary and Is Based on Arbitrary Analysis Not Supported by Evidence Sufficient to Ensure that the County Meets Its Public Trust Duties as Required

We appreciate the County's effort to clearly define the areas within the County where its public trust obligations are implicated. This is referred to as the "Public Trust Review Area" ("PTRA") in Sec. 25B-4(d)(2) of the Proposed Amendments. However, the area defined by the Proposed Amendments and depicted in the map provided for public review on the County's website does not include all areas where groundwater extraction adversely impacts public trust resources. As explained below, the County's justification for excluding areas from the PTRA – and thus concluding that permitting of wells outside the PTRA does not implicate its Public Trust obligations - is without factual support and is based on unsupported assumptions or flawed methodology, or both. As a result, the County's adoption of the Proposed Amendments is unlawful and arbitrary and capricious. Likewise, any issuance of a well permit outside the PTRA would fail to protect public trust resources and would be arbitrary and capricious.

The County's explanation of its methods and factual bases it asserts support the designation of the PTRA is found in *Sonoma County Well Ordinance: Public Trust Review Area (PTRA) delineation* prepared by O'Connor Environmental, Inc. (OE Inc.), for Permit Sonoma, dated March 2023 (the PTRA Delineation). Our detailed review of the PTRA Delineation identified methodological flaws, unsupported assumptions, and arbitrary aspects of the PTRA Delineation. These are set forth in greater detail in Attachment A.

The County also engaged a technical working group and a policy working group to help inform its decision. The working groups interfaced with County staff and consultant (OE Inc.). During these meetings, the County solicited information from the working group members on the best paths forward. The working groups produced an **Outcomes and Recommendations Report**, which was provided to County staff on March 13, 2023. A careful review of this report reveals that many questions were left unresolved and considerable uncertainty regarding the appropriate scope of the PTRA was left unaddressed. Alternative methods for screening well applications to determine if a proposed well would likely impact public trust resources were presented at the working group meetings, including methods that would ensure initial screening of all wells county-wide.[7] The County's Summary Report and the PTRA Delineation do not

[6] We provided detailed legal background of the Public Trust Doctrine and the California Environmental Quality Act (CEQA), and their respective applicability to the County's act to adopt Proposed Amendments to the well ordinance, in comments submitted to previously proposed amendments on August 4, 2022 and September 30, 2022. Those comments are attached to this comment as **Attachments B and C**, respectively, and are incorporated here by reference.

[7] One such method was presented by Melissa Rohde, a member of the technical working group. A description of the approach she submitted to the County during the working group process is attached here as **Attachment D**.

explain full address the many unresolved issues or discuss why alternative methodologies for determining wells with potential to impact public trust resources (and thus warranting further review under the Public Trust Doctrine) were rejected. The absence of such analysis makes the County's delineation of the PTRA arbitrary and capricious and unlawful.

i. The Exclusion from the Public Trust Review Area of Portions of SGMA-Designated High and Medium Priority Groundwater Basins Is Arbitrary and Capricious

There is no basis in fact for excluding portions of the SGMA-designated high and medium priority groundwater basins from the PTRA. Neither the analysis supporting the designation of the PTRA, which is found in *Sonoma County Well Ordinance: Public Trust Review Area (PTRA) delineation* prepared by O'Connor Environmental, Inc. (OE Inc.), for Permit Sonoma, dated March 2023 (the PTRA Delineation), or the Summary Report provides facts or analysis to justify excluding these areas. Moreover, available information indicates that groundwater withdrawals in these areas contribute to adverse impacts on public trust resources. As explained by Dr. Loaicigia, in his comments provided as Attachment A,

> These SGMA-regulated groundwater basins are in a state of overdraft, whereby the long-term volume of groundwater withdrawal exceeds the volume of groundwater recharge. The effect of overdraft is a long-term[8] trend of declining groundwater levels, reduction of groundwater storage, and, in the case of streams hydraulically connected to groundwater storage, this means possible streamflow depletion.

Attachment A at 6. The PTRA Delineation itself provides further support for this conclusion, finding that groundwater extraction far outpaces expected recharge and leads to streamflow depletion throughout the SGMA-regulated groundwater basins. PTRA Delineation at 10-15. And as Dr. Loaiciga further explained,

> It is unreasonable for [the PTRA Delineation] to state that there are non-navigable waters in the [SGMA-regulated] groundwater basins [] that do not support salmonids, considering that non-navigable waters that drain to downstream non-navigable and navigable waters that support salmonids-based fisheries, which are public trust resources under the California Constitution.

Attachment A at 6. Dr. Loaigicia also explains that "[g]roundwater withdrawal in SGMA-regulated (medium- and high-priority) basins exceeds their safe yield (also known as basin yield, perennial yield[9]) and permitting of new wells would aggravate the cumulative effects of wells on the basins' overdraft and on public trust resources." Attachment A at 6. This aggravation of cumulative impacts caused be permitting new wells in SGMA-regulated basins is a factor that would support inclusion of these areas in the PTRA, but as Dr. Loaigicia explains, the well ordinance neglects the cumulative effects of wells and well interference when excluding areas within SGMA-regulated basins from the PTRA. Attachment A at 7-8. Finally, to the extent there

[8] Long-term trends extend over 20 years or longer periods.
[9] Loaiciga, H.A. (2017). The safe yield and climatic variability: implications for groundwater management. *Groundwater* 55, no. 3: 334–345.

is uncertainty resulting from insufficient data regarding impacts to public trust resources in these areas, ignoring this uncertainty and excluding these areas from the PTRA is arbitrary in light of the County's duty to preserve public trust resources wherever feasible.

Overall, the decision to exclude portions of SGMA-regulated basins from the PTRA is without basis in fact and arbitrary and does not satisfy the County's duty to consider impacts to public trust resources or mitigate those impacts when feasible.

ii. The Exclusion from the PTRA of Areas Outside the Stream Buffers in Moderate Risk Areas from the PTRA Is Arbitrary and Capricious

The methodology employed in the PTRA Delineation that resulted in stream buffers in "moderate risk areas" that are within the PTRA, and exclusion of the remainder of the subwatershed in these areas from the PTRA, is without factual support and based on unsupported assumptions. First, no attempt was made to account for cumulative effects of one or more wells in close proximity to a stream in moderate risk areas when determining the scope of the buffers. Second, the streamflow depletion factor (SDF) used to establish the buffers was arbitrarily chosen rather than based on an evaluation of range of potential or likely pumping scenarios and accounting for uncertainty created by potential cumulative impacts of nearby wells. As Dr. Loaigicia explains,

> the buffer zones must be calculated based on specific well and stream reach conditions, and considering the cumulative effects that are aggregated as new wells are installed near stream reaches already impacted by existing wells. One new well can be found to have a small effect on streamflow depletion and be permitted; yet, an analysis of the effect of well pumping considering the cumulative effects of the existing and proposed wells affecting a stream reach could reveal a significant and unacceptable magnitude of streamflow depletion.

Attachment A at 15. The approach taken by the County, and the resulting exclusion of areas outside the stream buffers from the PTRA, is not based on a sound methodology or supported by facts, and is thus arbitrary. It does not ensure the County has met or will meet its duty to consider the impacts to public trust resources – or its duty to mitigate those impacts where feasible - as required by the public trust doctrine.

iii. The Exclusion from the PTRA of Valleys of Mainstem Russian River and Dry Creek Is Arbitrary and Capricious

The PTRA Delineation states that the mainstem Russian River and Dry Creek valleys were excluded from the PTRA because the methods used to define the relationship between groundwater pumping and streamflow depletion are not valid in these areas due to the controlling influence of the flow release from upstream reservoirs. The fact that the method used to delineate the PTRA in other areas is not valid in the mainstem Russian River and Dry Creek valleys does not support the conclusion that either (a) pumping in these areas does not impact flows in these waterways and thus implicate the County's Public Trust duties, or (b) that adverse impacts caused by reduced flows do not occur and must be mitigated to the extent feasible. The County's blanket exclusion of these areas from the PTRA, despite evidence that groundwater is

hydrologically connected to these waterways and that these waters support public trust resources, and without relying on any evidence or facts to demonstrate the groundwater pumping does not impact flows and public trust resources, is arbitrary and capricious.

B. The Proposed Exemptions to Discretionary Public Trust Review for Wells within the PTRA Are Not Supported by Facts, Evidence or Analysis to Demonstrate the County Has Met Its Public Trust Obligations when Permitting These Wells

The County of Sonoma has failed to articulate or provide sufficient evidentiary support for the proposed exemption of wells identified in Sec. 25B-4(e) from discretionary public trust review. Instead, the County merely assumes that either the public trust doctrine does not apply to these classes of wells (e.g., because they are outside the PTRA), or that the County's public trust obligations have been satisfied for those wells (e.g., because the conservation measures required in the ministerial permitting process ensures impacts to public trust are mitigated to the extent feasible). The comments above related to the establishment of the PTRA addresses wells in the first category. With respect to the second category, the County has not relied on evidence, empirical data, or facts to support its necessary findings and conclusion that these classes of wells will not cause or contribute to adverse impacts to public trust resources or that the conservation measures proposed will avoid or minimize these impacts to the extent feasible. As such, approval of the Proposed Amendments that provide ministerial pathways to permits for extraction in the PTRA both violates the County's public trust duty and is arbitrary and capricious.

As a threshold matter, to the extent the County's position is that the wells in Exemptions (e)(6), (7), and (8) are exempt from the public trust doctrine and discretionary review because the Level 1 and Level 2 conservation measures effectively mitigate adverse harm to public trust resources and thus the public trust doctrine does not apply, this circular reasoning is arbitrary and not supported by the law. The Public Trust Doctrine requires consideration of impacts to public trust resources of the proposed action and mitigation of identified impacts to the extent feasible. Relying on mitigation measures that have not been evaluated to determine if they meet the "extent feasible" standard to assert the County's public trust duties are not implicated would undermine entirely the purpose of the Public Trust Doctrine, which as the Supreme Court stated in *Audubon* is "to preserve, so far as consistent with the public interest, the uses protected by the trust." *See* 33 Cal.3d 419, 447. We must therefore assume that the County's adoption of a ministerial permit pathway is intended to both consider impacts of the permitted action on public trust resources and to protect public trust resources to the extent feasible.

i. The County Has Not Satisfied Its Public Trust Duties When Creating a Ministerial Pathway for Permitting "Wells for Low Water Use" (wells that use less than 2.0 AFY per parcel)

There is no factual basis to support the conclusion that the ministerial permitting pathway for "Wells for Low Water Use" will satisfy the County's public trust duties when permitting these wells. The exemption set forth at 25B-4(e)(6) would allow the County to approve any number of low volume wells without considering whether they will cause or exacerbate an adverse impact to the public trust, or whether such an impact is mitigated to the extent feasible. Two AFY per year per parcel is not an insignificant amount of water.

First, the 2.0 AFY threshold, under which a well would be considered a "low water use" is not based on facts or data, but instead is an arbitrary determination. Data on water use collected as part of a fee setting associated with SGMA planning indicates that the majority of well water users in Sonoma County use around 0.5 AFY.[10] The County's stated reason for selecting 2.0 AFY as a low water use is that amount is defined by SGMA as a de minimis use for purposes of setting fees and requiring monitoring, and is intended to ease the financial burden of implementing SGMA on these users. However, the 2.0 AFY threshold established in SGMA was not intended to evaluate or address whether annual extraction of less than 2.0 AFY would have an impact on flow in interconnected surface waters or public trust resources. The County's decision to import the 2.0 AFY threshold from SGMA does not satisfy its duty to consider the impacts of groundwater extraction on public trust resources.

Second, even assuming 2.0 AFY is factually supported as a low volume use on an individual per parcel basis. Further, there has been no evaluation of the relationship between the extraction of up to 2.0 AFY and impacts to surface water flows and public trust resources, individually or cumulatively. the County has provided no analysis of the potential cumulative impact of dozens or even hundreds of low volume extractions in a particular area, or in close proximity to larger volume annual extraction in a particular area, that will be permitted under the Proposed Amendments.

This ministerial pathway is for permitting new wells, i.e., wells that will increase the amount of water withdrawn from the interconnected surface waters that support public trust resources. However, as Dr. Loaigicia explained, the analysis underlying the Proposed Amendments "ignore[es] the cumulative impacts of wells installed near impacted stream reaches with Moderate- and High-habitat Value and Sensitivity," and "fail[s] to address the cumulative impacts of wells in Sonoma County groundwater basins." Attachment A at 1, 2. He further observes that the "proposed well ordinance neglects the cumulative effects of wells and well interference," Attachment A at 7. The County's failure to address and consider the individual or cumulative impacts of new wells of any specific size, and in particular wells for up to 2.0 AFY, does not satisfy its duty to consider the impacts of its creation of a ministerial permitting pathway on public trust resources, making its decision arbitrary and capricious.

[10] According to the Sonoma County GSA fee study, groundwater use data from private wells in Sonoma County parcels show 69 percent of parcels use less than 0.5 AF per year.

Further, as explained below, the "conservation measures" proposed by the County to ostensibly mitigate the impacts on public trust resources from wells permitted under the Wells for Low Water Use ministerial pathway have not been analyzed, quantified, or evaluated to determine the extent to which they would mitigate impacts, or if that mitigation amounts to the extent feasible. Overall, the ministerial pathway for "Wells for Low Water Use" is arbitrary and capricious, and does not satisfy the County's duty under the public trust doctrine when permitting these wells.

ii. The County Has Not Satisfied Its Public Trust Duties When Creating a Ministerial Pathway for Permitting "Wells for Existing Use" (wells of <u>any annual volume</u> per parcel)

There is no factual or legal basis to support the conclusion that the ministerial permitting pathway for "Wells for Existing Use" will satisfy the County's public trust duties when permitting these wells. The exemption set forth at 25B-4(e)(7) would allow the County to approve any number of wells for existing use without considering whether they will cause or exacerbate an adverse impact to the public trust – or whether such an impact is mitigated to the extent feasible.

As a threshold matter, to the extent the County has concerns that requiring existing users to reduce use may result in a "taking" of property, based at least in part of Sonoma County's various "by-right" land use policies, this concern is unfounded. As the County acknowledges, the public trust doctrine applies to groundwater interconnected with surface waters. Curtailing a use – which is not even certain to occur under the Ordinance – is not a taking when it is done to fulfill the County's obligations to protect public trust resources. In *Audubon*, the California Supreme Court affirmed "that parties acquiring rights in trust property generally hold those rights subject to the trust, and can assert no vested right to use those rights in a manner harmful to the trust." *Nat. Audubon Society v. Super. Ct.* ("*Audubon*") (1983) 33 Cal.3d 419, 437.[11] Action by the County enforcing or defending reserved public rights in trust resources cannot give rise to valid takings claims. *Audubon*, 33 Cal.3d at 440.

First, as discussed above, all available data and information indicates that current (i.e., existing) groundwater extraction in Sonoma County is contributing to streamflow depletion in navigable and non-navigable tributaries that support public trust resources. Data also demonstrates that this depletion adversely impacts these public trust resources, as well as contributes to overall water scarcity throughout the County, especially in SGMA-regulated

[11] Simply because water is being used for a legally established use does not mean that the public trust doctrine is satisfied. Indeed, the court in *Audubon* acknowledged that the State Water Board granted Los Angeles Department of Water and Power water rights from Mono Lake's tributaries to use that water for domestic purposes because California law dictated that "the use of water for domestic purposes is the highest use of water." 33 Cal.3d at 427. Even though the water was being used legally, and in a manner California law favors above all else, the court found that "some responsible body ought to reconsider the allocation of the waters of the Mono Basin," and held that the state had a duty to make such a consideration under the public trust doctrine. 33 Cal.3d at 447. The fact that the water was being used for a legally established use did not shield the County from its public trust obligations. However, contrary to the Supreme Court's conclusion in *Audubon,* exemption (e)(7) specifically exempts wells which are limited to using an amount of groundwater used for legally established uses.

groundwater basins. As NOAA-Fisheries explains in its comments regarding then-Exemption (e)(5) of the proposed amendments (submitted September 28, 2022)

> "allowing a new water well supplying a parcel to avoid [discretionary] public trust analysis 'as long as the proposed groundwater usage does not exceed the use established prior to October 4, 2022', (i.e., "grandfathering" past groundwater usage) is not consistent with protecting public trust uses and will not consider potential impacts to ESA-listed species and their habitat. […] Grandfathering past groundwater use will likely seriously compromise the County's ability to manage groundwater resources in a way that avoids impacting public trust resources or adequately minimizes impacts to ESA-listed salmonids and their habitat."

Nonetheless, the ministerial pathway to permit "Wells for Existing Use" authorizes installation of wells to perpetuate the status quo – authorizing maintenance of existing extraction to support existing legally established uses without requiring (or even evaluating the feasibility of effectiveness) of any measurable, defined, quantified, or verifiable mitigation to address continued use up to the amounts currently established. See further discussion of this issue below. As such, the County has acted arbitrarily and failed to meet its public trust duties when establishing this ministerial permitting pathway, and as a result the County will not have in place a program that satisfies the public trust doctrine when issuing permits for "Wells for Existing Use."

As with the "Wells for Low Water Use," the County has provided no analysis of the potential cumulative impact of dozens or even hundreds of "Wells for Existing Use" in a particular area that will be permitted under the Proposed Amendments. As Dr. Loaigicia explained, the County's analysis underlying its Proposed Amendments "ignore[es] the cumulative impacts of wells installed near impacted stream reaches with Moderate- and High-habitat Value and Sensitivity," and "fail[s] to address the cumulative impacts of wells in Sonoma County groundwater basins." Attachment A at 1, 2. He further observes that the "proposed well ordinance neglects the cumulative effects of wells and well interference." Attachment A at 7. The County's failure to address and consider the cumulative impacts of new and replacement wells of any size does not satisfy its duty to consider the impacts of its creation of a ministerial permitting pathway on public trust resources, making its decision arbitrary and capricious.

Further, as explained below, the "conservation measures" proposed by the County to ostensibly mitigate the impacts on public trust resources from wells permitted under the Wells for Existing Use ministerial pathway have not been analyzed, quantified, or evaluated to determine the extent to which they would mitigate impacts, or if that mitigation amounts to the extent feasible. The County's failure to account for acute or cumulative impacts of existing extractions to support existing uses – or account for the continuation of the acute or cumulative impacts of these wells as they are replaced or new wells are installed to offset for decline in production of existing wells – defeats any claim that it has acted in a non-arbitrary manner or satisfied its public trust obligations with respect to this class of wells.

iii. The County Has Not Satisfied Its Public Trust Duties When Creating a Ministerial Pathway for Permitting "Net Zero Groundwater Increase" (new wells for new uses of any annual volume)

The arbitrary and capricious manner in which the County has attempted to satisfy its public trust obligations when developing Exemptions (e)(6) and (e)(7), discussed above, similarly undermine the County's attempt to provide a ministerial permitting pathway for under Sec. 25B-(e)(8) – "Net Zero Groundwater Increase." While the name is appealing, a well or wells that allows for "the use of water that may increase but not result in a net increase in groundwater use from the local aquifer" is still a new extraction from a groundwater aquifer. As explained above, the County has not considered the acute or cumulative impacts of existing extractions or increasing groundwater extraction in the PTRA. Nor has the County analyzed or provided any objective standards to demonstrate that the "water conservations, rainwater catchment or recycled water reuse system, water recharge project, agricultural practices that increase infiltration and soil moisture capacity, local groundwater management project, or participation in a streamflow augmentation project" will avoid or minimize the adverse impacts that any well permitted under this ministerial pathway to the extent feasible.

Likewise, the groundwater recharge plan – which is required to qualify for this exception to discretionary review – does not purport to require consideration and findings that the implementation of the plan meets the requirements of the Public Trust Doctrine. The fact that a well applicant must submit this plan to the County is illustrative of the problem. At this point, before the plan is submitted, it is impossible to evaluate or consider the impacts of the new well on public trust resources and how or whether the elements of the plan will mitigate those impacts. And the County cannot abdicate its duty to undertake this analysis to a private party. The County's Public Trust obligations cannot be satisfied when issuing permits without discretionary review of the proposed plan, and there is no evidence or data relied on that indicates otherwise. The County's proposal to satisfy its public trust obligations with ministerial permits under the "Net Zero Groundwater Increase" is arbitrary and capricious.

iv. The Exemptions of Wells from Discretionary Public Trust Review Because Applications Were Submitted Prior to the Ordinance Effective Date (Exemption (e)(1), or Are a Public Well Subject to CEQA (Exemption (e)(4), or Serve as a Point of Surface Diversion for an Appropriative Water Right (Exemption (e)(5)) Are Not Supported by the Law or Evidence.

Our comments provided September 30, 2022 addressed issues related to these exemptions to public trust review. These exemptions have remained substantively unchanged from the version commented on last September, and as such we refer you to our comments on those provisions in our previous letter, which is Attachment C to this letter.

C. The Water Conservation and Best Management Practices that Are Relied Upon to Exempt Wells from Discretionary Public Trust Review Are Not Supported by Facts, Evidence or Analysis to Demonstrate the County Has Met Its Public Trust Obligations to Mitigate the Impacts of Ministerially Permitted Wells.

The County's duty to mitigate impacts of groundwater wells is grounded in its duty to "protect public trust uses whenever feasible." *See National Audubon Society v. Superior Court*, 33 Cal.3d 419, 446 (Cal. 1983). While we acknowledge the County's apparent effort to address this obligation by including the Water Conservation and Best Management Practices found in Sec. 25B-13, the County has failed to demonstrate with evidence and analysis that the identified measures will in fact mitigate the harm that may be caused or contributed to by the permitted well (or that this is the extent of feasible mitigation to protect public trust resources and uses).

Comments submitted to the County by NOAA-Fisheries on March 30, 2023 regarding the water conservation measures required for ministerial permitting state succinctly

> the actual expected water savings of these measures largely have not been quantified, so their efficacy in mitigating or offsetting impacts is similarly unknown.

The California Department of Fish and Wildlife commented similarly on March 29, 2023

> there has been no quantification or assessment of how effective or to what degree implementing these measures will avoid adverse public trust impacts associated with new or replacement wells. Similarly, there is no quantification or assessment of the "Net Zero Increase" approach pathway to a ministerial permit.

Not only has the County failed to supply evidence and analysis necessary to support any finding that these mitigation measures will ensure it meets its public trust duties, on their face several of the mitigation measures do not appear sufficient to mitigate impacts to public trust resources as required. For example, as NOAA-Fisheries comments dated September 28, 2022 regarding then-Sec. 25B-13(a)(2) (now Sec. 25B-13(c)(4)(iii))

> "the approach to calculate the amount of historic groundwater uses as an "average over the three-to-five -year period immediately prior" to October 4, 2022, is fundamentally flawed. The three-year period prior to this date was historically dry in Sonoma County, and groundwater use was likely historically high as a result. Grandfathering in this level of anomalous groundwater use will likely significantly constrain the County's attempt to protect public trust resources, and is unlikely to avoid impacting ESA-listed salmonids and their habitat."

Absent evidence and analysis quantifying and assessing the conservation measures effectiveness, and doing so with appropriately representative data, the County's adoption of these Proposed Amendments is unlawful and arbitrary and capricious. In addition, any issuance of a well permit that relies on any of these mitigation measures and proceeds ministerially without public trust review and mitigation will also be subject to challenge as unlawful and arbitrary and capricious in its consideration and protection of public trust resources.

D. The Metering and Monitoring Provisions Will Not Ensure the County Meets Its Public Trust Duties, or Ensure that Impacts to Public Trust Resources Will Be Mitigated to the Extent Feasible

The Proposed Amendments only require metering on wells that extract more than 2.0 AFY, and only require monitoring of water levels on wells that extract greater than 5.0 AFY. These thresholds are not established based on rational analysis of data needs to evaluate and mitigate impacts to public trust resources, and will undermine rather than ensure that the County meets its ongoing duty under the Public Trust Doctrine. In the Summary Report the County states that the metering and monitoring provisions "have been categorized and tailored for different types of permits to effectively preserve the public trust as much as possible and consistent with the public interest." This statement is not supported by facts or analysis, and in fact the metering and monitoring requirements imposed have been criticized as ineffective in achieving either purpose.

The County acknowledges that a lack of data and reliable information has made meeting its public trust obligations challenging. It has introduced uncertainty into the delineation of the PTRA, as well as provided limitations on understanding and analyzing the full extent of impacts of groundwater withdrawals on surface flows and public trust resources and the evaluation of the likely effectiveness of any conservation measures in avoiding and minimizing impacts to the public trust resources. Despite the challenges, the County has not developed metering and monitoring requirements that will ensure collection of information that will provide the tools necessary to meet its public trust duties. As Dr. Loaigicia notes in his review of the County's program, the County's program

> [i]nstitutionaliz[es] the practice of not collecting accurate, comprehensive, and reliable data with which to assess the cumulative impacts of existing and new wells on public trust resources and groundwater overdraft.

Attachment A at 18. He further concludes that "the proposed well ordinance's reliance on level 1 and level 2 water-conservation requirements to achieve the protection of public-trust resources without comprehensive well metering would be ineffective." Attachment A at 18.

NOAA-Fisheries comments submitted on March 29, 2023 regarding the metering and monitoring provisions reach similar conclusions, noting:

> Excluding required metering for residential wells using up to an average of 1,876 gallons per day will likely result in a large volume of future groundwater extraction that will be untracked and remain unverified, increasing uncertainty in the County's impact analysis. We maintain this would compromise the County's ability to protect current well owners, public trust resources, and ESA-listed species.

Under the Proposed Amendments, new and replacement wells using less than 2.0 AFY will be permitted through the ministerial pathway and will not need to be metered. As such there will continue to be considerably uncertainty associated with determining the individual or cumulative amount of water extracted, evaluating impacts of these withdrawals on assess whether the conservation measures imposed are in fact reducing use, or ensuring the County meets its

ongoing duties with respect to these extractions. The County's decision not to require metering will not ensure its public trust duties are met, and thus arbitrary and capricious.

II. The Proposed Ordinance Does Not Satisfy the County's Duty to Both Consider and Protect the Public Trust when Engaged in Discretionary Permitting.

Under the public trust doctrine, the County has "an affirmative duty to take the public trust into account in the planning and allocation of water resources, and to protect public trust uses whenever feasible." *National Audubon Society v. Superior Court*, 33 Cal.3d 419, 446 (Cal. 1983). This is more than an obligation to merely consider public trust, it is a directive to protect it.

In Sec. 25B-4(d) of the proposed amendments, the County attempts to address the first half of it public trust obligation. As the prefatory text of 25B-4(d) explains, the section addresses "how the County of Sonoma fulfills its obligation *to consider and protect the public trust*." (Emphasis added). Sec. 25B-4(d) does not however set any standards or criteria that it will apply to make a determination to provide certainty now (or too applicants in the future) regarding how the County will satisfy its duty to protect the public trust, public trust resources, or public trust uses whenever feasible, as required.

The County may believe that the Sec. 25B-4(d)(4) requirement that project features or mitigation measures "necessary to the Enforcing Agency's written findings for approval" become conditions in the new well permit will satisfy its duty to protect resources whenever feasible. However, there is no indication of what mitigation measures are "necessary" for approval and nothing makes approval contingent upon a finding that the public trust will be protected. Because on their face the Proposed Amendments only require consideration of the public trust, and do not provide any criteria or standards by which to assess whether the County will in fact satisfy its substantive obligation to mitigate impacts to the extent feasible, the Proposed Amendments do not ensure the County will meet its obligation when reviewing and making a determination on a discretionary permit application.

We have provided recommendations for modifications of the Proposed Amendments that would address this shortcoming in Section II above, and on pages 3-4 of Attachment C.

III. The County Cannot Rely on Categorical Exemptions to Avoid Engaging in Analysis Required by the California Environmental Quality Act

A. The California Environmental Quality Act

The California Environmental Quality Act ("CEQA") plays a critical role in ensuring local agencies do their part in protecting the environment and preventing environmental degradation. CEQA discloses projects' environmental impacts to decision makers; identifies ways to reduce or avoid environmental impacts; and requires feasible alternatives or mitigation measures. This process informs the public of the agency's reasons for approving projects with significant environmental impacts, fosters interagency coordination regarding project review, and enhances public participation in the planning process. At the heart of the CEQA process is the

Environmental Impact Report (EIR). If an activity qualifies as a project under CEQA, an EIR must be done unless an exemption applies. Even when a particular exemption applies, there are exceptions to the exemptions that require an EIR regardless of exemption status.

"Projects" under CEQA are defined as any activities undertaken by an agency that may cause a direct or reasonably foreseeable indirect physical environmental change and involves the issuance of a permit (CEQA Guidelines, § 15378(a).) "Significant effect on the environment" means a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance. (CEQA Guidelines, § 15382.) Projects that substantially degrade or deplete groundwater resources; or interfere substantially with groundwater recharge are considered to have significant effects on the environment and the kinds of physical changes in the environment CEQA is designed to address. (*Azusa Land Reclamation Co. v. Main San Gabriel Basin Watermaster* (1997) 52 Cal.App.4th 1166, 1189 ("*Azusa*"), referencing appendix G to the CEQA guidelines.)

Where a fair argument may be made that a project or activity has the potential to degrade the quality of the environment, even where evidence exists to the contrary, an EIR must be completed. (*Azusa*, at p. 1201.) This standard is a low threshold for further environmental review and "reflects a preference for resolving doubts in favor of environmental review when the question is whether any such review is warranted." (*Sierra Club v. County of Sonoma*, 6 Cal.App.4th 1307, 1316–17 (1992).) When an agency's decision is not supported by substantial factual evidence, the agency's action is unlawful. (CEQA §§ 21168, 21168.5.)

Limited exemptions from full environmental review under CEQA are available. For example, Class 7 exemptions cover

> "actions taken by regulatory agencies as authorized by state law or local ordinance to assure the maintenance, restoration, or enhancement of a natural resource where the regulatory process involves procedures for protection of the environment. Examples include but are not limited to wildlife preservation activities of the State Department of Fish and Game. Construction activities are not included in this exemption."

(CEQA Guidelines, § 15307.) Class 8 exemptions apply to actions

> "to assure the maintenance, restoration, enhancement, or protection of the environment where the regulatory process involves procedures for protection of the environment. Construction activities and relaxation of standards allowing environmental degradation are not included in this exemption."

(CEQA Guidelines, §15308).

The scope of a categorical exemption is a question of law and underlying factual determinations are subject to the substantial evidence test. (*Save Our Big Trees v. City of Santa Cruz* (2015) 241 Cal.App.4th 694, 706 ("*Big Trees*").) The County bears the burden of showing

"substantial evidence supports its finding that a particular CEQA exemption applies." (*Bus Riders Union v. Los Angeles County Metropolitan Transportation Agency* (2009) 179 Cal.App.4th 101, 107.) A court will not uphold an agency's exemption determination if the record lacks evidence showing that the project falls within the exemption. (*Big Trees,* 241 Cal.App.4th at p. 712.)

B. Categorical Exemptions Invoked by the County Do Not Apply

The County's adoption of the Proposed Amendments is a project subject to CEQA. The County is exercising its discretion to develop specific rules that apply to groundwater well permit issuance and construction. The County's Proposed Amendment creates two pathways that future applicants within the Public Trust Review Area may pursue to obtain a well permit:

- Seek a discretionary permit
- Seek a ministerial permit (which the County refers to as "exceptions" to the discretionary permit process) [12]

The County's Proposed Amendment also establishes standards and requirements that apply county-wide. This includes the requirement to implement Level 1 conservation measures as a condition of obtaining a permit, and to meter water use (all users of more than 2.0 AFY, except solely residential single parcels) and monitor water levels (all users of more than 5.0 AFY).

Regarding the ministerial permit pathway, the County is establishing threshold criteria that must be met in order to seek a ministerial permit (e.g., extract less than 2.0 AFY), as well as defining specific conditions permittees must meet (e.g., develop and implement conservation strategies on agricultural lands, meet water efficient landscape regulations, and limit the size of irrigated lawns). The County is exercising its discretion when deciding what conditions a permittee must meet in order to obtain a ministerial permit. As noted throughout this letter, the extraction of groundwater pursuant to permits issued by the County has significant cumulative impacts on groundwater resources and public trust resources in the County. Absent conducting CEQA at this time, when setting the conditions and requirements ministerial permit applicants must comply with to obtain a permit, no further evaluation of the environmental impacts resulting from the issuance of the hundreds and hundreds of ministerial permits pursuant to the well ordinance will be conducted. The only time for evaluating the cumulative impacts

[12] The County's position that the exceptions provide ministerial pathways to obtaining a permit is questionable, especially with respect to the Level 2 Conservation Requirements. The Level 2 Conservation requirements obligate submission and implementation of a water conservation plans that must achieve certain standards (such as reducing groundwater use "to the maximum extent practicable"). Similarly, permittees that want to meet the threshold criteria of "Net Zero Groundwater Use" must submit a groundwater recharge plan "that documents enhanced groundwater recharge that is equal to the proposed net increase in groundwater extraction." Though these requirements are somewhat vague – and as explained above the County has done no analysis of the effectiveness of these requirements in mitigate harm to public trust resources – the County will none the less be required to evaluate these plans submitted by applicants for a "ministerial" permit to determine if the plan meets the criteria in the Proposed Amendments. When making this determination, the County will have to exercise its discretion.

associated with the issuance of these permits is now, at the time the Proposed Amendments are adopted.

i. Cumulative Impacts Exception, which Negates All Categorical Exemptions, Requires the County Conduct CEQA Analysis

The County invokes CEQA Categorical Exemptions for actions by regulatory agencies for protection of natural resources (Class 7) and actions by regulatory agencies for protection of natural resources (Class 8), and the "common sense" exemption. (*See* CEQA Guidelines, §§ 15307, 15308, 15061(b)(3). However, the CEQA guidelines state that even if a project is categorically exempt from CEQA, the exemption does not apply if, over time, the cumulative impact of successive projects of the same type have a significant impact; or, if there is a reasonable possibility that the activity will have a significant effect of the environment due to unusual circumstances. (CEQA Guidelines, § 15300.2) Thus, even if the Class 7 and 8 categorical exemptions applied to the Proposed Amendments, the cumulative impacts exception would preclude reliance on the exemptions. An agency may not rely on a categorical exemption where "the cumulative impact of successive projects of the same type in the same place, over time is significant." (CEQA Guidelines § 15300.2 (b).) The cumulative impacts of groundwater pumping wells on Sonoma County's already over-subscribed groundwater resources, and the interconnected surface waters, cannot be reasonably disputed. As such, no Categorical Exemption to CEQA applies.

ii. CEQA Class 7 and 8 Categorical Exemptions to CEQA Do Not Apply to the Amendment

The County's Notice of Exemption ("NOE") claims adoption of the Proposed Amendments is exempt from CEQA under California Code of Regulations § 15307 and § 15308 (Class 7 and 8 exemptions). In addition to the cumulative impacts exception to the categorical exemptions described above, this is incorrect for at least two reasons.

First, both Class 7 and Class 8 exemptions apply to actions by County agencies that "assure the maintenance, restoration, enhancement, or protection" of natural resources and environment. While the Public Trust Doctrine is primarily directed at this purpose, it does not prohibit the County from approving activities it finds may have a foreseeable harm on public trust uses. In fact, the County itself invokes this exact reasoning in Sec. 25B-4(e) when it states:

> Notwithstanding location within the Public Trust Review Area, the following proposed wells are exempt from discretionary public trust review due to the low potential impacts to public trust resources or due to the overriding public interest in favor of ensuring adequate water supply for existing and domestic uses.

Ensuring adequate water supply is a worthwhile goal, and one we agree the County endeavor to meet. However, it cannot fairly be said that ensuring adequate water supply at the expense of harm to public trust resources is equivalent to maintaining, restoring, enhancing or protecting natural resources or the environment. It is an authorization to use the resources in spite of the

impact to it will have. The Proposed Amendments would **allow all – from the smallest to the largest - existing users of groundwater in the County to obtain a ministerial permit to continue to pump water at the exact amount they current use**. Considering the unsustainable condition of groundwater resources in the County, this Proposed Amendment cannot be said to be solely to "assure the maintenance, restoration, enhancement, or protection" of groundwater and public trust resources.[13] Categorical Exemptions 7 and 8 simply do not apply to the County's actions in this case.

Second, both Class 7 and Class 8 exemptions do not apply to construction activities. The NOE states the ordinance

> "will not authorize any construction activities, but instead impose requirements, consistent with existing law, to consider impacts to public trust resources via discretionary permit applications, subject to an at-cost fee, and to facilitate data collection through metering, and to make other related changes …"

However, the ordinance being amended is titled "Chapter 25B Water Well Construction Standards." As the title states, Chapter 25B sets standards for obtaining permits and *constructing* water wells. The amended ordinance chapter uses the word "construction" dozens of times. The argument that amendments to the well construction standards ordinance does not directly involve approval of well construction is specious at best. Further, the Proposed Amendments create a ministerial pathway to obtain permits, virtually guaranteeing that permits will be pulled and construction will follow. As such, exemptions 7 and 8 do not apply.

C. The "Common Sense" Exemption Does Not Apply

The NOE further states that the amendment is exempt from CEQA under the "common sense" exemption, claiming "it can be seen with certainty that there is no possibility that this ordinance … may have a significant effect on the environment." The basis for this determination is that the amendments "create and fund an application review process designed to public trust resources, where no exception to applicability of the exemptions under §15300.2, and because it can be seen with certainty that there is no possibility that this ordinance or application fee may have a significant effect on the environment." *See* NOE at 4. Further, staff claims that adoption of the ordinance "will not result in any direct or indirect physical change to the environment and will instead assure the maintenance, restoration, enhancement, and protection of natural and public trust resources and the environment by providing a framework for discretionary review of applications requiring a public trust analysis."

[13] The Proposed Amendments guarantees continued, unsustainable levels of pumping—and thus severe impacts to salmon. The proposed amendment also exempts broad categories of wells from any public trust review, further impacting instream resources.

CEQA's "common sense" exemption can be relied on only if a factual evaluation of the agency's proposed activity reveals that it applies. (*Muzzy Ranch Co. v. Solano County Airport Land Use Com.* (2007) 41 Cal.4th 372, *as modified* Sept. 12, 2007.) Whether a particular activity qualifies for the "common sense" exemption presents an issue of fact, and the agency invoking the exemption has the burden of demonstrating it applies. (CEQA Guidelines, § 15061(b)(3). Before determining that an activity is exempt from CEQA under the "common sense" exemption, the agency must examine the evidence presented in the administrative record. (CEQA Guidelines, § 15061(b)(3).) This exemption applies only where "it can be seen with certainty that there is no possibility that the activity in question may have a significant effect on the environment." (CEQA Guidelines, § 15061(b)(3).) "[It] is reserved for those obviously exempt projects where its absolute and precise language clearly applies." (*Cal. Farm Bureau Fed.* (2006) 143 Cal.App.4th 173, 194 (internal quotations omitted); *see also Davidson Homes v. City of San Jose* (1997) 54 Cal.App.4th 106, 117 ("If legitimate questions can be raised about whether the project might have a significant impact . . . the agency cannot find with certainty that a project is exempt.").)

Again, there is no reasonable dispute additional groundwater wells in aquifers connected to surface waters—the majority of aquifers in Sonoma County—will further impact public trust resources. Further, elements of the Proposed Amendments apply to issuance of groundwater well permits county-wide. It cannot reasonably be disputed that groundwater extraction county-wide has and will continue to have a significant impact on the environment. No basis for the County's bald assertion provides otherwise, failing to meet the burden required to apply the exemption.

IV. Conclusion

We again thank you for the opportunity to provide comments on the Proposed Amendments. The County is taking a much needed, and legally required, step toward ensuring protection of public trust resources and the sustainable use of its water resources. There is no question that groundwater resources throughout the County are oversubscribed, and that the rivers, streams, fish, and overall reliability of water supply throughout the County is at risk as a result. In light of the current situation, and predictions that it is only going to get worse, we strongly urge the County to proceed with an "interim" ordinance now (subject to the revisions proposed above) and firmly commit to revising the ordinance after taking the time needed to develop a comprehensive and effective ordinance that meets its public trust duties and helps to secure long-term water supply for all Sonoma County residents.

Sincerely yours,

Drevet Hunt
Legal Director
California Coastkeeper Alliance

March 31, 2023

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Subject: CALIFORNIA COASTKEEPER ALLIANCE COMMENTS ON

(A) THE PROPOSED AMENDMENT TO THE SONOMA COUNTY CODE CHAPTER 25B (WELL ORDINANCE) AND

(B) ORDINANCE ESTABLISHING A TEMPRORARY MORATORIUM ON PROCESSING AND APPROVAL OF APPLICATIONS FOR WATER SUPPLY WELL PERMITS

To Sonoma County Board of Supervisors:

California Coastkeeper Alliance (CCKA) thanks you for the opportunity to comment on the proposed amendments to Sonoma County Code Chapter 25B (Proposed Amendments) with governs "Water Well Construction Standards" and the urgency ordinance establishing a temporary moratorium on processing and approval of applications for water supply well permits (Temporary Moratorium).[1], [2]

[1] We support the proposed temporary moratorium, though as we expressed in our comments prior to the October 4, 2022 hearing, we continue to believe a much longer moratorium that would give the County the time necessary to develop and adopt an ordinance that would fulfill its public trust obligations would be more appropriate. However, with these comments we have also proposed a two-step process that would allow the County to process permits while it takes the time necessary to develop and adopt an ordinance that would fulfill its public trust obligations.

[2] We submitted written comments on a previous drafts of the proposed amendment on August 4, 2022 and September 30, 2022, and provided oral comments on that drafts at the hearing held August 9, 2022 and October 4, 2022, respectively. To the extent the text of that proposed draft remains unchanged from those earlier versions, we incorporate our previously submitted comments here by reference, and have attached a copy of those comments here for convenience. Key comments related to unchanged elements of the Proposed Amendments include: (1) the absence of standards or criteria that Permit Sonoma will be called on to apply when making a determination on a well permit application, and the specific request to include reference to and application of instream flow standards, if

We certainly appreciate the time and effort spent developing another draft of the Proposed Amendments, which we understand that County proposes to fulfill its legal public trust duties and to address the problems caused by unsustainable groundwater extraction. We would like to specifically thank staff and members of the Board for convening the Technical and Policy Working Groups, and members of these groups for their time and effort as well. The working group process confirmed and better defined what we know – that groundwater extraction in the County depletes flows in the County's creeks, streams, and rivers, and that streamflow depletion harms public trust resources that depend on flows in these waterways.

Groundwater is not limitless. Nor are the fish, wildlife, and recreational opportunities provided by our rivers, streams, and interconnected groundwaters. This well ordinance update has the potential to not only protect these resources we all hold dear, it also has the potential to help ensure long-term water security for all County residents and help make us more resilient to a changing climate and increased drought conditions.

Unfortunately, the Proposed Amendments do not (1) effectively reckon with the ongoing and future cumulative impacts of groundwater pumping on public trust resources, or (2) contain provisions that will ensure the County meets its legal duty to protect public trust resources and mitigate harms. We recognize the extremely tight timeline to develop these amendments, but we do not believe that must (or should) lead to an ineffectual program. We urge the County to take an interim step now and commit to return, in two years or less after filling acknowledged data gaps and completing essential analysis, with a program that is founded on empirical data and the robust analysis necessary to ensure long-term sustainability and protection of public trust resources.

Imagine the County developing a program for preventing overdraft of its bank account. As proposed, the Well Ordinance sets up the procedures for withdrawals, but does not define the current balance, a minimum balance, or an effective mechanism for accounting for deposits or withdrawals that ensures overdrafts do not occur.

To mitigate short term harms, and achieve lasting sustainable results, including protection of public trust resources, the County must:

1) Adopt an ordinance that limits ministerial approvals to truly low volume, non-commercial uses that are based on verifiable criteria for approval;
2) Strengthen basic accounting (i.e., monitoring and reporting) requirements as identified below; and
3) Commit to developing an ordinance that addresses the cumulative impacts of all withdrawals on public trust resources within two years.

where available (2) the need to squarely and comprehensively address the ongoing and cumulative impacts of proposed and existing permitted wells in permitting decisions and permit conditions, including by ensuring offsets in oversubscribed areas prior to permit issuance and developing a program to ensure all users do their share to mitigate impacts; (3) and the failure to perform CEQA as required.

Absent taking precautionary action now, with a firm and unqualified commitment to fully meet its obligations within two years, the County will again fall short of meeting its obligations as trustee of the County's public trust resources.

The County has a legal obligation to consider and mitigate impacts to public trust resources to the extent feasible when regulating the extraction of groundwater. The County's findings and conclusions supporting its decisions must be grounded in facts and analysis otherwise they will be arbitrary or capricious and unlawful.

To assist with our preparation of these comments, we engaged Dr. Hugo Loaigicia, Ph.D., P.E., P.H., D.WRE, to provide a detailed review of the County's proposal. This review identifies methodological flaws, unsupported assumptions, and arbitrary aspects of the County's proposal and supporting analysis. His analysis is provided as **Attachment A** to these comments.

A Summary of Comments and a set of Proposed Interim Solutions, followed by detailed comments on specific issues, are provided below.

I. Summary of Comments

Sonoma County has an ongoing duty to protect public trust resources—and specifically endangered salmon and other aquatic species—in Sonoma County. The County's duty extends to regulation of groundwater extraction where groundwater is connected to surface waters that support public trust resources. Protecting public trust resources has the co-benefit of increasing water security for Sonoma County by promoting measures to manage groundwater sustainably.

All available data and information confirms that current levels of groundwater pumping are causing or contributing to low instream flows in surface waters throughout Sonoma County. Moreover, every agency, scientist, non-profit, or consultant that has examined the issue confirms that salmonids in Sonoma County waters are severely impacted by low instream flows and high water temperatures, and are threatened with extinction. There is no dispute that the cumulative impacts of existing pumping of groundwater reduces instream flow in County waters, most notably during the dry season, and leads to persistent habitat loss for salmon and steelhead, as well as harm to other public trust resources.

We strongly support the County's acknowledgment that protecting public trust resources and uses of navigable waters – such as the fisheries and recreational opportunities in our creeks, streams, and rivers – requires implementing measures throughout the watershed in both navigable reaches and non-navigable tributaries. We also strongly support the County's intention to consider cumulative impacts of ongoing extraction and proposed new extraction when evaluating applications subject to the discretionary review process.

However, in several respects, both related to the analyses relied on by the County to ensure that it considers impacts to public trust resources and to its creation of ministerial permitting pathways that require implementation of measures ostensibly intended to mitigate adverse impacts to the extent feasible, the County's has fallen short of meeting its public trust obligations.

Despite the documented cumulative impacts of groundwater pumping on streamflow and public trust resources, the County's Proposed Amendments do not effectively or adequately ensure groundwater permitting decisions will address and mitigate the harms caused by the impacts of newly permitted groundwater wells – whether those wells are intended to replace or supplement existing wells that support existing uses or will be brand new wells that will allow for greater extraction from the already oversubscribed resources. Critical shortcomings in the Proposed Amendments and underlying analyses include:

A. A too narrowly defined Public Trust Review Area based on methodology that does not adequately account for uncertainty associated with limitations on quality and quantity of available data, establishes a "stream buffer" concept in moderate risk areas that does accurately account for individual or cumulative impacts associated with a proposed well, and excludes portions of high and medium priority Sustainable Groundwater Management Act (SGMA) basins despite their hydrological connectivity to upstream and downstream waters that provide habitat to salmonids and support other public trust resources and uses.

B. Overly broad exceptions to discretionary review – and associated categories for ministerial permits – not supported by facts or analysis, which resulted from not addressing and analyzing acute and cumulative adverse impacts or effectiveness of measures to mitigate harm to public trust resources. Flaws in analysis and associated ministerial pathways include, but are not limited to:
   i. Providing ministerial permitting of "Well for Low Water Use" for new wells based on a definition of "low water use" as any use up to 2.0 acre-feet per year (AFY) (or nearly 1,800 gallons per day), which is not consistent with data on "low water use" by Sonoma County residents or proposed standards for low water use under consideration by State regulators, and which fails to account for and address cumulative impacts of these new wells;
   ii. Providing ministerial permitting of "Wells for Existing Use" for new or replacement wells for any amount of water to support legally established existing uses without evaluating or addressing cumulative impacts of existing wells or requiring quantified, measurable, and enforceable reductions in use, and despite recognizing that existing uses are currently causing the streamflow depletion and harm to public trust resources the proposed amendments are intended to solve;
   iii. Establishing a "Net Zero Groundwater Increase" ministerial pathway that would allow for new extractions of groundwater based on voluntary and unquantified measures that are not adequately defined to ensure impacts associated with timing, rate of withdrawal, or other factors that may impact public trust resources are addressed and mitigated to the extent feasible.

C. Reliance on unquantified and voluntarily developed and implemented "conservation measures" that appear intended to minimize or mitigate harm (and thus support granting a ministerial permit) but are not supported by any analysis, facts, or evidence to

demonstrate whether and to what extent they will mitigate adverse impacts of new (*i.e.,* increased) or replacement groundwater pumping.

D. Only requiring metering on wells for 2.0 AFY or more and groundwater level monitoring on wells for 5.0 AFY or more, which institutionalizes the practice of not collecting accurate, comprehensive, and reliable data, undermines any potential effectiveness of conservation requirements to protect public trust resources, and prevents the County from adapting its ordinance and permitting approaches consistent with its ongoing duty to protect public trust resources.

E. Lack of standards or criteria for evaluating permits subject to discretionary review, which leaves permit applicants in limbo when deciding whether to seek a permit, and it provides no standard for any reviewing body to apply (including the Board of Supervisors) when evaluating whether a permit should have been issued.

Finally, and in addition to the shortcomings in meeting the County's public trust duties described above, the County's adoption of the Proposed Amendments is not exempt from CEQA, for the following reasons, *among others*: (A) the CEQA Exemptions relied on do not apply if "the cumulative impact of successive projects of the same type in the same place, over time is significant." There is no dispute that extraction of groundwater in Sonoma County, as authorized by the well ordinance, has had and will continue to have significant cumulative impacts; (B) the specific CEQA Exemptions for actions by regulatory agencies to protect natural resources or the environment (Exemptions 7 and 8) do not apply here, where the County expressly admits that its act is not based solely on protecting the environment but is instead based, at least in part, on "ensuring adequate water supply for existing and domestic uses." While laudable in its intent to protect public trust resources, the County's actions here are not exempt from CEQA.

II. Proposed Solutions to Address Identified Issues

For the reasons summarized above and described in detail below, the current proposal is inadequate in meeting the County's public trust duties. However, these problems can be solved with pragmatic action by the County now.

First, to ensure the well ordinance is timely updated and groundwater resources are managed based on a robust, comprehensive, and thorough analysis of facts and evidence necessary to ensure full consideration of the impact of groundwater extraction on public trust resources and mitigation of impacts to the extent feasible when permitting such extractions:

Add to Sec. 25B-2 (Purpose) a statement that the County intends to meet its ongoing duty to protect public trust resources and mitigate adverse impacts through a program that includes adaptation and refinement of this Ordinance within two years, and from time to time thereafter, that addresses acute and cumulative impacts of groundwater well extraction on public trust resources.

Second, to address and minimize cumulative impacts and protect public trust resources over the next two years while revisions to the well ordinance are developed:

- Expand the Public Trust Review Area (PTRA) to be more inclusive, including by
    a. Eliminating the "stream buffer" concept in moderate risk areas, and instead define the PTRA to include the entire watershed or subwatershed of streams currently only protected with buffers.
    b. Including all areas within Sustainable Groundwater Management Act (SGMA) high and medium priority basins within the PTRA.
    c. Including the Russian River and Dry Creek mainstem valleys in the PTRA.
- Modify Sec. 25B-4(e)(6) "Well for Low Water Use," including by
    a. Defining low water use as 0.5 AFY
    b. Providing this pathway to ministerial permits that solely applies to *new* wells for residential use[3] and require compliance with Level 1 conservation measures.
    c. Defining "residential use" to limit it to not include commercial, industrial, or non-subsistence agricultural operations.
- Modify Sec. 25B-4(e)(7) "Well for Existing Use," including by
    a. Providing this pathway to ministerial permits solely for
        i. replacement of 0.5 AFY residential wells, and
        ii. new or replacement wells using up to 2.0 AFY for legally established existing uses.[4]
    b. Requiring applicants to meet applicable Level 1 or Level 2 requirements depending on intended use(s)
- Eliminate Sec. 25B-4(e)(8) "Net Zero Groundwater Increase." This pathway to ministerial permit is not defined by clear standards or criteria or adequate analysis based on facts and empirical data to ensure adequate consideration of public trust resources or whether the plans and other mechanisms for demonstrating Net Zero Increase will mitigate harms to the extent feasible. Further vetting of this ministerial pathway is necessary and should be completed during the interim phase of the well ordinance.

Third, to evaluate effectiveness of conservation measures, facilitate well-supported and data-driven revisions of the ordinance within two years, and ensure the County meets its ongoing duties by collecting information needed to effectively respond to and mitigate acute and cumulative impacts of groundwater extraction:

- Modify Sec. 25B-12. Well Metering and Monitoring, including by
    a. requiring metering on all new or replacement wells that use less than 2.0 AFY as a condition of obtaining a permit, county-wide, as a condition of approval

[3] Replacement wells for residential use are addressed in the "Wells for Existing Use" category.
[4] We comment below that the cumulative impacts of wells under 2 AFY is significant. However, we also recognize the County's desire to minimize impacts on relatively low volume existing users that may struggle with the costs of a discretionary review process. We believe that allowing for ministerial permits for these users on a short-term, interim basis is rational while the County undertakes the necessary review to further revise the well ordinance for long-term applicability.

b. require groundwater level monitoring on all wells in PTRA that supply water for any non-residential purpose (i.e., commercial, industrial, institutional, or non-subsistence agriculture) as a condition of approval
c. require reporting on a monthly basis to ensure data collected will be available in a timely manner (including to ensure its availability to inform a further review during the next two years).[5]

- Establish County funded and managed network of monitoring wells to provide feedback to timely identify and address acute and long-term overdraft that impacts streamflow in river and streams that support public trust resources.

Fourth, to provide certainty to applicants subject to discretionary review and standards to apply when evaluating applications:

- Modify Sec. 25B-4(d)(4) Findings and Determinations by adding a subsection such as

> The Enforcing Agency shall not issue a permit for the construction or installation of a new water well within the contributing watershed of navigable waters, if in the determination of the Enforcing Agency it will have or exacerbate an adverse impact on public trust resources or their public trust uses after the imposition of mitigation measures that protect those public trust resources and public trust uses.

Incorporation of all the changes proposed above would ensure ministerial permitting options are available for true "low water users" and existing users of groundwater for residential and subsistence purposes, while allowing the County the time necessary to address the data gaps and incomplete analyses identified by the Technical Working Group. The long list of "Issues" and "Adaptation Recommendations" provided in the Working Groups' "Outcomes and Recommendations Report" highlights that considerable, additional work is needed to ensure the County satisfies its procedural and substantive Public Trust obligations. Moreover, during the time necessary to develop necessary revisions to the well ordinance, the County could satisfy its CEQA obligations.

[5] Reported data should also be publicly available for reasons we have explained in previously submitted comments.

Specific Comments and Concerns[6]

I. The Proposed Amendments Do Not Ensure the County Meets Its Public Trust Obligations

A. The "Public Trust Review Area" as Defined in the Proposed Amendments Does Not Include All Areas where Public Trust Review Is Necessary and Is Based on Arbitrary Analysis Not Supported by Evidence Sufficient to Ensure that the County Meets Its Public Trust Duties as Required

We appreciate the County's effort to clearly define the areas within the County where its public trust obligations are implicated. This is referred to as the "Public Trust Review Area" ("PTRA") in Sec. 25B-4(d)(2) of the Proposed Amendments. However, the area defined by the Proposed Amendments and depicted in the map provided for public review on the County's website does not include all areas where groundwater extraction adversely impacts public trust resources. As explained below, the County's justification for excluding areas from the PTRA – and thus concluding that permitting of wells outside the PTRA does not implicate its Public Trust obligations - is without factual support and is based on unsupported assumptions or flawed methodology, or both. As a result, the County's adoption of the Proposed Amendments is unlawful and arbitrary and capricious. Likewise, any issuance of a well permit outside the PTRA would fail to protect public trust resources and would be arbitrary and capricious.

The County's explanation of its methods and factual bases it asserts support the designation of the PTRA is found in *Sonoma County Well Ordinance: Public Trust Review Area (PTRA) delineation* prepared by O'Connor Environmental, Inc. (OE Inc.), for Permit Sonoma, dated March 2023 (the PTRA Delineation). Our detailed review of the PTRA Delineation identified methodological flaws, unsupported assumptions, and arbitrary aspects of the PTRA Delineation. These are set forth in greater detail in Attachment A.

The County also engaged a technical working group and a policy working group to help inform its decision. The working groups interfaced with County staff and consultant (OE Inc.). During these meetings, the County solicited information from the working group members on the best paths forward. The working groups produced an **Outcomes and Recommendations Report**, which was provided to County staff on March 13, 2023. A careful review of this report reveals that many questions were left unresolved and considerable uncertainty regarding the appropriate scope of the PTRA was left unaddressed. Alternative methods for screening well applications to determine if a proposed well would likely impact public trust resources were presented at the working group meetings, including methods that would ensure initial screening of all wells county-wide.[7] The County's Summary Report and the PTRA Delineation do not

[6] We provided detailed legal background of the Public Trust Doctrine and the California Environmental Quality Act (CEQA), and their respective applicability to the County's act to adopt Proposed Amendments to the well ordinance, in comments submitted to previously proposed amendments on August 4, 2022 and September 30, 2022. Those comments are attached to this comment as **Attachments B and C**, respectively, and are incorporated here by reference.

[7] One such method was presented by Melissa Rohde, a member of the technical working group. A description of the approach she submitted to the County during the working group process is attached here as **Attachment D**.

explain full address the many unresolved issues or discuss why alternative methodologies for determining wells with potential to impact public trust resources (and thus warranting further review under the Public Trust Doctrine) were rejected. The absence of such analysis makes the County's delineation of the PTRA arbitrary and capricious and unlawful.

i. The Exclusion from the Public Trust Review Area of Portions of SGMA-Designated High and Medium Priority Groundwater Basins Is Arbitrary and Capricious

There is no basis in fact for excluding portions of the SGMA-designated high and medium priority groundwater basins from the PTRA. Neither the analysis supporting the designation of the PTRA, which is found in *Sonoma County Well Ordinance: Public Trust Review Area (PTRA) delineation* prepared by O'Connor Environmental, Inc. (OE Inc.), for Permit Sonoma, dated March 2023 (the PTRA Delineation), or the Summary Report provides facts or analysis to justify excluding these areas. Moreover, available information indicates that groundwater withdrawals in these areas contribute to adverse impacts on public trust resources. As explained by Dr. Loaicigia, in his comments provided as Attachment A,

> These SGMA-regulated groundwater basins are in a state of overdraft, whereby the long-term volume of groundwater withdrawal exceeds the volume of groundwater recharge. The effect of overdraft is a long-term[8] trend of declining groundwater levels, reduction of groundwater storage, and, in the case of streams hydraulically connected to groundwater storage, this means possible streamflow depletion.

Attachment A at 6. The PTRA Delineation itself provides further support for this conclusion, finding that groundwater extraction far outpaces expected recharge and leads to streamflow depletion throughout the SGMA-regulated groundwater basins. PTRA Delineation at 10-15. And as Dr. Loaiciga further explained,

> It is unreasonable for [the PTRA Delineation] to state that there are non-navigable waters in the [SGMA-regulated] groundwater basins [] that do not support salmonids, considering that non-navigable waters that drain to downstream non-navigable and navigable waters that support salmonids-based fisheries, which are public trust resources under the California Constitution.

Attachment A at 6. Dr. Loaigicia also explains that "[g]roundwater withdrawal in SGMA-regulated (medium- and high-priority) basins exceeds their safe yield (also known as basin yield, perennial yield[9]) and permitting of new wells would aggravate the cumulative effects of wells on the basins' overdraft and on public trust resources." Attachment A at 6. This aggravation of cumulative impacts caused be permitting new wells in SGMA-regulated basins is a factor that would support inclusion of these areas in the PTRA, but as Dr. Loaigicia explains, the well ordinance neglects the cumulative effects of wells and well interference when excluding areas within SGMA-regulated basins from the PTRA. Attachment A at 7-8. Finally, to the extent there

[8] Long-term trends extend over 20 years or longer periods.
[9] Loaiciga, H.A. (2017). The safe yield and climatic variability: implications for groundwater management. *Groundwater* 55, no. 3: 334–345.

is uncertainty resulting from insufficient data regarding impacts to public trust resources in these areas, ignoring this uncertainty and excluding these areas from the PTRA is arbitrary in light of the County's duty to preserve public trust resources wherever feasible.

Overall, the decision to exclude portions of SGMA-regulated basins from the PTRA is without basis in fact and arbitrary and does not satisfy the County's duty to consider impacts to public trust resources or mitigate those impacts when feasible.

ii. The Exclusion from the PTRA of Areas Outside the Stream Buffers in Moderate Risk Areas from the PTRA Is Arbitrary and Capricious

The methodology employed in the PTRA Delineation that resulted in stream buffers in "moderate risk areas" that are within the PTRA, and exclusion of the remainder of the subwatershed in these areas from the PTRA, is without factual support and based on unsupported assumptions. First, no attempt was made to account for cumulative effects of one or more wells in close proximity to a stream in moderate risk areas when determining the scope of the buffers. Second, the streamflow depletion factor (SDF) used to establish the buffers was arbitrarily chosen rather than based on an evaluation of range of potential or likely pumping scenarios and accounting for uncertainty created by potential cumulative impacts of nearby wells. As Dr. Loaigicia explains,

> the buffer zones must be calculated based on specific well and stream reach conditions, and considering the cumulative effects that are aggregated as new wells are installed near stream reaches already impacted by existing wells. One new well can be found to have a small effect on streamflow depletion and be permitted; yet, an analysis of the effect of well pumping considering the cumulative effects of the existing and proposed wells affecting a stream reach could reveal a significant and unacceptable magnitude of streamflow depletion.

Attachment A at 15. The approach taken by the County, and the resulting exclusion of areas outside the stream buffers from the PTRA, is not based on a sound methodology or supported by facts, and is thus arbitrary. It does not ensure the County has met or will meet its duty to consider the impacts to public trust resources – or its duty to mitigate those impacts where feasible - as required by the public trust doctrine.

iii. The Exclusion from the PTRA of Valleys of Mainstem Russian River and Dry Creek Is Arbitrary and Capricious

The PTRA Delineation states that the mainstem Russian River and Dry Creek valleys were excluded from the PTRA because the methods used to define the relationship between groundwater pumping and streamflow depletion are not valid in these areas due to the controlling influence of the flow release from upstream reservoirs. The fact that the method used to delineate the PTRA in other areas is not valid in the mainstem Russian River and Dry Creek valleys does not support the conclusion that either (a) pumping in these areas does not impact flows in these waterways and thus implicate the County's Public Trust duties, or (b) that adverse impacts caused by reduced flows do not occur and must be mitigated to the extent feasible. The County's blanket exclusion of these areas from the PTRA, despite evidence that groundwater is

hydrologically connected to these waterways and that these waters support public trust resources, and without relying on any evidence or facts to demonstrate the groundwater pumping does not impact flows and public trust resources, is arbitrary and capricious.

B. The Proposed Exemptions to Discretionary Public Trust Review for Wells within the PTRA Are Not Supported by Facts, Evidence or Analysis to Demonstrate the County Has Met Its Public Trust Obligations when Permitting These Wells

The County of Sonoma has failed to articulate or provide sufficient evidentiary support for the proposed exemption of wells identified in Sec. 25B-4(e) from discretionary public trust review. Instead, the County merely assumes that either the public trust doctrine does not apply to these classes of wells (e.g., because they are outside the PTRA), or that the County's public trust obligations have been satisfied for those wells (e.g., because the conservation measures required in the ministerial permitting process ensures impacts to public trust are mitigated to the extent feasible). The comments above related to the establishment of the PTRA addresses wells in the first category. With respect to the second category, the County has not relied on evidence, empirical data, or facts to support its necessary findings and conclusion that these classes of wells will not cause or contribute to adverse impacts to public trust resources or that the conservation measures proposed will avoid or minimize these impacts to the extent feasible. As such, approval of the Proposed Amendments that provide ministerial pathways to permits for extraction in the PTRA both violates the County's public trust duty and is arbitrary and capricious.

As a threshold matter, to the extent the County's position is that the wells in Exemptions (e)(6), (7), and (8) are exempt from the public trust doctrine and discretionary review because the Level 1 and Level 2 conservation measures effectively mitigate adverse harm to public trust resources and thus the public trust doctrine does not apply, this circular reasoning is arbitrary and not supported by the law. The Public Trust Doctrine requires consideration of impacts to public trust resources of the proposed action and mitigation of identified impacts to the extent feasible. Relying on mitigation measures that have not been evaluated to determine if they meet the "extent feasible" standard to assert the County's public trust duties are not implicated would undermine entirely the purpose of the Public Trust Doctrine, which as the Supreme Court stated in *Audubon* is "to preserve, so far as consistent with the public interest, the uses protected by the trust." *See* 33 Cal.3d 419, 447. We must therefore assume that the County's adoption of a ministerial permit pathway is intended to both consider impacts of the permitted action on public trust resources and to protect public trust resources to the extent feasible.

i. The County Has Not Satisfied Its Public Trust Duties When Creating a Ministerial Pathway for Permitting "Wells for Low Water Use" (wells that use less than 2.0 AFY per parcel)

There is no factual basis to support the conclusion that the ministerial permitting pathway for "Wells for Low Water Use" will satisfy the County's public trust duties when permitting these wells. The exemption set forth at 25B-4(e)(6) would allow the County to approve any number of low volume wells without considering whether they will cause or exacerbate an adverse impact to the public trust, or whether such an impact is mitigated to the extent feasible. Two AFY per year per parcel is not an insignificant amount of water.

First, the 2.0 AFY threshold, under which a well would be considered a "low water use" is not based on facts or data, but instead is an arbitrary determination. Data on water use collected as part of a fee setting associated with SGMA planning indicates that the majority of well water users in Sonoma County use around 0.5 AFY.[10] The County's stated reason for selecting 2.0 AFY as a low water use is that amount is defined by SGMA as a de minimis use for purposes of setting fees and requiring monitoring, and is intended to ease the financial burden of implementing SGMA on these users. However, the 2.0 AFY threshold established in SGMA was not intended to evaluate or address whether annual extraction of less than 2.0 AFY would have an impact on flow in interconnected surface waters or public trust resources. The County's decision to import the 2.0 AFY threshold from SGMA does not satisfy its duty to consider the impacts of groundwater extraction on public trust resources.

Second, even assuming 2.0 AFY is factually supported as a low volume use on an individual per parcel basis. Further, there has been no evaluation of the relationship between the extraction of up to 2.0 AFY and impacts to surface water flows and public trust resources, individually or cumulatively. the County has provided no analysis of the potential cumulative impact of dozens or even hundreds of low volume extractions in a particular area, or in close proximity to larger volume annual extraction in a particular area, that will be permitted under the Proposed Amendments.

This ministerial pathway is for permitting new wells, i.e., wells that will increase the amount of water withdrawn from the interconnected surface waters that support public trust resources. However, as Dr. Loaigicia explained, the analysis underlying the Proposed Amendments "ignore[es] the cumulative impacts of wells installed near impacted stream reaches with Moderate- and High-habitat Value and Sensitivity," and "fail[s] to address the cumulative impacts of wells in Sonoma County groundwater basins." Attachment A at 1, 2. He further observes that the "proposed well ordinance neglects the cumulative effects of wells and well interference," Attachment A at 7. The County's failure to address and consider the individual or cumulative impacts of new wells of any specific size, and in particular wells for up to 2.0 AFY, does not satisfy its duty to consider the impacts of its creation of a ministerial permitting pathway on public trust resources, making its decision arbitrary and capricious.

[10] According to the Sonoma County GSA fee study, groundwater use data from private wells in Sonoma County parcels show 69 percent of parcels use less than 0.5 AF per year.

Further, as explained below, the "conservation measures" proposed by the County to ostensibly mitigate the impacts on public trust resources from wells permitted under the Wells for Low Water Use ministerial pathway have not been analyzed, quantified, or evaluated to determine the extent to which they would mitigate impacts, or if that mitigation amounts to the extent feasible. Overall, the ministerial pathway for "Wells for Low Water Use" is arbitrary and capricious, and does not satisfy the County's duty under the public trust doctrine when permitting these wells.

ii. The County Has Not Satisfied Its Public Trust Duties When Creating a Ministerial Pathway for Permitting "Wells for Existing Use" (wells of <u>any annual volume</u> per parcel)

There is no factual or legal basis to support the conclusion that the ministerial permitting pathway for "Wells for Existing Use" will satisfy the County's public trust duties when permitting these wells. The exemption set forth at 25B-4(e)(7) would allow the County to approve any number of wells for existing use without considering whether they will cause or exacerbate an adverse impact to the public trust – or whether such an impact is mitigated to the extent feasible.

As a threshold matter, to the extent the County has concerns that requiring existing users to reduce use may result in a "taking" of property, based at least in part of Sonoma County's various "by-right" land use policies, this concern is unfounded. As the County acknowledges, the public trust doctrine applies to groundwater interconnected with surface waters. Curtailing a use – which is not even certain to occur under the Ordinance – is not a taking when it is done to fulfill the County's obligations to protect public trust resources. In *Audubon*, the California Supreme Court affirmed "that parties acquiring rights in trust property generally hold those rights subject to the trust, and can assert no vested right to use those rights in a manner harmful to the trust." *Nat. Audubon Society v. Super. Ct.* ("*Audubon*") (1983) 33 Cal.3d 419, 437.[11] Action by the County enforcing or defending reserved public rights in trust resources cannot give rise to valid takings claims. *Audubon*, 33 Cal.3d at 440.

First, as discussed above, all available data and information indicates that current (i.e., existing) groundwater extraction in Sonoma County is contributing to streamflow depletion in navigable and non-navigable tributaries that support public trust resources. Data also demonstrates that this depletion adversely impacts these public trust resources, as well as contributes to overall water scarcity throughout the County, especially in SGMA-regulated

[11] Simply because water is being used for a legally established use does not mean that the public trust doctrine is satisfied. Indeed, the court in *Audubon* acknowledged that the State Water Board granted Los Angeles Department of Water and Power water rights from Mono Lake's tributaries to use that water for domestic purposes because California law dictated that "the use of water for domestic purposes is the highest use of water." 33 Cal.3d at 427. Even though the water was being used legally, and in a manner California law favors above all else, the court found that "some responsible body ought to reconsider the allocation of the waters of the Mono Basin," and held that the state had a duty to make such a consideration under the public trust doctrine. 33 Cal.3d at 447. The fact that the water was being used for a legally established use did not shield the County from its public trust obligations. However, contrary to the Supreme Court's conclusion in *Audubon,* exemption (e)(7) specifically exempts wells which are limited to using an amount of groundwater used for legally established uses.

groundwater basins. As NOAA-Fisheries explains in its comments regarding then-Exemption (e)(5) of the proposed amendments (submitted September 28, 2022)

> "allowing a new water well supplying a parcel to avoid [discretionary] public trust analysis 'as long as the proposed groundwater usage does not exceed the use established prior to October 4, 2022', (i.e., "grandfathering" past groundwater usage) is not consistent with protecting public trust uses and will not consider potential impacts to ESA-listed species and their habitat. […] Grandfathering past groundwater use will likely seriously compromise the County's ability to manage groundwater resources in a way that avoids impacting public trust resources or adequately minimizes impacts to ESA-listed salmonids and their habitat."

Nonetheless, the ministerial pathway to permit "Wells for Existing Use" authorizes installation of wells to perpetuate the status quo – authorizing maintenance of existing extraction to support existing legally established uses without requiring (or even evaluating the feasibility of effectiveness) of any measurable, defined, quantified, or verifiable mitigation to address continued use up to the amounts currently established. See further discussion of this issue below. As such, the County has acted arbitrarily and failed to meet its public trust duties when establishing this ministerial permitting pathway, and as a result the County will not have in place a program that satisfies the public trust doctrine when issuing permits for "Wells for Existing Use."

As with the "Wells for Low Water Use," the County has provided no analysis of the potential cumulative impact of dozens or even hundreds of "Wells for Existing Use" in a particular area that will be permitted under the Proposed Amendments. As Dr. Loaigicia explained, the County's analysis underlying its Proposed Amendments "ignore[es] the cumulative impacts of wells installed near impacted stream reaches with Moderate- and High-habitat Value and Sensitivity," and "fail[s] to address the cumulative impacts of wells in Sonoma County groundwater basins." Attachment A at 1, 2. He further observes that the "proposed well ordinance neglects the cumulative effects of wells and well interference." Attachment A at 7. The County's failure to address and consider the cumulative impacts of new and replacement wells of any size does not satisfy its duty to consider the impacts of its creation of a ministerial permitting pathway on public trust resources, making its decision arbitrary and capricious.

Further, as explained below, the "conservation measures" proposed by the County to ostensibly mitigate the impacts on public trust resources from wells permitted under the Wells for Existing Use ministerial pathway have not been analyzed, quantified, or evaluated to determine the extent to which they would mitigate impacts, or if that mitigation amounts to the extent feasible. The County's failure to account for acute or cumulative impacts of existing extractions to support existing uses – or account for the continuation of the acute or cumulative impacts of these wells as they are replaced or new wells are installed to offset for decline in production of existing wells – defeats any claim that it has acted in a non-arbitrary manner or satisfied its public trust obligations with respect to this class of wells.

iii. The County Has Not Satisfied Its Public Trust Duties When Creating a Ministerial Pathway for Permitting "Net Zero Groundwater Increase" (new wells for new uses of any annual volume)

The arbitrary and capricious manner in which the County has attempted to satisfy its public trust obligations when developing Exemptions (e)(6) and (e)(7), discussed above, similarly undermine the County's attempt to provide a ministerial permitting pathway for under Sec. 25B-(e)(8) – "Net Zero Groundwater Increase." While the name is appealing, a well or wells that allows for "the use of water that may increase but not result in a net increase in groundwater use from the local aquifer" is still a new extraction from a groundwater aquifer. As explained above, the County has not considered the acute or cumulative impacts of existing extractions or increasing groundwater extraction in the PTRA. Nor has the County analyzed or provided any objective standards to demonstrate that the "water conservations, rainwater catchment or recycled water reuse system, water recharge project, agricultural practices that increase infiltration and soil moisture capacity, local groundwater management project, or participation in a streamflow augmentation project" will avoid or minimize the adverse impacts that any well permitted under this ministerial pathway to the extent feasible.

Likewise, the groundwater recharge plan – which is required to qualify for this exception to discretionary review – does not purport to require consideration and findings that the implementation of the plan meets the requirements of the Public Trust Doctrine. The fact that a well applicant must submit this plan to the County is illustrative of the problem. At this point, before the plan is submitted, it is impossible to evaluate or consider the impacts of the new well on public trust resources and how or whether the elements of the plan will mitigate those impacts. And the County cannot abdicate its duty to undertake this analysis to a private party. The County's Public Trust obligations cannot be satisfied when issuing permits without discretionary review of the proposed plan, and there is no evidence or data relied on that indicates otherwise. The County's proposal to satisfy its public trust obligations with ministerial permits under the "Net Zero Groundwater Increase" is arbitrary and capricious.

iv. The Exemptions of Wells from Discretionary Public Trust Review Because Applications Were Submitted Prior to the Ordinance Effective Date (Exemption (e)(1), or Are a Public Well Subject to CEQA (Exemption (e)(4), or Serve as a Point of Surface Diversion for an Appropriative Water Right (Exemption (e)(5)) Are Not Supported by the Law or Evidence.

Our comments provided September 30, 2022 addressed issues related to these exemptions to public trust review. These exemptions have remained substantively unchanged from the version commented on last September, and as such we refer you to our comments on those provisions in our previous letter, which is Attachment C to this letter.

C. The Water Conservation and Best Management Practices that Are Relied Upon to Exempt Wells from Discretionary Public Trust Review Are Not Supported by Facts, Evidence or Analysis to Demonstrate the County Has Met Its Public Trust Obligations to Mitigate the Impacts of Ministerially Permitted Wells.

The County's duty to mitigate impacts of groundwater wells is grounded in its duty to "protect public trust uses whenever feasible." *See National Audubon Society v. Superior Court*, 33 Cal.3d 419, 446 (Cal. 1983). While we acknowledge the County's apparent effort to address this obligation by including the Water Conservation and Best Management Practices found in Sec. 25B-13, the County has failed to demonstrate with evidence and analysis that the identified measures will in fact mitigate the harm that may be caused or contributed to by the permitted well (or that this is the extent of feasible mitigation to protect public trust resources and uses).

Comments submitted to the County by NOAA-Fisheries on March 30, 2023 regarding the water conservation measures required for ministerial permitting state succinctly

> the actual expected water savings of these measures largely have not been quantified, so their efficacy in mitigating or offsetting impacts is similarly unknown.

The California Department of Fish and Wildlife commented similarly on March 29, 2023

> there has been no quantification or assessment of how effective or to what degree implementing these measures will avoid adverse public trust impacts associated with new or replacement wells. Similarly, there is no quantification or assessment of the "Net Zero Increase" approach pathway to a ministerial permit.

Not only has the County failed to supply evidence and analysis necessary to support any finding that these mitigation measures will ensure it meets its public trust duties, on their face several of the mitigation measures do not appear sufficient to mitigate impacts to public trust resources as required. For example, as NOAA-Fisheries comments dated September 28, 2022 regarding then-Sec. 25B-13(a)(2) (now Sec. 25B-13(c)(4)(iii))

> "the approach to calculate the amount of historic groundwater uses as an "average over the three-to-five -year period immediately prior" to October 4, 2022, is fundamentally flawed. The three-year period prior to this date was historically dry in Sonoma County, and groundwater use was likely historically high as a result. Grandfathering in this level of anomalous groundwater use will likely significantly constrain the County's attempt to protect public trust resources, and is unlikely to avoid impacting ESA-listed salmonids and their habitat."

Absent evidence and analysis quantifying and assessing the conservation measures effectiveness, and doing so with appropriately representative data, the County's adoption of these Proposed Amendments is unlawful and arbitrary and capricious. In addition, any issuance of a well permit that relies on any of these mitigation measures and proceeds ministerially without public trust review and mitigation will also be subject to challenge as unlawful and arbitrary and capricious in its consideration and protection of public trust resources.

D. The Metering and Monitoring Provisions Will Not Ensure the County Meets Its Public Trust Duties, or Ensure that Impacts to Public Trust Resources Will Be Mitigated to the Extent Feasible

The Proposed Amendments only require metering on wells that extract more than 2.0 AFY, and only require monitoring of water levels on wells that extract greater than 5.0 AFY. These thresholds are not established based on rational analysis of data needs to evaluate and mitigate impacts to public trust resources, and will undermine rather than ensure that the County meets its ongoing duty under the Public Trust Doctrine. In the Summary Report the County states that the metering and monitoring provisions "have been categorized and tailored for different types of permits to effectively preserve the public trust as much as possible and consistent with the public interest." This statement is not supported by facts or analysis, and in fact the metering and monitoring requirements imposed have been criticized as ineffective in achieving either purpose.

The County acknowledges that a lack of data and reliable information has made meeting its public trust obligations challenging. It has introduced uncertainty into the delineation of the PTRA, as well as provided limitations on understanding and analyzing the full extent of impacts of groundwater withdrawals on surface flows and public trust resources and the evaluation of the likely effectiveness of any conservation measures in avoiding and minimizing impacts to the public trust resources. Despite the challenges, the County has not developed metering and monitoring requirements that will ensure collection of information that will provide the tools necessary to meet its public trust duties. As Dr. Loaigicia notes in his review of the County's program, the County's program

> [i]nstitutionaliz[es] the practice of not collecting accurate, comprehensive, and reliable data with which to assess the cumulative impacts of existing and new wells on public trust resources and groundwater overdraft.

Attachment A at 18. He further concludes that "the proposed well ordinance's reliance on level 1 and level 2 water-conservation requirements to achieve the protection of public-trust resources without comprehensive well metering would be ineffective." Attachment A at 18.

NOAA-Fisheries comments submitted on March 29, 2023 regarding the metering and monitoring provisions reach similar conclusions, noting:

> Excluding required metering for residential wells using up to an average of 1,876 gallons per day will likely result in a large volume of future groundwater extraction that will be untracked and remain unverified, increasing uncertainty in the County's impact analysis. We maintain this would compromise the County's ability to protect current well owners, public trust resources, and ESA-listed species.

Under the Proposed Amendments, new and replacement wells using less than 2.0 AFY will be permitted through the ministerial pathway and will not need to be metered. As such there will continue to be considerably uncertainty associated with determining the individual or cumulative amount of water extracted, evaluating impacts of these withdrawals on assess whether the conservation measures imposed are in fact reducing use, or ensuring the County meets its

ongoing duties with respect to these extractions. The County's decision not to require metering will not ensure its public trust duties are met, and thus arbitrary and capricious.

II. The Proposed Ordinance Does Not Satisfy the County's Duty to Both Consider and Protect the Public Trust when Engaged in Discretionary Permitting.

Under the public trust doctrine, the County has "an affirmative duty to take the public trust into account in the planning and allocation of water resources, and to protect public trust uses whenever feasible." *National Audubon Society v. Superior Court*, 33 Cal.3d 419, 446 (Cal. 1983). This is more than an obligation to merely consider public trust, it is a directive to protect it.

In Sec. 25B-4(d) of the proposed amendments, the County attempts to address the first half of it public trust obligation. As the prefatory text of 25B-4(d) explains, the section addresses "how the County of Sonoma fulfills its obligation *to consider and protect the public trust*." (Emphasis added). Sec. 25B-4(d) does not however set any standards or criteria that it will apply to make a determination to provide certainty now (or too applicants in the future) regarding how the County will satisfy its duty to protect the public trust, public trust resources, or public trust uses whenever feasible, as required.

The County may believe that the Sec. 25B-4(d)(4) requirement that project features or mitigation measures "necessary to the Enforcing Agency's written findings for approval" become conditions in the new well permit will satisfy its duty to protect resources whenever feasible. However, there is no indication of what mitigation measures are "necessary" for approval and nothing makes approval contingent upon a finding that the public trust will be protected. Because on their face the Proposed Amendments only require consideration of the public trust, and do not provide any criteria or standards by which to assess whether the County will in fact satisfy its substantive obligation to mitigate impacts to the extent feasible, the Proposed Amendments do not ensure the County will meet its obligation when reviewing and making a determination on a discretionary permit application.

We have provided recommendations for modifications of the Proposed Amendments that would address this shortcoming in Section II above, and on pages 3-4 of Attachment C.

III. The County Cannot Rely on Categorical Exemptions to Avoid Engaging in Analysis Required by the California Environmental Quality Act

A. The California Environmental Quality Act

The California Environmental Quality Act ("CEQA") plays a critical role in ensuring local agencies do their part in protecting the environment and preventing environmental degradation. CEQA discloses projects' environmental impacts to decision makers; identifies ways to reduce or avoid environmental impacts; and requires feasible alternatives or mitigation measures. This process informs the public of the agency's reasons for approving projects with significant environmental impacts, fosters interagency coordination regarding project review, and enhances public participation in the planning process. At the heart of the CEQA process is the

Environmental Impact Report (EIR). If an activity qualifies as a project under CEQA, an EIR must be done unless an exemption applies. Even when a particular exemption applies, there are exceptions to the exemptions that require an EIR regardless of exemption status.

"Projects" under CEQA are defined as any activities undertaken by an agency that may cause a direct or reasonably foreseeable indirect physical environmental change and involves the issuance of a permit (CEQA Guidelines, § 15378(a).) "Significant effect on the environment" means a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance. (CEQA Guidelines, § 15382.) Projects that substantially degrade or deplete groundwater resources; or interfere substantially with groundwater recharge are considered to have significant effects on the environment and the kinds of physical changes in the environment CEQA is designed to address. (*Azusa Land Reclamation Co. v. Main San Gabriel Basin Watermaster* (1997) 52 Cal.App.4th 1166, 1189 ("*Azusa*"), referencing appendix G to the CEQA guidelines.)

Where a fair argument may be made that a project or activity has the potential to degrade the quality of the environment, even where evidence exists to the contrary, an EIR must be completed. (*Azusa*, at p. 1201.) This standard is a low threshold for further environmental review and "reflects a preference for resolving doubts in favor of environmental review when the question is whether any such review is warranted." (*Sierra Club v. County of Sonoma*, 6 Cal.App.4th 1307, 1316–17 (1992).) When an agency's decision is not supported by substantial factual evidence, the agency's action is unlawful. (CEQA §§ 21168, 21168.5.)

Limited exemptions from full environmental review under CEQA are available. For example, Class 7 exemptions cover

> "actions taken by regulatory agencies as authorized by state law or local ordinance to assure the maintenance, restoration, or enhancement of a natural resource where the regulatory process involves procedures for protection of the environment. Examples include but are not limited to wildlife preservation activities of the State Department of Fish and Game. Construction activities are not included in this exemption."

(CEQA Guidelines, § 15307.) Class 8 exemptions apply to actions

> "to assure the maintenance, restoration, enhancement, or protection of the environment where the regulatory process involves procedures for protection of the environment. Construction activities and relaxation of standards allowing environmental degradation are not included in this exemption."

(CEQA Guidelines, §15308).

The scope of a categorical exemption is a question of law and underlying factual determinations are subject to the substantial evidence test. (*Save Our Big Trees v. City of Santa Cruz* (2015) 241 Cal.App.4th 694, 706 ("*Big Trees*").) The County bears the burden of showing

"substantial evidence supports its finding that a particular CEQA exemption applies." (*Bus Riders Union v. Los Angeles County Metropolitan Transportation Agency* (2009) 179 Cal.App.4th 101, 107.) A court will not uphold an agency's exemption determination if the record lacks evidence showing that the project falls within the exemption. (*Big Trees,* 241 Cal.App.4th at p. 712.)

B. Categorical Exemptions Invoked by the County Do Not Apply

The County's adoption of the Proposed Amendments is a project subject to CEQA. The County is exercising its discretion to develop specific rules that apply to groundwater well permit issuance and construction. The County's Proposed Amendment creates two pathways that future applicants within the Public Trust Review Area may pursue to obtain a well permit:

- Seek a discretionary permit
- Seek a ministerial permit (which the County refers to as "exceptions" to the discretionary permit process) [12]

The County's Proposed Amendment also establishes standards and requirements that apply county-wide. This includes the requirement to implement Level 1 conservation measures as a condition of obtaining a permit, and to meter water use (all users of more than 2.0 AFY, except solely residential single parcels) and monitor water levels (all users of more than 5.0 AFY).

Regarding the ministerial permit pathway, the County is establishing threshold criteria that must be met in order to seek a ministerial permit (e.g., extract less than 2.0 AFY), as well as defining specific conditions permittees must meet (e.g., develop and implement conservation strategies on agricultural lands, meet water efficient landscape regulations, and limit the size of irrigated lawns). The County is exercising its discretion when deciding what conditions a permittee must meet in order to obtain a ministerial permit. As noted throughout this letter, the extraction of groundwater pursuant to permits issued by the County has significant cumulative impacts on groundwater resources and public trust resources in the County. Absent conducting CEQA at this time, when setting the conditions and requirements ministerial permit applicants must comply with to obtain a permit, no further evaluation of the environmental impacts resulting from the issuance of the hundreds and hundreds of ministerial permits pursuant to the well ordinance will be conducted. The only time for evaluating the cumulative impacts

[12] The County's position that the exceptions provide ministerial pathways to obtaining a permit is questionable, especially with respect to the Level 2 Conservation Requirements. The Level 2 Conservation requirements obligate submission and implementation of a water conservation plans that must achieve certain standards (such as reducing groundwater use "to the maximum extent practicable"). Similarly, permittees that want to meet the threshold criteria of "Net Zero Groundwater Use" must submit a groundwater recharge plan "that documents enhanced groundwater recharge that is equal to the proposed net increase in groundwater extraction." Though these requirements are somewhat vague – and as explained above the County has done no analysis of the effectiveness of these requirements in mitigate harm to public trust resources – the County will none the less be required to evaluate these plans submitted by applicants for a "ministerial" permit to determine if the plan meets the criteria in the Proposed Amendments. When making this determination, the County will have to exercise its discretion.

associated with the issuance of these permits is now, at the time the Proposed Amendments are adopted.

i. Cumulative Impacts Exception, which Negates All Categorical Exemptions, Requires the County Conduct CEQA Analysis

The County invokes CEQA Categorical Exemptions for actions by regulatory agencies for protection of natural resources (Class 7) and actions by regulatory agencies for protection of natural resources (Class 8), and the "common sense" exemption. (*See* CEQA Guidelines, §§ 15307, 15308, 15061(b)(3). However, the CEQA guidelines state that even if a project is categorically exempt from CEQA, the exemption does not apply if, over time, the cumulative impact of successive projects of the same type have a significant impact; or, if there is a reasonable possibility that the activity will have a significant effect of the environment due to unusual circumstances. (CEQA Guidelines, § 15300.2) Thus, even if the Class 7 and 8 categorical exemptions applied to the Proposed Amendments, the cumulative impacts exception would preclude reliance on the exemptions. An agency may not rely on a categorical exemption where "the cumulative impact of successive projects of the same type in the same place, over time is significant." (CEQA Guidelines § 15300.2 (b).) The cumulative impacts of groundwater pumping wells on Sonoma County's already over-subscribed groundwater resources, and the interconnected surface waters, cannot be reasonably disputed. As such, no Categorical Exemption to CEQA applies.

ii. CEQA Class 7 and 8 Categorical Exemptions to CEQA Do Not Apply to the Amendment

The County's Notice of Exemption ("NOE") claims adoption of the Proposed Amendments is exempt from CEQA under California Code of Regulations § 15307 and § 15308 (Class 7 and 8 exemptions). In addition to the cumulative impacts exception to the categorical exemptions described above, this is incorrect for at least two reasons.

First, both Class 7 and Class 8 exemptions apply to actions by County agencies that "assure the maintenance, restoration, enhancement, or protection" of natural resources and environment. While the Public Trust Doctrine is primarily directed at this purpose, it does not prohibit the County from approving activities it finds may have a foreseeable harm on public trust uses. In fact, the County itself invokes this exact reasoning in Sec. 25B-4(e) when it states:

> Notwithstanding location within the Public Trust Review Area, the following proposed wells are exempt from discretionary public trust review due to the low potential impacts to public trust resources or due to the overriding public interest in favor of ensuring adequate water supply for existing and domestic uses.

Ensuring adequate water supply is a worthwhile goal, and one we agree the County endeavor to meet. However, it cannot fairly be said that ensuring adequate water supply at the expense of harm to public trust resources is equivalent to maintaining, restoring, enhancing or protecting natural resources or the environment. It is an authorization to use the resources in spite of the

impact to it will have. The Proposed Amendments would **allow all – from the smallest to the largest - existing users of groundwater in the County to obtain a ministerial permit to continue to pump water at the exact amount they current use**. Considering the unsustainable condition of groundwater resources in the County, this Proposed Amendment cannot be said to be solely to "assure the maintenance, restoration, enhancement, or protection" of groundwater and public trust resources.[13] Categorical Exemptions 7 and 8 simply do not apply to the County's actions in this case.

Second, both Class 7 and Class 8 exemptions do not apply to construction activities. The NOE states the ordinance

> "will not authorize any construction activities, but instead impose requirements, consistent with existing law, to consider impacts to public trust resources via discretionary permit applications, subject to an at-cost fee, and to facilitate data collection through metering, and to make other related changes …"

However, the ordinance being amended is titled "Chapter 25B Water Well Construction Standards." As the title states, Chapter 25B sets standards for obtaining permits and *constructing* water wells. The amended ordinance chapter uses the word "construction" dozens of times. The argument that amendments to the well construction standards ordinance does not directly involve approval of well construction is specious at best. Further, the Proposed Amendments create a ministerial pathway to obtain permits, virtually guaranteeing that permits will be pulled and construction will follow. As such, exemptions 7 and 8 do not apply.

C. The "Common Sense" Exemption Does Not Apply

The NOE further states that the amendment is exempt from CEQA under the "common sense" exemption, claiming "it can be seen with certainty that there is no possibility that this ordinance … may have a significant effect on the environment." The basis for this determination is that the amendments "create and fund an application review process designed to public trust resources, where no exception to applicability of the exemptions under §15300.2, and because it can be seen with certainty that there is no possibility that this ordinance or application fee may have a significant effect on the environment." *See* NOE at 4. Further, staff claims that adoption of the ordinance "will not result in any direct or indirect physical change to the environment and will instead assure the maintenance, restoration, enhancement, and protection of natural and public trust resources and the environment by providing a framework for discretionary review of applications requiring a public trust analysis."

[13] The Proposed Amendments guarantees continued, unsustainable levels of pumping—and thus severe impacts to salmon. The proposed amendment also exempts broad categories of wells from any public trust review, further impacting instream resources.

CEQA's "common sense" exemption can be relied on only if a factual evaluation of the agency's proposed activity reveals that it applies. (*Muzzy Ranch Co. v. Solano County Airport Land Use Com.* (2007) 41 Cal.4th 372, *as modified* Sept. 12, 2007.) Whether a particular activity qualifies for the "common sense" exemption presents an issue of fact, and the agency invoking the exemption has the burden of demonstrating it applies. (CEQA Guidelines, § 15061(b)(3). Before determining that an activity is exempt from CEQA under the "common sense" exemption, the agency must examine the evidence presented in the administrative record. (CEQA Guidelines, § 15061(b)(3).) This exemption applies only where "it can be seen with certainty that there is no possibility that the activity in question may have a significant effect on the environment." (CEQA Guidelines, § 15061(b)(3).) "[It] is reserved for those obviously exempt projects where its absolute and precise language clearly applies." (*Cal. Farm Bureau Fed.* (2006) 143 Cal.App.4th 173, 194 (internal quotations omitted); *see also Davidson Homes v. City of San Jose* (1997) 54 Cal.App.4th 106, 117 ("If legitimate questions can be raised about whether the project might have a significant impact . . . the agency cannot find with certainty that a project is exempt.").)

Again, there is no reasonable dispute additional groundwater wells in aquifers connected to surface waters—the majority of aquifers in Sonoma County—will further impact public trust resources. Further, elements of the Proposed Amendments apply to issuance of groundwater well permits county-wide. It cannot reasonably be disputed that groundwater extraction county-wide has and will continue to have a significant impact on the environment. No basis for the County's bald assertion provides otherwise, failing to meet the burden required to apply the exemption.

IV. Conclusion

We again thank you for the opportunity to provide comments on the Proposed Amendments. The County is taking a much needed, and legally required, step toward ensuring protection of public trust resources and the sustainable use of its water resources. There is no question that groundwater resources throughout the County are oversubscribed, and that the rivers, streams, fish, and overall reliability of water supply throughout the County is at risk as a result. In light of the current situation, and predictions that it is only going to get worse, we strongly urge the County to proceed with an "interim" ordinance now (subject to the revisions proposed above) and firmly commit to revising the ordinance after taking the time needed to develop a comprehensive and effective ordinance that meets its public trust duties and helps to secure long-term water supply for all Sonoma County residents.

Sincerely yours,

[redacted]

Drevet Hunt
Legal Director
California Coastkeeper Alliance

Attachment A

REVIEW COMMENTS OF:

[1]. SONOMA COUNTY WELL WORDINANCE

PUBLIC TRUST REVIEW AREA DELINEATION BY O'CONNOR ENVIRONMENTAL INC. MARCH 2023 (APPENDIX C or ATTACHMENT H) OF THE OUTCOMES AND RECOMMENDATIONS REPORT DATED MARCH 13, 2023)

[2]. SUMMARY REPORT: Consideration of an Ordinance: (1) Amending Sonoma County Code Chapter 25B (Well Ordinance) to Add Provisions Related to Evaluation of Public Trust Resources, Well Monitoring, and Other Miscellaneous and Technical Changes; (2) Setting a Fee for Discretionary Well Permit Applications; and (3) Determining Exemption from the California Environmental Quality Act. Consideration of Urgency Ordinance for Temporary Extension of the Moratorium on Water Well Permitting. [Agenda date: April 4, 2023].

COMMENTS BY HUGO A. LOAICIGA, Ph.D., P.E., P.H., D.WRE

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MARCH 30, 2023

1. Executive Summary.

These review comments identify several shortcomings associated with the contents of Appendix C (Attachment H, item [1]) and the proposed well ordinance (SUMMARY REPORT, item [2]) to be considered by Sonoma County. The following shortcomings were detected in our review of Appendix C (Attachment H):

(i) The use of fragmentary, insufficient, and poor-quality data about streamflow, water use, and groundwater levels employed in hydrologic modeling periods that were not climatically representative. The modeling approach of Appendix C did not account for data uncertainty.

(ii) The application of unsound methodologies to implement the MIKE SHE hydrologic model to construct a predictive formula for streamflow depletion based on the pumping ratio. The MIKE SHE hydrologic model was calibrated with limited data and it was not validated for prediction purposes.

(iii) The arbitrary definition of buffer zones to protect stream reaches in which there is a combination of (i) Moderate Habitat Value and Sensitivity with Streamflow Depletion in the range 10% to 20% % relative to unimpaired streamflow, and (ii) High Habitat Value and Sensitivity with Streamflow Depletion less than 10% relative to unimpaired streamflow. Buffer zones were not defined for other combinations of Habitat Value and Sensitivity with Streamflow Depletion, such as very High Habitat Value and Sensitivity with High Streamflow Depletion.

(iv) Not reporting the values of unimpaired streamflow in stream reaches with Moderate-, High-, and Very High-value Habitat Value and Sensitivity. The unimpaired streamflow values are necessary to calculate the streamflow depletion within stream reaches. The unimpaired streamflow in a stream reach occurs when the stream reach is not affected by groundwater withdrawal, by surface-water diversions and imports, and by reservoir regulation of streamflow.

(v) Ignoring the cumulative impacts of wells installed near impacted stream reaches with Moderate- and High Habitat Value and Sensitivity.

(vi) Failing to connect the protection of public trust resources with the management of medium- and high-priority groundwater basins.

(vii) Failing to address the cumulative impacts of groundwater withdrawals in Sonoma County groundwater basins.

(viii) It is possible to improve the MIKE SHE hydrologic model applications reported in Appendix C (Attachment H) by (i) improving the model input data, (ii) re-calibrating and validating the models, and (iii) estimating the unimpaired streamflow along stream reaches impacted by groundwater withdrawal through climatic and hydrologic analyses and modeling. These improvements would lead to a significantly better scientific foundation on which to base a new well ordinance.

Our review of the SUMMARY REPORT outlining the proposed well ordinance to be considered by Sonoma County revealed several shortcomings:

(i) The SUMMARY REPORT states in page 16 "*Under the proposed ordinance, most well permits will be ministerial, less than 5% are expected to require discretionary review"*. The implication of this projection is profound. It basically means that unless the implementation of the level 1 and level 2 water-conservation requirements[1] is successful the proposed well ordinance would accomplish next to nothing in conserving public trust resources because, on average, fewer than 5 wells among every 100 wells would undergo discretionary review.

(ii) The SUMMARY REPORT is nearly silent about what a discretionary review would entail. It simply states in its page 15 that "*for discretionary permits, staff exercises discretion and judgment on a case-by-case basis to see if more subjective ordinance standards are met and can impose conditions on the permit to help meet such standards. Discretionary permits are thus subject to ordinance requirements and may also be subject to additional conditions.*" The SUMMARY REPORT does not specify what the "*more subjective ordinance standards"* and "*additional conditions"* would be. Would they include the analysis of acute (i.e., individual well) and cumulative (i.e., multiple well) effects on public-trust resources?

(iii) The proposed well ordinance recommends metering of wells with annual water use larger than 2 acre feet and monitoring of the groundwater level in wells using more than 5 acre feet annually (SUMMARY REPORT, item [2], page 14), thus institutionalizing the practice of not collecting accurate, comprehensive, and reliable data with which to assess the cumulative impacts of existing and new wells on public-trust resources and groundwater overdraft.

(iv) The effectiveness of level 1 and level 2 water-conservation requirements would be seriously compromised if the well metering and monitoring recommendations made in the proposed well ordinance are adopted.

(v) The proposed well ordinance would result in the predominance of ministerial (i.e., routine) well reviews and inadequate well metering that would be ineffective in protecting public-trust and groundwater resources in Sonoma County. This Reviewer recommends (i) that all wells be metered regardless of their water use, and (ii) that groundwater levels be monitored in all wells using more than

[1] The level 1 and level 2 water conservation requirements are listed in pages 19 and 20 of the SUMMARY REPORT.

2 acre feet annually, in order to gather accurate, comprehensive, and reliable data with which to make sound public-trust resources and groundwater management decisions.

2. Introduction.

Background. These review comments provide a technical evaluation of the Sonoma County Well Ordinance: Public Trust Review Area (PTRA) delineation prepared by O'Connor Environmental, Inc. (OE Inc.), for Permit Sonoma, dated March 2023. The review comments also evaluate the SUMMARY REPORT presenting the proposed well ordinance to be considered for possible approval by Sonoma County.

The PTRA delineation prepared by OE Inc. is herein alternatively referred to as "Appendix C or Attachment H" because that is how the PTRA delineation is named in the Outcomes and Recommendations Report dated March 13, 2023, submitted to Director Tennis Wicks (Permit Sonoma) and developed by the Consensus Building Institute in collaboration with the Policy and Technical Work Group members and Permit Sonoma Staff.

The PTRA delineation by OE Inc. is part of the scientific/technical recommendations submitted to the Permit Sonoma Director, who will consider those recommendations when preparing a draft well ordinance for the Board of Supervisor of Sonoma County.

The PTRA delineation by OE Inc. (i.e., Appendix C or Attachment H) outlines the methodology to be adopted by the new well ordinance being considered by Sonoma County for evaluating applications for the installation of new wells and the replacement or modification of existing wells. The stated purpose of the proposed well ordinance is to develop a procedure for well permitting that considers the impacts of groundwater withdrawal on public-trust resources as required by the California Constitution and the Public Resources Code. Coho salmon and steelhead trout were chosen in the PTRA delineation as the indicator species for the purpose of defining Habitat Value and Sensitivity in streams. The PTRA delineation by OE Inc. developed a classification scheme of the land that integrates streamflow depletion and the sensitivity of public-trust resources. Areas of Sonoma County were categorized as being Low-, or Moderate-, or High-Risk. Low-risk areas include (i) those with Low Habitat Value and Sensitivity, and (ii) those with Moderate Habitat Value and Sensitivity and less than 10% streamflow depletion relative to unimpaired streamflow[2]. Low-risk areas are not included in the proposed Public Trust Review Area. Well permitting in Low-Risk areas will continue to be routine subject to level 1 water-conservation requirements. Moderate-risk areas include (i) those with Moderate Habitat Value and Sensitivity and streamflow depletion between 10 and 20%, and (ii) those classified as High Habitat Value and Sensitivity with less than 10% streamflow depletion. The proposed well ordinance would require buffer zones separating wells from streams in moderate-risk areas. The buffer zones vary in magnitude depending on the type of geologic formation where wells are installed. High-risk areas include (i) those with Moderate Habitat Value and Sensitivity and streamflow depletion in excess of 20%, (ii) those with High Habitat Value and Sensitivity and streamflow depletion of 10% or more, and (iii) those with Very High Habitat Value and Sensitivity regardless of the level of streamflow depletion. In High-risk areas the Public Trust Review Area consists of entire sub-watersheds designed to protect public-trust resources. Moderate-Risk and High-Risk areas are within the PRTA delineation. Well permitting within the PTRA will be

[2] Unimpaired streamflow occurs when it is not affected by groundwater pumping, surface-water diversions or imports, and flow regulation by reservoirs and ponds.

discretionary with exemptions allowed for (i) injection wells, (ii) public water wells, (iii) surface-water diversion wells with level 1 water-conservation requirements, (iv) wells in low-water use parcels with level 1 water-conservation requirements, and (v) existing-use or zero net-increase wells with level 1 and 2 water-conservation requirements. Discretionary permitting is intended to prevent "*significant degradation of public trust resources*" (see Appendix C, page 2).

The SUMMARY REPORT (item [2]) states in page 16 that "*for discretionary permits, staff exercises discretion and judgment on a case-by-case basis to see if more subjective ordinance standards are met and can impose conditions on the permit to help meet such standards. Discretionary permits are thus subject to ordinance requirements and may also be subject to additional conditions*[3]." Furthermore, the SUMMARY REPORT (item [2], page 16) states that "*Under the proposed ordinance, most well permits will be ministerial, less than 5% are expected to require discretionary review. From 2017 through 2021, an average of 143 of the 317 well permits were processed each year were located on parcels that intersect the Public Trust Review Area. Of those, roughly 90% are for residential uses, 10% are for agriculture, and less than 1% are for commercial uses. Staff are unable to determine definitively from permit data which well permits would have qualified as a ministerial class; however, most residential wells are expected to qualify as a low water use well. Assuming residential wells are ministerial and some fraction of wells for agriculture and commercial uses are also ministerial, less than 15 well permits a year are expected to be subject to discretionary public trust review under the proposed ordinance*[4]."

The procedure presented in the proposed well ordinance leading to either ministerial (i.e., routine) or discretionary well permitting is evaluated in these review comments.

Scope. These review comments evaluate (i) the data, methods, assumptions, and results presented in the PTRA delineation (Appendix C or Attachment H), and (ii) the recommendations made in the SUMMARY REPORT (item [2]). The review comments also provide recommendations for improving the proposed well ordinance being considered by Sonoma County.

3. Review comments. Statements within quotation marks and written in italicized font were extracted from the PTRA delineation report (Appendix C or Attachment H) and the SUMMARY REPORT listed in page 1.

3.1 "*Salmonids have been found to be particularly sensitive to flow conditions in non-navigable tributary streams during periods of summer rearing*" (Page 1 of Appendix C).

Comment. The proposed well ordinance considers streamflow reduction in July – September. It is known from research in California streams by the California Department of Fish and Wildlife (CDF&W), and by the National Marine Fisheries Service (NMFS) that salmonids have instream flow requirements during the entire year. Table 1, for instance, lists the recommended instream flow requirements for the federally listed endangered southern California steelhead (*Oncorhynchus mykiss*) in reach 3 of the lower Ventura River and Coyote Creek (Ventura County, California):

[3] SUMMARY REPORT [item [2], page 15].
[4] SUMMARY REPORT [item [2], page 16].

Table 1. Recommended instream flow requirements for California steelhead (*Oncorhynchus mykiss*) in reach 3 of the lower Ventura River (Ventura County, California)[5].

Month(s)	Season	Reach 3 recommended flow (cfs)
January-May	Spawning/adult migration	33
June-September	Rearing	14
October	Rearing	14
November	Rearing	24
December	Spawning/Adult migration	33

The steelhead trout found in the Russian River of Sonoma County is also the species *Oncorhynchus mykiss*, which shares the riverine habitat with Coho salmon (*Oncorhynchus kisutch*) and Chinook salmon (*Oncorhynchus tshawytscha*)[6]. It is seen in Table 1 that the larger instream flow for steelhead is from December through May, and the lowest in stream flow is in the period June through September. In view of the recommended instream flow requirement listed in Table 1 it follows that the proposed well ordinance's consideration of streamflow reduction in July – September is arbitrary and not founded on scientific evidence establishing the instream flows need to create healthy aquatic habitat.

3.2. "*Non-navigable waters that do not support salmonids are not proposed for consideration in the permit process*" (Page 2 of Appendix C, Attachment H).

Comment. This decision to omit non-navigable waters that do not support salmonids from the permitting process seems arbitrary and capricious, especially when one considers the fact that three of Sonoma County groundwater basins (listed in Table 2) fall under the California Sustainable Groundwater Management Act's (SGMA's) designation of medium priority (Santa Rosa Valley-Santa Rosa Plain, and Petaluma Valley) and high priority (Napa-Sonoma Valley). These SGMA-regulated groundwater basins are in a state of overdraft, whereby the long-term volume of groundwater withdrawal exceeds the volume of groundwater recharge. The effect of overdraft is a long-term[7] trend of declining groundwater levels, reduction of groundwater storage, and, in the case of streams hydraulically connected to groundwater storage, this means possible streamflow depletion that can adversely impact wildlife habitat for species other than the steelhead and Coho salmon. The management of medium- and high-priority basins is governed by newly-formed groundwater sustainability agencies (GSAs) that develop groundwater sustainability plans (GSPs) intended to remediate groundwater overdraft by 2040. Yet, the permitting of wells in Sonoma County is done by Permit Sonoma. This Reviewer assumes that the proposed well ordinance would apply to all wells permitted in Sonoma County, including wells permitted in the medium- and high-priority groundwater basins listed in Table 2.

[5] California Department of Fish and Wildlife. (2021). Draft instream flow recommendations - Lower Ventura River and Coyote Creek, Ventura County. CDF&W, South Coast Region, San Diego, California.

[6] See https://caseagrant.ucsd.edu/russian-river-salmon-steelhead/russian-river-learning-center/russian-river-native-fish/

[7] Long-term trends extend over 20 years or longer periods.

Table 2. Characteristics of medium- and high-priority basins in Sonoma County. Source: SGMA basin prioritization dashboard (https://gis.water.ca.gov/app/bp-dashboard/final/).

	Groundwater Basin		
	Santa Rosa Valley – Santa Rosa Plain	Napa-Sonoma Valley	Petaluma Valley
Bulletin 118[8] basin number	1-055.01	2-002.02	2-001
Basin designation	Medium priority	High priority	Medium priority
Number of wells	7,008	1,287	1,145
Area (miles square)	125	72	72

The number of wells in the three groundwater basins listed in Table 2 adds up to 9,444 spread out over an area of about 269 mi^2. Sonoma County occupies 1,768 mi^2. Scaling the number of wells by the ratio of areas gives a projection of a county-wide number of well equal to 1,768/269 x 9,444, or about 62,000 wells. This projection is likely to overestimate the number of wells in Sonoma County because the density of wells is higher in the medium- and high-priority basins than in low-priority basins. The County of Sonoma Administrator's Office has estimated the number of wells in that county at roughly 45,000[9], which implies a per capita density of about 93 wells per thousand inhabitants, the highest in any California county. The proliferation of groundwater wells has significant implications for the cumulative impact of groundwater withdrawal on public-trust resources that are not considered in Appendix C (Attachment H) or the in well ordinance presented in the SUMMARY REPORT.

It is unreasonable for Appendix C to state that there are non-navigable waters in the groundwater basins listed in Table 2 that do not support salmonids, considering that non-navigable water that drain to non-navigable and navigable waters that support salmonids-based fisheries, which are public trust resources under the California Constitution. Equally unreasonable is the fact that the proposed well ordinance does not consider in its criteria for differentiating between ministerial and discretionary reviews the effect that new wells of any production capacity would have on the already overdrafted state of important groundwater basins in Sonoma County. Groundwater withdrawal in SGMA-regulated (medium- and high-priority) basins exceeds their safe yield (also known as basin yield, perennial yield[10]) and permitting of new wells would aggravate the cumulative effects of wells on the basins' overdraft and on public trust resources.

3.3. On well metering the SUMMARY REPORT states (page 14): "*Many technical and policy working group members advocated for metering of all wells including residential and domestic wells using less than 2.0-acre feet per year. One rational is that there is a lack of metered data on which to base estimates of water use for rural residential parcels. A mandatory metering program would help to fill the data gap and thus improve the accuracy of water use estimates and groundwater models that are used to simulate streamflow depletion and assess adverse impacts. Another rationale is that metering and reporting can*

[8] California's Groundwater Update 2020 Highlights (Bulletin 118, 2021) published by the California Department of Water resources.

[9] https://sonomacounty.ca.gov/county-unveils-resources-for-well-owners-impacted-by-drought#:~:text=Groundwater%20is%20an%20essential%20resource,of%20any%20county%20in%20California

[10] Loaiciga, H.A. (2017). The safe yield and climatic variability: implications for groundwater management. *Groundwater* 55, no. 3: 334–345.

encourage water conservation and facilitate permit compliance. Staff does not recommend mandatory metering of low water use residential wells. This recommendation is based on a number of factors including: (1) consistency with the Sustainable Groundwater Management Act;(2) public perception; and (3) implementation. Under the Sustainable Groundwater Management Act, de minimis extractors may not be metered. Recent public outreach in relation to fee studies by local groundwater sustainability agencies found that many rural residents oppose any mandatory metering of private wells and consider such a program an invasion of privacy. Similar observations were conveyed to staff by technical and policy working group members." De minimis wells, i.e., those using 2 or less acre feet annually may account for about one half of the wells in Sonoma County given the rural and semi-rural demographics of the county[11]. Yet, de minimis wells (or low water use wells) would be exempted from discretionary review under the proposed well ordinance in spite of their significant cumulative share of groundwater withdrawal in Sonoma County (see SUMMARY REPORT, item [2], page 11). Furthermore the proposed well ordinance would exempt metering the water use in low water use wells (de minimis extractors, see SUMMARY REPORT, item [2], page 14), thus institutionalizing the practice of not collecting accurate and reliable data with which to assess the cumulative impacts of existing and new wells on public trust resources and groundwater overdraft. It is noteworthy also that the proposed well ordinance would require monitoring of groundwater levels in wells using more than 5 acre feet of water annually (see SUMMARY REPORT, item [2], page 14). This Reviewer recommends (i) that all wells be metered regardless of their water use, and (ii) that groundwater levels be monitored in all wells using more than 2 acre feet annually, in order to compile accurate data with which to make sound resource management decisions. There are commercial vendors that provide automated groundwater-level monitoring services with imbedded capacity to compute streamflow depletion and the change in groundwater storage with arbitrary spatial and temporal resolution[12].

3.4 The proposed well ordinance neglects the cumulative effects of wells and well interference. In its page 7 the SUMMARY REPORT states that "*Under the proposed ordinance, water well permits located outside the Public Trust Review area will be ministerial and processed in a similar fashion as they are under the current ordinance. However, all water well permits (excluding public water wells and injection wells) will be subject to Level 1 water conservation requirements discussed below. Water well permits within the Public Trust Review Area will be subject to discretionary public trust review, unless the well qualifies as one of the ministerial well classes. Level 1 and 2water conservation requirements are dependent on the ministerial well class*". The proposed well ordinance would rely largely on level 1 and level water-conservation requirements and on a very small number of discretionary well reviews (less than 5% as stated in page 16 of the SUMMARY REPORT) to achieve protection of public-trust resources. At the same time, many wells would not be metered as discussed in review comment 3.3. The combination of a predominance of ministerial (i.e., routine) well reviews and inadequate well metering does not bode well for the protection of public-trust resources and groundwater resources in Sonoma County.

The proposed well ordinance does not have any provisions for evaluating the effects of proposed wells permitted in any given year on the overdraft conditions in SGMA-regulated groundwater basins or other low-priority groundwater basins that could become overdrafted. This is so because the proposed well ordinance does not consider the cumulative impacts of wells on public-trust resources and groundwater

[11] See also descriptions for basins 1-055.1, 2-002.02, and 2-001 in Bulletin 118.
[12] See, e.g., products offered by Groundswell Technologies.

storage. Governor Newson's executive order N-7-22 paragraph 9.a orders that no new-well or well-modification permits be issued unless groundwater extraction by the well is consistent with the sustainable groundwater management programs established for medium and high-priority basins. Furthermore, executive order N-7-22 paragraph 9.b prohibits issuing a permit for a new groundwater well or for alteration of an existing well without first determining that extraction of groundwater from the proposed well is (1) not likely to interfere with the production and functioning of existing nearby wells, and (2) not likely to cause subsidence that would adversely impact or damage nearby infrastructure. Executive order N-7-22's paragraphs 9.a and 9.b exempt wells that would withdraw less than two acre-feet per year of groundwater for individual domestic users, or that would exclusively provide groundwater to public water supply systems as defined in section 116275 of the Health and Safety Code.

Well interference is ignored in the proposed well ordinance, even though it is one the main causes of unsustainable groundwater withdrawal and the degradation of public trust resources. Well interference manifests itself by the deleterious effects that neighboring wells tapping the same aquifer have on each other as the cumulative groundwater extraction lowers hydraulic head and reduces groundwater storage, thus causing losses in the wells' yields. In addition, the aggregation of the wells' effects on the lowering of groundwater levels worsens streamflow depletion, and in the long causes land subsidence, seawater intrusion, and aridification (vegetation loss) depending on local and regional conditions. Well interference can be avoided or controlled by specifying adequate inter-well separation and by regulating the wells' pumping rates judiciously to avoid adverse impacts on public trust resources and on sustainable groundwater extraction in general. The proposed well ordinance does not address the issue of inter-well separation for new wells. The Groundwater Thresholds Manual for Environmental Review of Water Resources in Santa Barbara County provides a methodology to calculate thresholds of significance for proposed wells in overdrafted and over over-committed groundwater basins. There are relatively simple, peer-reviewed, methodologies to estimate the effect of well interference in groundwater basins[13,14].

3.5 "*The relationship between estimated groundwater pumping and estimated groundwater recharge as a predictor of streamflow depletion is derived from existing distributed hydrologic models of three watersheds that are calibrated using existing data to directly simulate streamflow depletion as a function of groundwater pumping (Kobor and O'Connor, 2016, Kobor et al., 2020; Kobor et al., 2021)*". (Page 3 of Appendix C or Attachment H).

Comment. O'Connor Environmental Inc. (OE Inc.) produced three reports dealing with Integrated Surface and Groundwater Modeling and Flow Availability Analysis for Restoration Prioritization Planning. The 2016 (Kobor and Connor, 2016), 2020 (Kobor et al., 2020), and 2021 (Kobor et al., 2021) reports dealt respectively with the Green Valley/Atascadero and Dutch Bill Creek Watersheds, the Upper Mark West Creek Watershed, and the Mill Creek Watershed, Sonoma County. The three studies applied the proprietary hydrologic model MIKE SHE. MIKE SHE can simulate the land phase of the hydrologic cycle and allows components to be used independently and customized to local needs. MIKE SHE evolved from the Système Hydrologique Européen (SHE) and has been extensively applied since 1977 by a consortium of the Institute of Hydrology (the United Kingdom), SOGREAH (France), and DHI

[13] Loáiciga, H.A. (2004). Analytic game-theoretic approach to groundwater management. Journal of Hydrology, 297, 22-33.
[14] Bear, J. (1979). Hydraulics of Groundwater. McGraw-Hill Publishing Co., New York.

(Danish Hydraulic Institute, Denmark). DHI currently supports the research and development of MIKE SHE and markets it.

The 2016[15], 2020[16], and 2021[17] studies by OE Inc. simulated hydrologic fluxes in water years 2010 through 2014 (the Green Valley/Atascadero and Dutch Bill Creek Watersheds), 2010-2019 (the Upper Mark West Creek Watershed), and 2010 – 2019 (the Mill Creek Watershed, Sonoma County), respectively. It is significant that these hydrologic simulation periods were marred by hydrologic drought. The 2016, 2020, and 2021 studies estimated water use in their respective watersheds indirectly by classifying it into the following categories: Residential, Vineyard Irrigation, Pasture Irrigation, Cannabis Irrigation, Irrigation of Other Miscellaneous Crops, Vineyard Frost Protection, and Winery Production and Visitation Use. The water use for each category was estimated on a per-assessor parcel basis and aggregated over the watershed. The estimation was made not by using metered data, but, rather, by applying presumptive unit water uses (e.g., per capita residential water use, or per acre applied water in irrigated lands, or water used per 1,000 cases of wine) on a per-parcel basis. The estimated water use is shrouded by uncertainty given the paucity of actual measured data.

Limited data availability affected other facets of the MIKE SHE implementation in the 2016, 2020, and 2021 OE Inc. studies. Of particular relevance in this respect is the paucity of streamflow data. Kobor & O'Connor (2016), page 68, stated the following: *"The available stream flow gauging data consists of data from three stations operated by the Center for Environmental Management and Restoration (CEMAR) in the DBC watershed, five stations operated by CEMAR in the GVC watershed, and three stations operated by the National Marine Fisheries Service (NMFS) in the AC watershed. The periods of record are short (Water Year 2010 or 2011 to present) at all of these gauges and complete rating curves extending throughout the range of recorded flow were not available for any of them".* Kobor et al. (2020), page 79, stated the following: *"Several stream gauges have been operated in the watershed at various times over the past ten years including a series of gauges installed in 2010 by the Center for Ecosystem Management and Research (no longer in existence); some of which were re-established by Trout Unlimited (TU) in 2018. In 2018, Sonoma Water established several new gauges to serve as a warning system for potentially hazardous post-fire runoff events and the CRWI installed a gauge on lower Monan's Rill in the upper watershed. Additionally, OEI installed two gauges on upper Monan's Rill tributaries in 2017 and gauging in and near Humbug Creek has also been undertaken by CDFW in recent years".*

It is noteworthy that the 2016, 2020, 2021 OE Inc. studies did not use quality-controlled streamflow data such those collected at USGS stream gauges where long-term flow and stage data are recorded, and from which flow-duration curves and flood-frequency analysis can be derived. Therefore, the modeling results reported in the 2016, 2020, and 2021 OE Inc. are of questionable validity.

Another limitation of the 2016, 2020, and 2021 OE Inc. studies is that they performed hydrologic simulation studies during drought periods, and this raises questions about the climatic representativeness

[15] Kobor, J., O'Connor, M. (2016). Integrated Surface and Groundwater Modeling and Flow Availability Analysis for Restoration Prioritization Planning, Green Valley\Atascadero and Dutch Bill Creek Watersheds, Sonoma County, California, 149 p.

[16] Kobor, J., O'Connor, M., and Creed, W. (2020). Integrated Surface and Groundwater Modeling and Flow Availability Analysis for Restoration Prioritization Planning, Upper Mark West Creek Watershed, Sonoma County, California, 234 p.

[17] Kobor, J., O'Connor, M., and Creed, W. (2021). Integrated Surface and Groundwater Modeling and Flow Availability Analysis for Restoration Prioritization Planning, Mill Creek Watershed, Sonoma County, California, 198 p.

of their results. Climatically representative periods for the purpose of hydrologic model calibration and validation are those that include dry, wet, and average sub-periods, and extend commonly for at least 20 years (see footnote 8) in regions with high interannual climatic variability such as Sonoma County. Therefore, the modeling results reported in the 2016, 2020, and 2021 OE Inc. are of questionable validity.

3.6 Groundwater Recharge, Pumping, & the Pumping Ratio: Appendix C (Attachment H), pages 8, 9, 10.

Comment. The Appendix C (Attachment H) presents a formula (2) in page 8, which is as follows:

Groundwater Recharge ≅ Streamflow + Groundwater pumping ± change in storage *(2)*

Formula (2) is incorrect. It ignores the evapotranspiration from aquifers. It is stated in Appendix C (page 8) that: "*Over the long-term, changes in storage and recharge generally stabilize such that the majority of water supplied to wells is balanced by streamflow depletion (Barlow & Leake, 2012). Cumulative streamflow depletion increases in proportion to cumulative groundwater pumping. As the rate of groundwater pumping approaches the rate of groundwater recharge, streamflow approaches zero; this scenario is equivalent to a ratio of groundwater pumping to groundwater recharge equal to one. From these relationships, it can be seen that the ratio of groundwater pumping to groundwater recharge (i.e., groundwater pumping divided by groundwater recharge) provides an objective, hydrologically significant, indicator of the relative magnitude of streamflow depletion occurring in a given watershed*." The statement that "*As the rate of groundwater pumping approaches the rate of groundwater recharge, streamflow approaches zero*" is not correct because the 2016, 2020, and 2021 OE Inc. studies did not cover long-term hydrologic simulation periods and they ignored evapotranspiration. In fact, the hydrologic simulation periods were all less than ten years long and, therefore, the change in storage shown in the right-hand side of equation (2) is not likely to vanish because of the shortness of the hydrologic simulation periods (i.e., they are not climatically representative). Including evapotranspiration and letting the rate of groundwater pumping approach the rate of groundwater recharge we have that:

Streamflow ≅ - change in storage – evapotranspiration, when Groundwater Recharge ≅ Groundwater pumping, and not:

Streamflow ≅ 0, when Groundwater Recharge ≅ Groundwater pumping as claimed by the Appendix C.

If one includes the evapotranspiration, averages the annual fluxes appearing in formula (2) over many years (more than 20 years), and assumes that the average long-term change in storage approaches zero one obtains:

$$\overline{R} \cong \overline{Q} + \overline{P} + \overline{ET} \qquad (A)$$

in which $\overline{R}$, $\overline{Q}$, $\overline{P}$, and $\overline{ET}$ denote the average annual groundwater recharge, average annual streamflow, average annual groundwater pumping, and average annual evapotranspiration, respectively. Dividing the left-hand and right-hand sides of equation (A) by the average annual recharge and solving for the pumping ratio ($\overline{P}/\overline{R}$) one obtains:

$$\frac{\overline{P}}{\overline{R}} \cong 1 - \left(\frac{\overline{Q} + \overline{ET}}{\overline{R}}\right) \qquad (B)$$

Neglecting the average annual evapotranspiration, it follows that:

$$\frac{\bar{P}}{\bar{R}} \cong 1 - \left(\frac{\bar{Q}}{\bar{R}}\right) \quad \text{(C)}$$

Formula (C) states that under the assumption of a long-term average annual change in groundwater storage equal to zero and average annual evapotranspiration equal to zero then there is an approximate linear relation between the pumping ratio and the ratio of average annual streamflow to the average annual recharge. This Reviewer believes that Appendix C proposes to exploit the relation implied by formula (C) between the pumping ratio and the average annual streamflow divided by the average annual recharge. However, there are strong assumptions underlying formula (C). Those assumptions do not conform with the conditions that existed in the watersheds modeled by the 2016, 2020, and 2021 OE Inc. studies, and therefore, the modeling results reported in the 2016, 2020, and 2021 OE Inc. are of questionable validity.

Based on the assumption that "*the ratio of groundwater pumping to groundwater recharge (i.e., groundwater pumping divided by groundwater recharge) provides an objective, hydrologically significant, indicator of the relative magnitude of streamflow depletion occurring in a given watershed*" made in Appendix C, page 8, Appendix C estimated the pumping ratio in the watersheds studied by Kobor and O'Connor (2016), and Kobor et al. 2020, 2021, calculated the mean July-September streamflow depletion with the MIKE SHE hydrologic model in the same watersheds, and fitted a regression equation between the model-calculated streamflow depletion and the estimated pumping ratios. The results are presented in Figure 7 of the Appendix C, which presents the following regression equation between the July-September streamflow depletion and the pumping ratio:

Streamflow depletion (% on unimpaired flow) = 2.19 pumping ratio (fractional) – 0.030 (D)

Formula (D)'s applicability is circumscribed to a pumping ratio less than 16% and streamflow depletion less than 35% (see Figure 7 of the Appendix C). Formula (D) implies that a pumping ratio equal to 0.0137 would produce zero streamflow depletion in watersheds that meet the assumptions that lead to the construction of formula (D). Formula (D) relates the streamflow depletion that is, the reduction or change of streamflow with respect to unimpaired streamflow (i.e., streamflow that is not affected by surface diversions or imports, groundwater pumping, or reservoir regulation of streamflow) to the pumping ratio. For this reason one must rewrite formula (C) in terms of changes in variables, i.e.:

$$\Delta\left(\frac{\bar{P}}{\bar{R}}\right) \cong -\Delta\left(\frac{\bar{Q}}{\bar{R}}\right) \quad \text{(E)}$$

Formula (E) establishes that change in the pumping ratio is related to the change in the streamflow ratio (the streamflow divided by the recharge). This is in contrast to formula (D) used in Appendix C, which must be viewed as an empirical regression formula not based on actual physical causation effects between the pumping ratio and the streamflow depletion.

The above comments establish that Appendix C's proposed methodology to estimate streamflow depletion based on the pumping ratio is questionable because of its reliance on poor data availability, nonrepresentative climatic periods, and the lack of sound theoretical foundation. One must knowledge, however, that Appendix C's methodology to predict streamflow depletion based on the pumping ratio is better than having no approach for estimating streamflow depletion in Sonoma County. It has been said in relation to the use of empirical regression formulas such as formula (D) used in Appendix C that "correlation is not causation, but it might be useful."

It is noteworthy that there are analytical formulas that estimate streamflow depletion by wells of known pumping rate and location relative to stream reaches. These formulas are much easier to use than complex models such as MIKE SHE and GSFLOW[18]. The latter models are data-intensive and require a level of knowledge in spatial and hydrologic modeling possessed only by specialized technical personnel. There are analytical formulas for calculating streamflow depletion such as the Glover and Balmer (1954)[19], Jenkins (1968)[20], and the Hunt (1999)[21] formulas, among others.

3.7 Calibration and Validation of the OE Inc. MIKE SHE 2016, 2020, 2021 models. Read Appendix C (Attachment H) pages 15 and 16.

Comment. The 2016, 2020, and 2021 OE Inc. studies report calibration results for the MIKE SHE model. This means that estimated or observed groundwater level data and streamflow data were compared with model-simulated data corresponding to the chosen calibration period. This comparison was made to adjust the parameters (e.g., aquifer parameters, streambed conductance, etc.) that the user must specify in the MIKE SHE model. This process of adjusting model parameters until the model produces reasonable agreement between simulated data and estimated/observed data is called model calibration. Once a hydrologic model is calibrated it must be validated (or tested)[22]. Model validation (or testing) is successful if the calibrated model produces simulated data that are in reasonable agreement with observed groundwater level data, streamflow data, and other observed data that are different from those data used in the calibration phase. It is imperative that the data used in model calibration differ from the data used in model validation[23]. A properly calibrated and validated model can predict accurately hydrologic variables such as streamflow depletion in periods other than the calibration period.

An example of a calibrated/validated hydrologic model that simulates groundwater level and streamflow depletion in salmonid-supporting streams is the GSFLOW model implemented by Geosyntec and DBS&A for the Ventura River, Ventura County, California[24]. This model used a simulation period from 1993 through 2017. The calibration and validation periods covered water years 1998-2017 and 1994-1997, respectively.

The 2016, 2020, and 2021 OE Inc. studies did not validate their calibrated MIKE SHE models. Therefore, their predictive skill cannot be warranted outside the range of pumping ratio (equal to the ratio of average annual pumping to average annual recharge) and streamflow depletion considered in the 2016, 2020, and 2021 OE Inc. studies. Figure 8 of the Appendix C (or Attachment H) is worthy of analysis with respect to its implications for the PTRA delineation:

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[18] Rohde, M. (2022). A proposal for assessing well impacts to public trust resources: Methodological Outline. Seattle, WA.
[19] Glover, R.E., and G.G. Balmer. (1954). River depletion resulting from pumping a well near a river. *Eos, Transactions American Geophysical Union* 35, no. 3: 468–470. https://doi.org/10.1029/TR035i003p00468
[20] Jenkins, C.T. (1968). Computation of Rate and Volume of Stream Depletion by Wells, Techniques of Water-Resources Investigations of the U.S. Geological Survey, Book 4 Hydrologic Analysis and Interpretation, 21 p.
[21] Hunt, B. (1999). Unsteady stream depletion from ground water pumping. *Groundwater* 37, no. 1: 98. https://doi.org/10.1111/j.1745-6584.1999.tb00962.x
[22] Klemeš, V. (1986). Operational testing of hydrological simulation models, Hydrological Sciences Journal, 31:1, 13-24.
[23] See, e.g., Kelleher, J.D., Tierney, B. (2018). Data Science. The MIT Press, Cambridge, Massachusetts.
[24] Geosyntec and DBS&A. (2021). Draft model documentation report for the groundwater-surface water model of the Ventura River watershed.

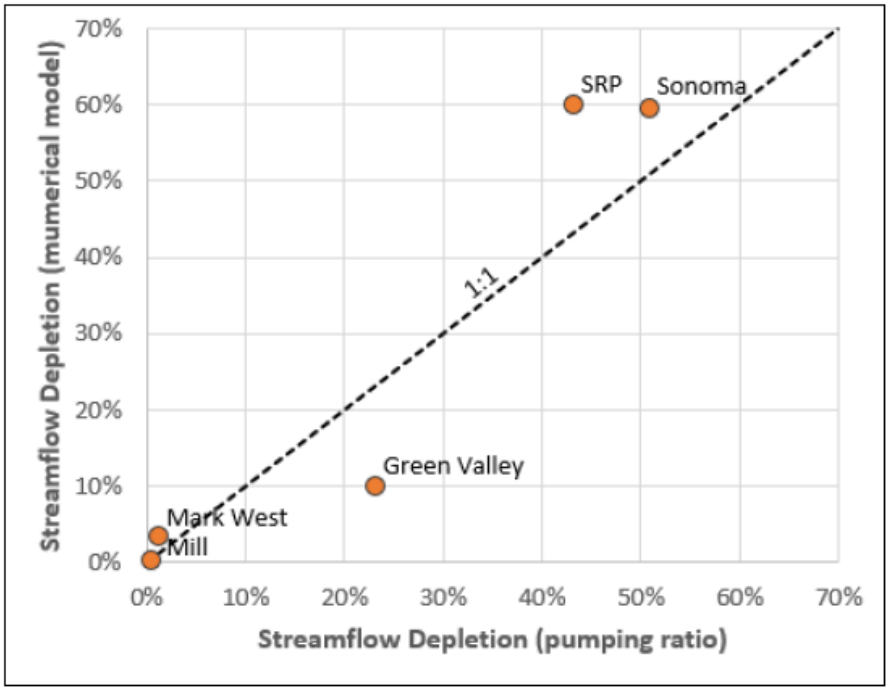

Figure 8: Comparison between summer (July-September) streamflow depletion estimated with the pumping ratio approach used to inform the PTRA mapping and estimates obtained from available numerical models.

The streamflow depletion plotted on the horizontal axis of Figure 8 was calculated with formula (D) presented above. The streamflow depletion plotted on the vertical axis of Figure 8 was calculated with numerical hydrologic models (MIKE SHE for Mill, Mark West, and Green Valley, GSFLOW for SRP, and MODFLOW-2000 for Sonoma, see below).

The Green Valley (Kobor and O'Connor, 2016), the Mark West (Kobor et al., 2020), and the Mill Creek (Kobor et al., 2021) studies' results graphed in Figure 8 indicate that the calibration results were limited to relatively low streamflow depletion (equal to or less than 25% of unimpaired flow). It is misleading to use Figure 8 as a validation of the MIKE SHE results obtained by Kobor and O'Connor (2016) and Connor et al. (2020, 2021). Figure 8 does not constitute model validation, as claimed in the Appendix C (pages 15 and 16). It simply shows that the 2016, 2020, and 2021 OE Inc. results cover different ranges of streamflow depletion than those obtained by GSFLOW modeling of the Santa Rosa Plain(SRP) [25]and MODFLOW-2000 modeling of the Sonoma Valley[26] by USGS hydrologists. There was nothing presented in the 2016, 2020, and 2021 OE Inc. results that would demonstrate that MIKE SHE model applications would provide results comparable to those reported by the USGS had the MIKE SHE model been calibrated, validated, and applied to the Santa Rosa Plain and Sonoma Valleys. Furthermore, Figure 8 does not prove that if the MIKE SHE models calibrated in Kobor and O'Connor (2016) and Connor et

[25] Farrar, C.D., Metzger, L.F., Nishikawa, T., Koczot, K.M., and Reichard, E.G. (2006). Geohydrological Characterization, Water Chemistry, and Ground-Water Flow Simulation Model of the Sonoma Valley Area, Sonoma County, California, U.S. Geological Survey Scientific Investigations Report 2006-5092.

[26] Woolfenden, L.R., and Nishikawa, T. (2014). Simulation of Groundwater and Surface-Water Resources of the Santa Rosa Plain Watershed, Sonoma County, California, U.S. Geological Survey Scientific Investigations Report 2014-5052.

al. (2020, 2021) were applied with data different to those employed in the calibration period they would produce accurate predictions of streamflow depletion.

The introduction of a 1:1 (a 45-degree line) in Figure 8 is misleading for the purpose of proving or claiming to prove MIKE SHE model validation. Such a line would only make sense if it were used for evaluating the accuracy of streamflow depletion calculated with a pumping ratio vs streamflow depletion formula (derived with validated MIKE SHE models) by comparing it with measured streamflow depletion or with streamflow depletion calculated with validated hydrologic models (MIKE, GSLOW, MODFLOW-2000 or others) over a wide range of streamflow depletion.

3.8 PTRA decision matrix and streamflow depletion. Table 1, Appendix C (Attachement H), pages 17, 18, 19.

Comment. Table 1 of Appendix C (see next page) provides the criteria for public trust review area (PTRA) delineation. Table 1 of Appendix C is used in conjunction with Figure 1 of the SUMMARY REPORT (page of the report), and both of them summarize the public-trust review process of the proposed well ordinance. Table 1 of Appendix C delineates or defines three types of areas within Sonoma County:

(1) **low-risk areas** where well permitting would be ministerial (routine) but water use would be subjected to level 1 water conservation requirements. These are areas where (i) there is Low Habitat Value and Sensitivity and the streamflow depletion (relative to unimpaired conditions) may be up to 100%, or (ii) where there is Moderate Habitat Value and Sensitivity and the streamflow depletion is less than 10%;
(2) **moderate-risk areas** where there is High Habitat Value and Sensitivity and the streamflow depletion is less than 10%, or areas where there is Moderate Habitat Value and Sensitivity and the streamflow depletion is in the range 10 to 20%. Buffer zones (i.e., a minimal distance between a well and a stream) would be required for well permitting in moderate-risk areas. Well permitting in these areas may be ministerial if it is an injection well, a public water well, a surface-water diversion well with level 1 water-conservation requirements, a well in a low-water use parcel with level 1 water-conservation requirements, or an existing use or zero net increase well with level 1 and 2 water-conservation requirements (see Figure 1 of the SUMMARY REPORT, item [2]);
(3) **high-risk areas** where there is Moderate Habitat Value and Sensitivity and the streamflow depletion exceeds 20%, or areas where there is High Habitat Value and Sensitivity and the streamflow depletion is 10% or more, or areas there is Very High Habitat Value and Sensitivity regardless of the magnitude of streamflow depletion. Well permitting in these areas may be ministerial if it is an injection well, a public water well, a surface-water diversion well with level 1 water-conservation requirements, a well in a low-water use parcel with level 1 water-conservation requirements, or an existing use or zero net increase well with level 1 and 2 water-conservation requirements (see Figure 1 of the SUMMARY REPORT, item [2]).

It is pertinent to stress that the PTRA delineation is based on the streamflow depletion formula (D), reviewed above, which was proposed in Appendix C to calculate the streamflow depletion based on the pumping ratio defined above. The Low SFD ([0, 10%[), Medium SFD ([10, 20%]), and High SFD (> 20%) defined in Table 1 of Appendix C (Attachment H) represent the streamflow depletion (SFD) as a percentage of the unimpaired streamflow in a stream reach.

Table 1: PTRA matrix indicating how areas were treated based on the results of the resource sensitivity and existing streamflow depletion classes.

	Low SFD (0 – 10%)	Medium SFD (10 – 20%)	High SFD (>20%)
Low Habitat Value	Low Risk Area Not included in PTRA	Low Risk Area Not included in PTRA	Low Risk Area Not included in PTRA
Moderate Habitat Value	Low Risk Area Not included in PTRA	Moderate Risk Area Stream buffers	High Risk Area Sub-watershed
High Habitat Value	Moderate Risk Area Stream buffers	High Risk Area Sub-watershed	High Risk Area Sub-watershed
Very High Habitat Value	High Risk Area Sub-watershed	High Risk Area Sub-watershed	High Risk Area Sub-watershed

The Appendix C (Attachment H) states in its page 19 the following concerning the buffer distance in moderate-risk areas: *"Based on this analysis, this distance is ~100 ft for the Franciscan Complex, ~250 ft for the Sonoma Volcanics, and ~750 ft for the Wilson Grove Formation and alluvial sediments."* The distance referred to in Appendix C is the shortest distance between a well and a stream, which defines the buffer zone for a well near a stream. The method applied in Appendix C to calculate the buffer distance is explained in the section entitled Stream Buffers Distance (see pages 17, 18, 19 of Appendix C).

Appendix C (Attachment H) arbitrarily selected (i) a streamflow depletion factor (SDF) equal to 30 days[27] and (ii) a pumping rate for wells near stream varying between 28 and 31 gallons per minute (gpm) maintained for 24 hours on the first day of each month (see Figure 9 of Appendix C) for the purpose of setting the buffer distances in moderate-risk areas. The SDF is a relative measure of how rapidly streamflow depletion occurs in response to a new pumping stress[28]. It does not measure the magnitude of streamflow depletion. The chosen SDF and pumping rate were applied with the Jenkins (1968) formula to calculate the buffers zones equal to 100 ft, 250, and 750 ft cited above for various geologic formations. One could have chosen instead, and more conservatively for the purpose of calculating buffer distances, a SDF equal to 100 days and this would produce buffer zones equal to about 200 ft, 460 ft, and 1400 feet instead of the Appendix-C recommended 100 ft, 250, ft, and 750 ft. The point being highlighted here is that the buffer zones must be calculated based on specific well and stream reach conditions, and considering the cumulative effects that are aggregated as new wells are installed near stream reaches already impacted by existing wells. One new well can be found to have a small effect on streamflow depletion and be permitted; yet, an analysis of the effect of well pumping considering the cumulative effects of the existing and proposed wells affecting a stream reach could reveal a significant and unacceptable magnitude of streamflow depletion.

3.9 Public Trust Review Permitting Framework. Figure 1, Page 7 of the SUMMARY REPORT.

[27] The SDF has units of time, and it equals d^2/D, where d and D denote respectively the shortest distance between a well and a stream and the aquifer diffusivity.

[28] Barlow, P.M., S.A. Leake. (2012). Streamflow depletion by wells: understanding and managing the effects of groundwater pumping on streamflow. U.S. Geological Survey Circular 1376.

Comment. Figure 1, page 7, of the SUMMARY REPORT summarizes the proposed public trust review process for new wells or well modifications in Sonoma county. See Figure 1 next:

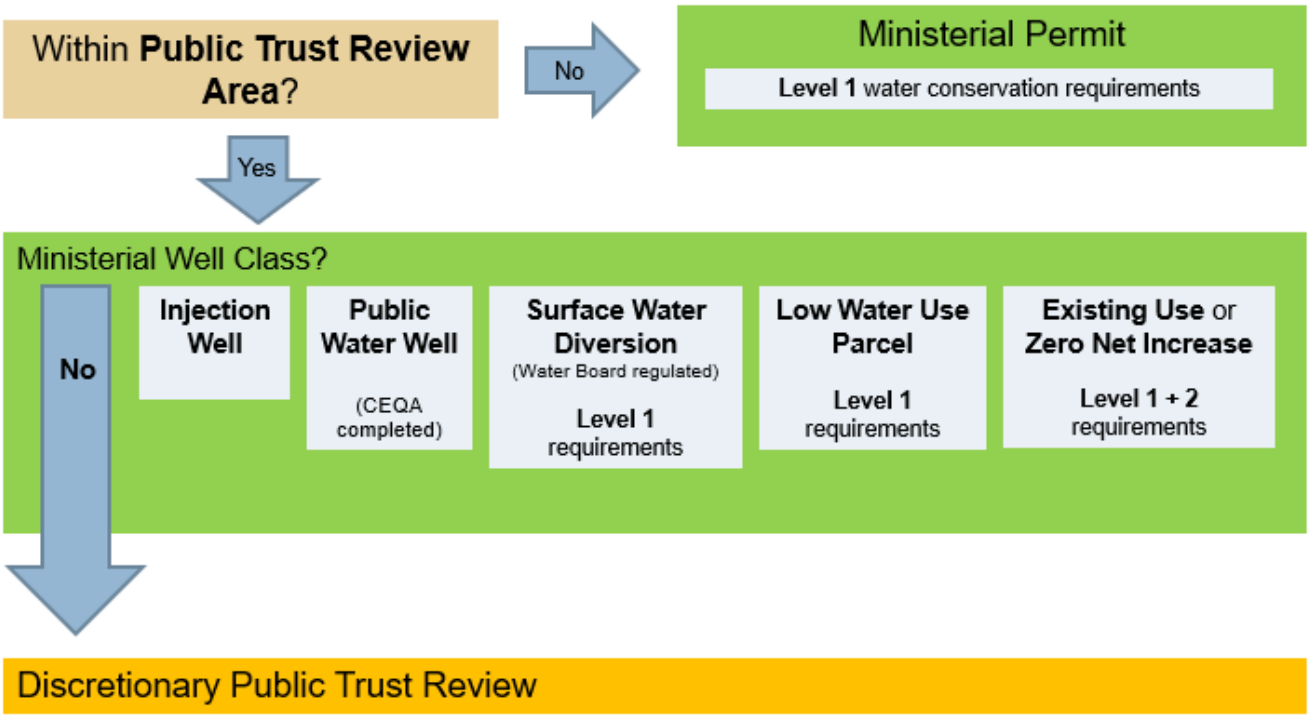

Figure 1 of the SUMMARY REPORT is used in conjunction with its Table 1, page 23, which is nearly identical to Table 1 of the Appendix C (attachment H) discussed in comment 3.8.

Table 1: Public trust decision framework indicating which areas were included in the Public Trust Review Area based on the results of the resource sensitivity and existing streamflow depletion classes.

Habitat Value and Sensitivity	Low Streamflow Depletion (0 – 10%)	Moderate Streamflow Depletion (10 – 20%)	High Streamflow Depletion (>20%)
Low	Not included	Not included	Not included
Moderate	Not included	Stream buffers	Sub-watershed
High	Stream buffers	Sub-watershed	Sub-watershed
Very High	Sub-watershed	Sub-watershed	Sub-watershed

It is commendable that the County of Sonoma is considering adopting a well ordinance that would protect its public-trust resources. Figure 1 and Table 1 of the SUMMARY REPORT synthetize the well ordinance. Our analysis of Appendix C (Attachment H) and the proposed well ordinance presented in the SUMMARY REPORT revealed several shortcomings:

(i) The use of fragmentary, insufficient, and poor-quality data about streamflow, water use, and groundwater levels employed in hydrologic modeling periods that were not climatically representative. The modeling approach of Appendix C did not account for data uncertainty.

(ii) The application of unsound methodologies to implement the MIKE SHE hydrologic model to construct a predictive formula for streamflow depletion based on the pumping ratio. The MIKE SHE hydrologic model was calibrated with limited data and it was not validated for prediction purposes.

(iii) The arbitrary definition of buffer zones to protect stream reaches in which there is a combination of (i) Moderate-habitat Value and Sensitivity with Streamflow Depletion in the range 10% to 20% % relative to unimpaired streamflow, and (ii) High-habitat Value and Sensitivity with Streamflow Depletion less than 10% relative to unimpaired streamflow. Buffer zones were not defined for other combinations of Habitat-vale and Sensitivity with Streamflow Depletion, such as very High-habitat Value and Sensitivity with High- Streamflow Depletion.

(iv) Not reporting the values of unimpaired streamflow in stream reaches with Moderate-, High-, and Very High- value Habitat Value and Sensitivity. The unimpaired streamflow values are necessary to calculate the streamflow depletion within stream reaches. The unimpaired streamflow in a stream reach occurs when the stream reach is not affected by groundwater withdrawal, by surface-water diversions and imports, and by reservoir regulation of streamflow.

(v) Ignoring the cumulative impacts of wells installed near impacted stream reaches with Moderate- and High-habitat Value and Sensitivity.

(vi) Failing to connect the protection of public trust resources with the management of medium- and high-priority groundwater basins.

(vii) Failing to address the cumulative impacts of wells in Sonoma County groundwater basins.

It is possible to improve the MIKE SHE model applications reported in Appendix C (Attachment H) by (i) improving the model input data, (ii) re-calibrating and validating the MIKE SHE model, and (iii) calculating through climatic and hydrologic analyses and modeling the unimpaired streamflow along stream reaches impacted by groundwater withdrawal.

Our review of the SUMMARY REPORT outlining the proposed well ordinance to be considered by Sonoma County revealed several shortcomings:

(i) The SUMMARY REPORT states in page 16 "*Under the proposed ordinance, most well permits will be ministerial, less than 5% are expected to require discretionary review"*. The implication of this projection is profound. It basically means that unless the implementation of the level 1 and level 2 water-conservation requirements[29] is successful the proposed well ordinance would accomplishment next to nothing in conserving public trust resources because, on average, fewer than 5 wells among every 100 wells would undergo discretionary review.

(ii) The SUMMARY REPORT is nearly silent about what a discretionary review would entail. It simply states in its page 15 that "*for discretionary permits, staff exercises discretion and judgment on a case-by-case basis to see if more subjective ordinance standards are met and can impose conditions on the*

[29] The level 1 and level 2 water conservation requirements are listed in pages 19 and 20 of the report.

permit to help meet such standards. Discretionary permits are thus subject to ordinance requirements and may also be subject to additional conditions."

(iii) The proposed well ordinance recommends metering of wells with annual water use larger than 2 acre feet and monitoring of the groundwater level in wells using more than 5 acre feet annually (SUMMARY REPORT, item [2], page 14), thus institutionalizing the practice of not collecting accurate, comprehensive, and reliable data with which to assess the cumulative impacts of existing and new wells on public trust resources and groundwater overdraft.

(iv) The proposed well ordinance's reliance on 1 and level 2 water-conservation requirements to achieve the protection of public-trust resources without comprehensive well metering would be ineffective.

(v) The proposed well ordinance would result in the predominance of ministerial (i.e., routine) well reviews and inadequate well metering that would be ineffective in protecting public-trust and groundwater resources in Sonoma County. This Reviewer recommends (i) that all wells be metered regardless of their water use, and (ii) that groundwater levels be monitored in all wells using more than 2 acre feet annually, in order to gather accurate, comprehensive, and reliable data with which to make sound public-trust resources and groundwater management decisions.

Attachment B

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4 August 2022

Subject: CALIFORNIA COASTKEEPER ALLIANCE COMMENTS ON THE PROPOSED AMENDMENT TO THE SONOMA COUNTY CODE CHAPTER 25B (WELL ORDINANCE)

To Sonoma County Board of Supervisors:

Thank you for the opportunity to comment on the proposed Amendment to the Sonoma County Code Chapter 25B (Well Ordinance).

The proposed amendment is a response to California Coastkeeper Alliance's (CCKA) Writ Action against the County. CCKA's lawsuit seeks to apply the 2018 *Environmental Law Foundation v. State Water Resources Control Board* ("ELF") decision clarifying the County's affirmative duty to take the public trust into account in the planning and allocation of groundwater well permits, as well as its continuing authority over permitted extractions. CCKA is pleased that the County is taking the first step towards meeting its public trust duties in regulating use of groundwater connected to surfaces waters. The County's acknowledgement of its public trust duty to protect salmon and other species in Sonoma County creeks and rivers, confirmation of the County's discretion to reject wells harming public trust resources, and the County's commitment to gauging new wells, are all important milestones.

Yet, as proposed by staff, the amendment adds only general language relating to Sonoma County's public trust duties and does not identify or address any public trust resources or uses in Sonoma County Creeks and rivers, including specifically the Russian River system. Further, the

proposed amendment fails to evaluate or address the ongoing and cumulative harms of existing permitted wells, or to define permitting criteria adequate to protect public trust resources. Moreover, contrary to the Notice of Categorical Exemption filed by the Sonoma County Permit and Resource Management Department ("Permit Sonoma"), the proposed amendment is subject to CEQA review prior to adoption. Therefore, rejection of the proposed amendment to the Sonoma County Code Chapter 25B (Well Ordinance) as submitted is both appropriate and required by law.

There is no reasonable debate that current levels of groundwater extraction in Sonoma County are unsustainable, and that a critical public trust resource—salmon—are at risk of extinction from that extraction. To protect this critical resource, and to comply with the law, the County must do more than state hopeful generalities. A well permitting ordinance that would meet the County's public trust duties and protect public trust resources in Sonoma County–including endangered salmon–must include at least the following elements:

1) A methodology for determining whether a proposed well will impact public trust resources, given current and future conditions, using modeling;
2) A requirement for gauging and metering on all wells across Sonoma County, including gauging on existing wells and around already impacted river and creek reaches sufficient to calibrate and verify the model;
3) Reference to and application of instream flow standards for all Sonoma County creeks to protect public trust resources that will be used in evaluating impacts to and establishing appropriate mitigation of harms to public trust resources from groundwater extractions;[1]
4) Reference to and application of groundwater level-based criteria that protect public trust resources and go beyond the Santa Rosa Plain GSP Minimum Threshold Levels to protect public trust resources;[2]
5) A requirement that any low volume domestic well or emergency well exempted from public trust review and limitations comply with specific mitigation measures intended to protect against potential public trust impacts (e.g., requirements to meet water conservation standards, limitations on use based on contribution to cumulative impacts on surface flows and public trust resources);;
6) A commitment to undertake and complete a study that will evaluate the cumulative impacts for all wells, and a mechanism to account for these impacts when permitting new wells and mitigating the impacts of current and existing groundwater impacts;

[1] While California Department of Fish and Wildlife and the State Water Resources Control Board develop and approve instream flow standards for Sonoma County creeks, use of National Marine Fisheries Service Bi-op standards, as well as modeled pre-pumping flows as developed by the Nature Conservancy can act as protective standards

[2] As explained below, the California Department of Fish and Wildlife's recent comment letter confirms that the MTs proposed in the SRPGSP do not protect salmonids in the Russian River system.

7) A program and mechanisms to be applied to both existing and future permitted wells countywide to restore instream flows and groundwater use to sustainable levels.

Therefore, Coastkeeper urges the Board return the draft amendment to staff, and to provide detailed direction as to the content and analysis required to protect Sonoma County's precious resources and to comply with law. Further, Coastkeeper urges the County to pause issuance of further groundwater extraction permits to prevent further harm to salmonids until an amended ordinance adequate to preserve instream flows for fish is implemented. Finally, we urge Sonoma County to suspend permit issuance unless and until the data and analysis are available to identify and mitigate impacts to surface waters from groundwater wells in Sonoma County rivers and creeks.

Coastkeeper looks forward to working with the Board to meet its duties and to protect public trust resources.

EXECUTIVE SUMMARY

Sonoma County has an ongoing duty to protect public trust resources—and specifically endangered salmon and other aquatic species—in Sonoma County. The County's duty extends to regulation of well permits where groundwater is connected to surface waters that support public trust resources. Further, the County must comply with CEQA when taking action that impacts the environment.

Every agency, scientist, non-profit, or consultant that has examined the issue confirms that salmonids in Sonoma County waters are severely impacted by low instream flows and high water temperatures and are threatened with extinction. Further, all available data confirms that current levels of groundwater pumping are causing or contributing to those low instream flows. Yet the proposed amendment fails to protect those endangered public trust resources. The proposed amendment provides only a vague prohibition on new wells impacting public trust resources, with no identification of those resources, or any methodology for evaluating or preventing impacts to salmon. Further, the proposed amendment includes significant exemptions from public trust analysis or mitigation, without analysis or factual support, and authorizes even broader future exempted categories of wells. As developed by staff, the proposed amendment also fails to comply with CEQA. Even as current levels of pumping have been killing and continue to kill fish, the proposed ordinance authorizes additional pumping near impacted creeks. There is no reasonable debate that the proposed amendment impacts the environment in Sonoma County. And because the proposed amendments modify the ordinance regulating construction of wells—wells with established cumulative impacts—no exemptions to CEQA apply.

I. <u>Legal Background</u>

A. The Public Trust Doctrine

The public trust doctrine is an "affirmation of the duty of the state to protect the people's common heritage of streams, lakes, marshlands and tidelands," enabled by its "authority as sovereign to exercise a continuous supervision and control." (*Nat. Audubon Society v. Super. Ct.* ("*Audubon*") (1983) 33 Cal.3d 419, 441, 425.) The legal concept that certain resources (e.g. navigable waters) and resource uses (e.g. commerce, fishing) must be preserved for the benefit of the public dates back as far as early Roman and English law. (*Id*. at pp. 433–34; Joseph L. Sax, *The Public Trust Doctrine in Natural Resource Law: Effective Judicial Intervention,* 68 Mich. L. Rev. 471 (1970).) The United States Supreme Court established in *Illinois Central Railroad v. Illinois* (1892) 146 U.S. 387 that states hold the land under navigable waters "in trust for the people of the State, in order that they may enjoy the navigation of the waters and carry on commerce over them." (*Envtl. Law Found. v. State Water Res. Control Bd.* ("*ELF*") (2018) 26 Cal.App.5th 844, 856–57 (quoting *Long Sault Development Co. v. Call* (1916) 242 U.S. 272, 278–79).) One of the most important public trust uses is "the preservation of those lands in their natural state, so that they may serve as ecological units for scientific study, as open space, and as environments which provide food and habitat for birds and marine life, and which favorably affect the scenery and climate of the area." (*Marks v. Whitney* (1971) 6 Cal.3d 251, 259–260.)

The public trust doctrine is codified in the California Constitution, which states that "[u]se of the people's waters is of vital public concern, and all waters shall be managed for the greatest public benefit." (Cal. Const., art. X, § 2.) The California Water Code implements this Constitutional mandate by providing that "All water within the State is the property of the people of the State" (§ 102) and that "the State shall determine what water of the State, surface and underground, can be converted to public use or controlled for public protection" (§ 104), as well as "in what way the water of the State, both surface and underground, should be developed for the greatest public benefit" (§ 105). A property right in water granted by the state is "only a usufruct—an interest that incorporates the needs of others" and it is the State's responsibility to account for "the public nature and the interdependency which the physical quality of the resource implies." (*ELF*, 26 Cal.App.5th at p. 856.) "[P]arties acquiring rights in trust property generally hold those rights subject to the trust, and can assert no vested right to use those rights in a manner harmful to the trust." (*Audubon*, 33 Cal.3d at p. 437.)

A county is a legal subdivision of the state and "shares responsibility for administering the public trust and may not approve of destructive activities without giving due regard to the preservation of these resources." (*ELF*, 26 Cal.App.5th at p. 868.) California's public trust doctrine imposes on all state agencies, including counties, "an affirmative duty to take the public trust into account in the planning and allocation of water resources." (*Audubon*, 33 Cal.3d at p. 446.) Prior to approval of any such allocation, state agencies such as counties must "consider the effect of [prospective water uses] upon interests protected by the public trust, and attempt, so far as feasible, to avoid or minimize any harm to those interests." (*Id.* at p. 426.) While the state

always retains the power to reconsider allocation decisions made "after due consideration of their effect on the public trust," its duty to do so is "even stronger when that decision failed to weigh and consider public trust uses." (*Id.* at p. 447.)

The California Supreme Court has recognized that "[t]he objective of the public trust has evolved in tandem with the changing public perception of the values and uses of waterways." (*Audubon*, 33 Cal.3d at p. 434 [internal quotations omitted].) In 1983, the *National Audubon* decision expanded the previously contemplated scope of planning and allocation activities that implicate the State's public trust duty to encompass "diversions from a nonnavigable tributary [that] impair the public trust in a downstream river or lake." (*Id.* at p. 436.) In 2018, the *ELF* decision clarified that this scope also encompasses planning and allocation activities involving groundwater "if the extraction of groundwater adversely affects a navigable waterway." (26 Cal.App.5th at p. 859.) "[T]he dispositive issue is not the source of the activity, or whether the water that is diverted or extracted is itself subject to the public trust." (*Id.* at pp. 859–60.) The *ELF* court described its holding as "unremarkable and well supported by the facts and logic of *National Audubon* and the precedent upon which it relies" because the application of the public trust doctrine "begins and ends with whether the challenged activity harms a navigable waterway and thereby violates the public trust." (*Id.* at p. 859.)

Therefore, California's Public Trust Doctrine prescribes that a county bears "a public trust duty to consider the impacts of new wells . . . when it issues permits for construction of the wells"; and where the county finds that "issuance of well permits will result in extraction of groundwater adversely affecting the public's right," the county has a duty to "protect public trust uses when feasible." (*Id.* at pp. 853–54.) The *ELF* court found that the Sustainable Groundwater Management Act of 2014 ("SGMA") does not "occupy the field" or "replace or fulfill public trust duties." (*Environmental Law Foundation*, 26 Cal.App.5th at p. 867.) Likewise, the Water Code's water rights appropriation framework does not limit the State's authority to protect the public trust from harms resulting from groundwater extraction. (*Id.* at p. 862.) Further, whether the relevant state action is a ministerial act exempt from analysis under the California Environmental Quality Act (CEQA) also "bears no relevance" to the State's authority and duty under the public trust doctrine. (*Id.* at p. 852 n.2.) Accordingly, "if the County's issuance of well permits will result in extraction of groundwater adversely affecting the public right to use the [stream] for trust purposes, the County must take the public trust into consideration and protect public trust uses when feasible." (*Id.* at pp. 853–54.)

B. The California Environmental Quality Act

The California Environmental Quality Act ("CEQA") plays a critical role in ensuring local agencies do their part in protecting the environment and preventing environmental degradation. CEQA discloses projects' environmental impacts to decision makers; identifies

ways to reduce or avoid environmental impacts; and requires feasible alternatives or mitigation measures. This process informs the public of the agency's reasons for approving projects with significant environmental impacts, fosters interagency coordination regarding project review, and enhances public participation in the planning process. At the heart of the CEQA process is the Environmental Impact Report (EIR). If an activity qualifies as a project under CEQA, an EIR must be done unless an exemption applies. Even when a particular exemption applies, there are exceptions to the exemptions that require an EIR regardless of exemption status.

"Projects" under CEQA are defined as any activities undertaken by an agency that may cause a direct or reasonably foreseeable indirect physical environmental change and involves the issuance of a permit (CEQA Guidelines, § 15378(a).) "Significant effect on the environment" means a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance. (CEQA Guidelines, § 15382.) Projects that substantially degrade or deplete groundwater resources; or interfere substantially with groundwater recharge are considered to have significant effects on the environment and the kinds of physical changes in the environment CEQA is designed to address. (*Azusa Land Reclamation Co. v. Main San Gabriel Basin Watermaster* (1997) 52 Cal.App.4th 1166, 1189 ("*Azusa*"), referencing appendix G to the CEQA guidelines.)

Where a fair argument may be made that a project or activity has the potential to degrade the quality of the environment, even where evidence exists to the contrary, an EIR must be completed. (*Azusa*, at p. 1201.) This standard is a low threshold for further environmental review and "reflects a preference for resolving doubts in favor of environmental review when the question is whether any such review is warranted." (*Sierra Club v. County of Sonoma*, 6 Cal.App.4th 1307, 1316–17 (1992).) When an agency's decision is not supported substantial factual evidence, the agency's action is unlawful. (CEQA §§ 21168, 21168.5.)

Limited exemptions from full environmental review under CEQA are available. For example, Class 7 exemptions are designed to cover "actions taken by regulatory agencies as authorized by state law or local ordinance to assure the maintenance, restoration, or enhancement of a natural resource where the regulatory process involves procedures for protection of the environment. Examples include but are not limited to wildlife preservation activities of the State Department of Fish and Game. Construction activities are not included in this exemption." (CEQA Guidelines, § 15307.) Class 8 exemptions apply to actions that "assure the maintenance, restoration, enhancement, or protection of the environment." (CEQA Guidelines, §15308.) Specifically, Class 8 exemptions do not include construction activities or relaxation of standards allowing environmental degradation. (*Id*.)

The scope of a categorical exemption is a question of law and underlying factual determinations are subject to the substantial evidence test. (*Save Our Big Trees v. City of Santa Cruz* (2015) 241 Cal.App.4th 694, 706 ("*Big Trees*").) The County bears the burden of showing "substantial evidence supports its finding that a particular CEQA exemption applies." (*Bus Riders Union v. Los Angeles County Metropolitan Transportation Agency* (2009) 179 Cal.App.4th 101, 107.) A court will not uphold an agency's exemption determination if the record lacks evidence showing that the project falls within the exemption. (*Big Trees,* 241 Cal.App.4th at p. 712.)

II. Public Trust Resources in the Russian River System

The Russian River and its tributaries are navigable waterways protected by the Public Trust Doctrine and contain wildlife resources which are further protected by the public trust. (State Water Res. Control Bd. ("SWRCB") Res. No. 2011-0047, adding § 862 to Cal. Code Reg., tit. 23, div. 3.) The hydrologic system supports federally-listed endangered species such as the Central California Coast ("CCC") Coho salmon, California tiger salamanders, and California freshwater shrimp, as well as federally-listed threatened species and state-listed species of special concern including CCC Steelhead, California Coastal ("CC") Chinook salmon, chum salmon, western pond turtles, western tailed frogs, and foothill yellow-legged frogs. (*See* Cal. Dept. of Fish & Wildlife, State & Federally Listed Endangered & Threatened Animals of California (Feb. 9, 2021) and Cal. Dept. of Fish & Wildlife, Special Animals List (Feb. 2021).) Maps from NOAA Fisheries Protected Resources App, at <https://www.webapps.nwfsc.noaa.gov/portal/apps/webappviewer/index.html?id=7514c715b8594944a6e468dd25aaacc9>, show critical habitat in the lower Russian River system for the three federally-listed anadromous salmonid species in Figures 1 (CCC Coho), 2 (CCC Steelhead), and 3 (CC Chinook).

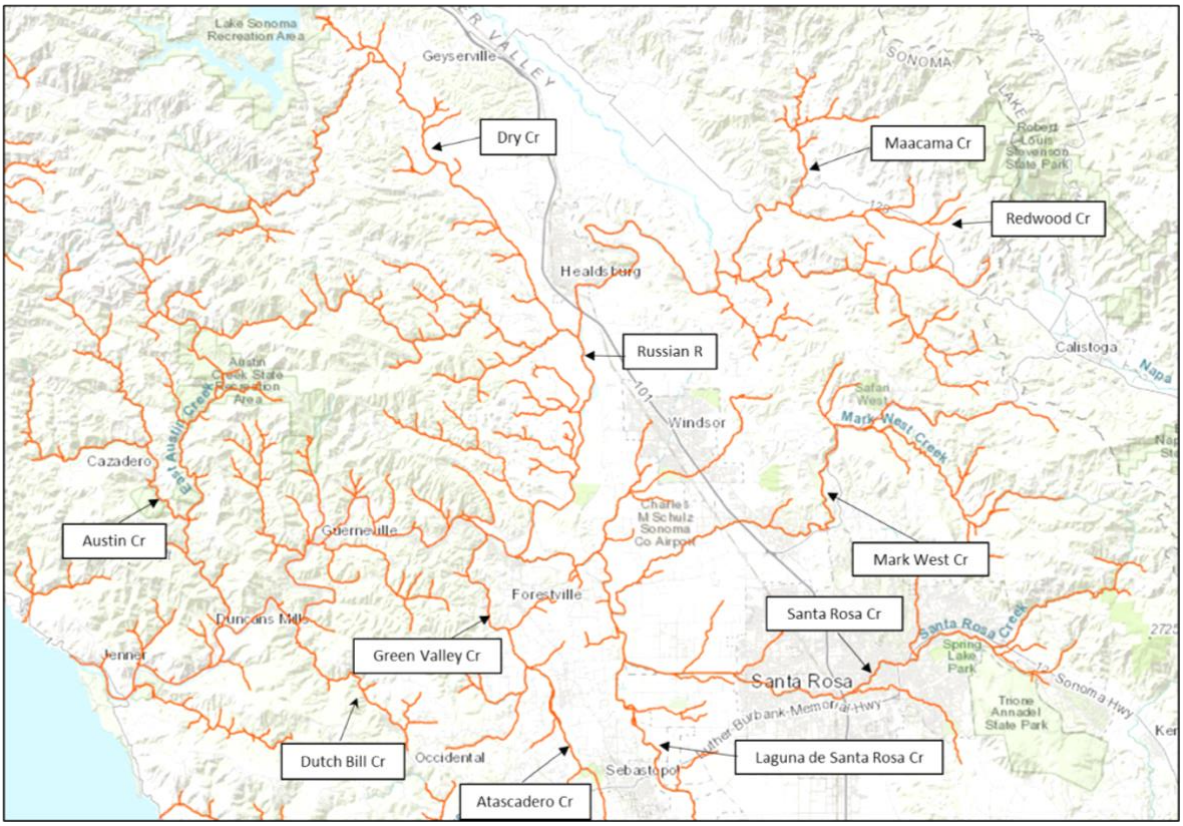


Figure 1. Critical habitat map for CCC Coho salmon. Source: NOAA Fisheries Protected Resources App.

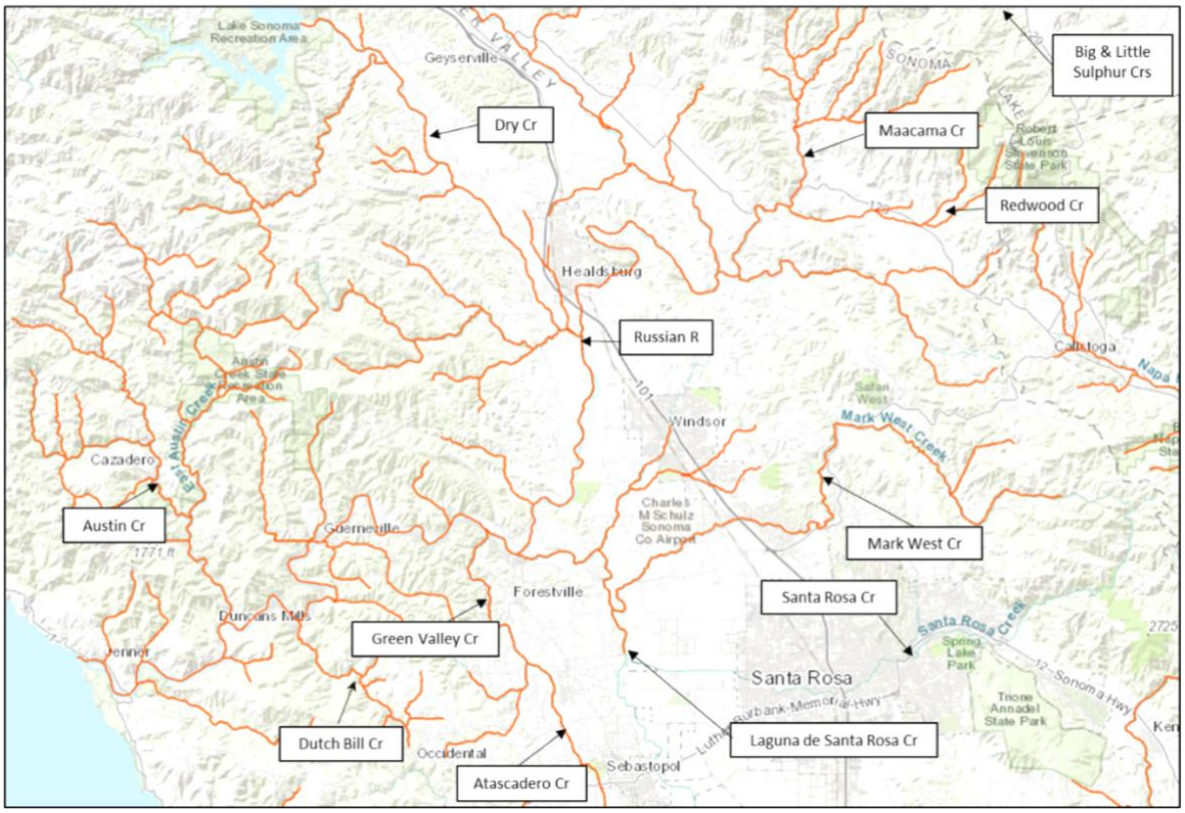


Figure 2. Critical habitat map for CCC Steelhead. Source: NOAA Fisheries Protected Resources App.

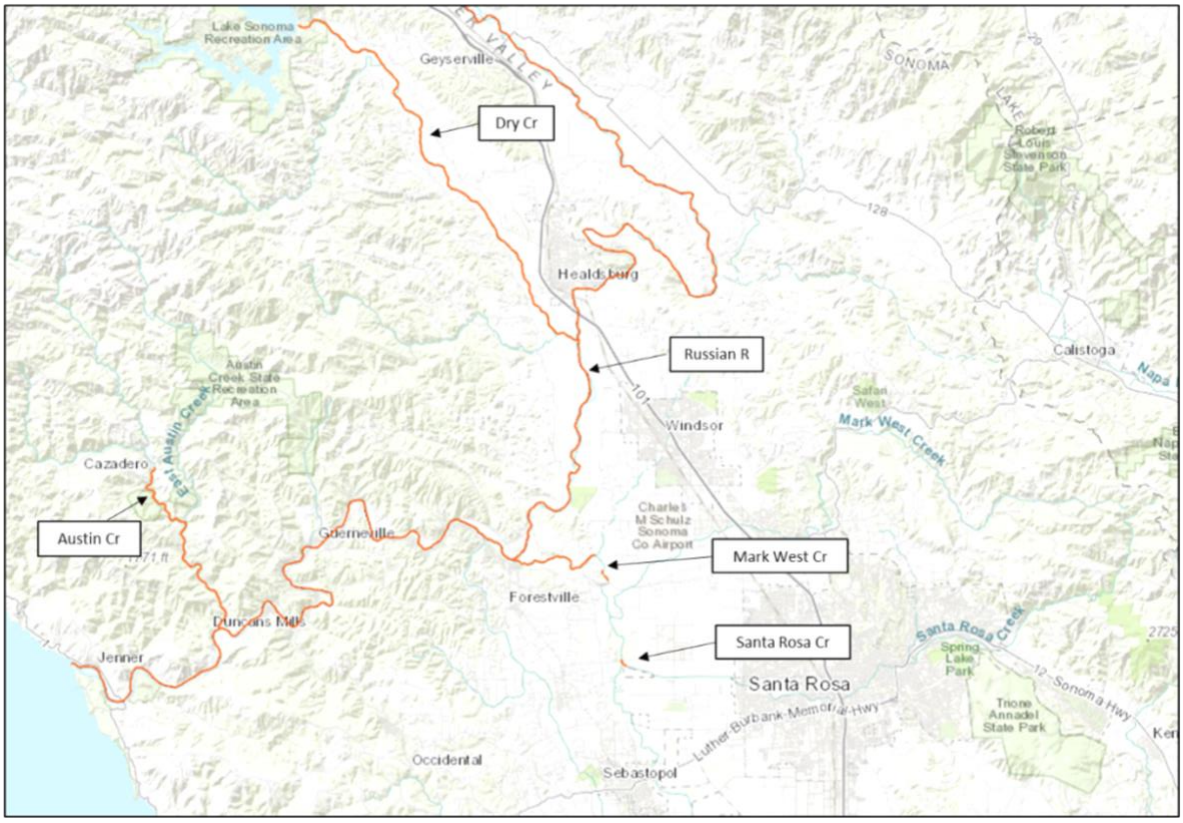


Figure 3. Critical habitat map for CC Chinook salmon. Source: NOAA Fisheries Protected Resources App.

Large, self-sustaining populations of CCC Coho salmon once occupied rivers and streams within the Russian River system. (Vander Vorste et al., *Refuges and ecological traps: Extreme drought threatens persistence of an endangered fish in intermittent streams* (July 2020) vol. 26, No. 7, Global Change Biology 3834, 3837.) However, the CCC Evolutionary Significant Unit of Coho salmon, for which the Russian River system supplies one third of total habitat, was "nearly extirpated by the late 1990s" and "listed as federally endangered in 2005 (70 FR 37160)." (*Id.*) As of NMFS's most recent Endangered Species Act Biological Opinion in 2008, "there is approximately 98 miles of coho salmon rearing habitat remaining in the Russian River watershed. This remaining habitat is only 14% of the estimated original 710 miles of historic coho salmon habitat in the Russian River watershed." (Nat. Marine Fisheries Service ("NMFS") Southwest Region, Endangered Species Act Sec. 7 Consultation Biological Opn. for Water Supply, Flood Control Operations, & Channel Maintenance (Sept. 24, 2008) p. 109.) Since the Russian River system accounts for one third of its habitat, "the survival and recovery of CCC coho salmon will likely depend on a substantial positive trend in the growth rate and abundance of coho salmon in the Russian River." (*Id.*, Executive Summary, at p. xvi.)

Substantial efforts are being made to restore CCC Coho salmon in the Russian River system. The Russian River Coho Salmon Captive Broodstock Program is a collaborative, conservation hatchery effort that is working to build a self-sustaining CCC Coho population

within the watershed. Partners include the US Army Corps of Engineers, the National Oceanic and Atmospheric Administration Fisheries Service, the California Department of Fish and Wildlife, Sonoma Water and CA Sea Grant. Since 2001, the Broodstock Program has been breeding CCC Coho salmon from local genetic stock at the Don Clausen Fish Hatchery at Lake Sonoma and releasing them as juveniles into historic CCC Coho streams in the Russian River watershed. California Sea Grant's Russian River Salmon and Steelhead Monitoring Program's observations of returning adult Coho salmon in the Russian River system showed near zero counts from 2000 to 2010, with improved counts—but remaining well below the delisting target of 10,100—of 192 to 763 returning adult Coho salmon from 2010 to 2020. (Cal. Sea Grant, Russian River Salmon and Steelhead Monitoring Program Reports and Publications, at <https://caseagrant.ucsd.edu/russian-river-salmon-steelhead/reports-publications> [as of July 20, 2022]; NMFS, Final CCC Coho Salmon ESU Recovery Plan (Sept. 2012) p. 260.) In 2020, the most recent year for which data is available, observations revealed a decade-low count of 214 adult Coho salmon returning to the Russian River system.

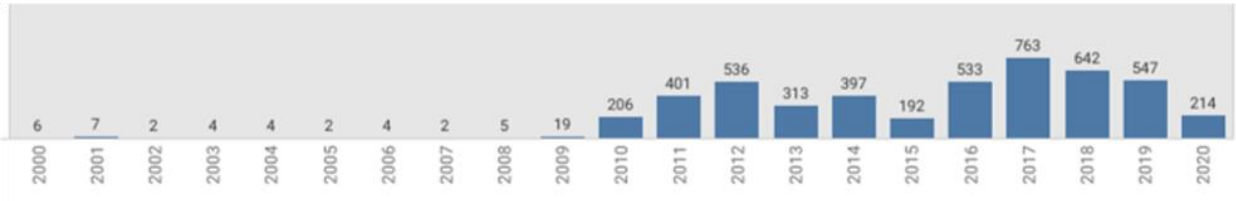
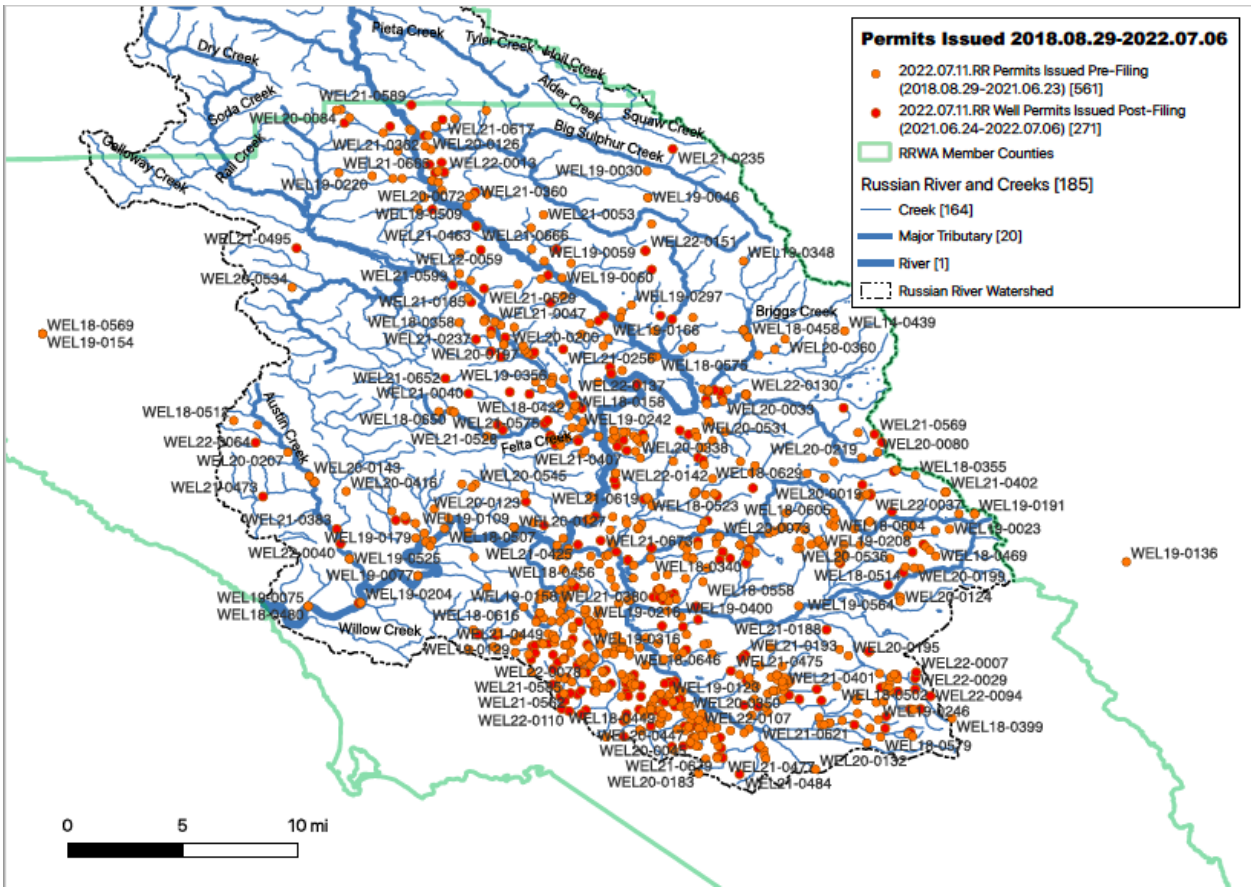


Figure 4. Estimated number of returning adult Coho salmon in the Russian River watershed from 2000 to 2020. Source: The Nature Conservancy, State of Salmon in California, <https://casalmon.org/salmon-rivers/#russian-river> [as of July 20, 2022].

In its 2021 Community Update, California Sea Grant noted the previous year's decade-low count, together with the devastating widespread drying in the Russian River stream ecosystems, concluding: "The increased severity and frequency of drought and the groundwater depletion associated with climate change and human impacts pose a significant threat to our keystone salmon and other native species." (Cal. Sea Grant, Russian River Salmon and Steelhead Monitoring Update 2021 (Jan. 21, 2021) pp. 2–3.)

A. Groundwater Extraction in the Russian River System

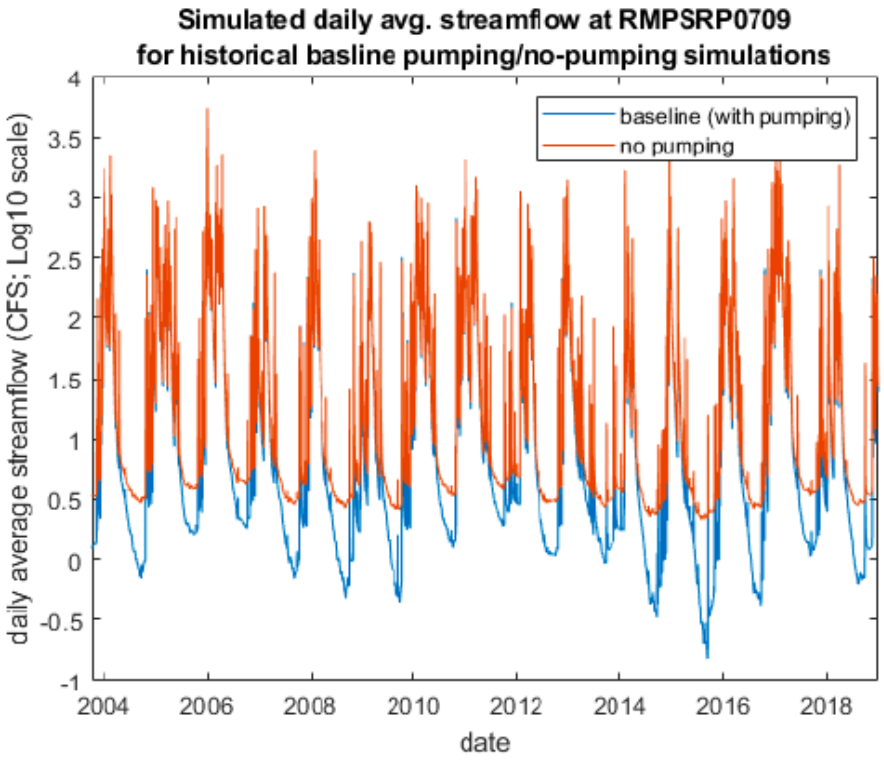
Sonoma County has permitted over 832 groundwater wells in the Russian River system since the 2018 *ELF* decision. These wells surround the Russian River, its tributaries, and other surface waters essential to salmon.

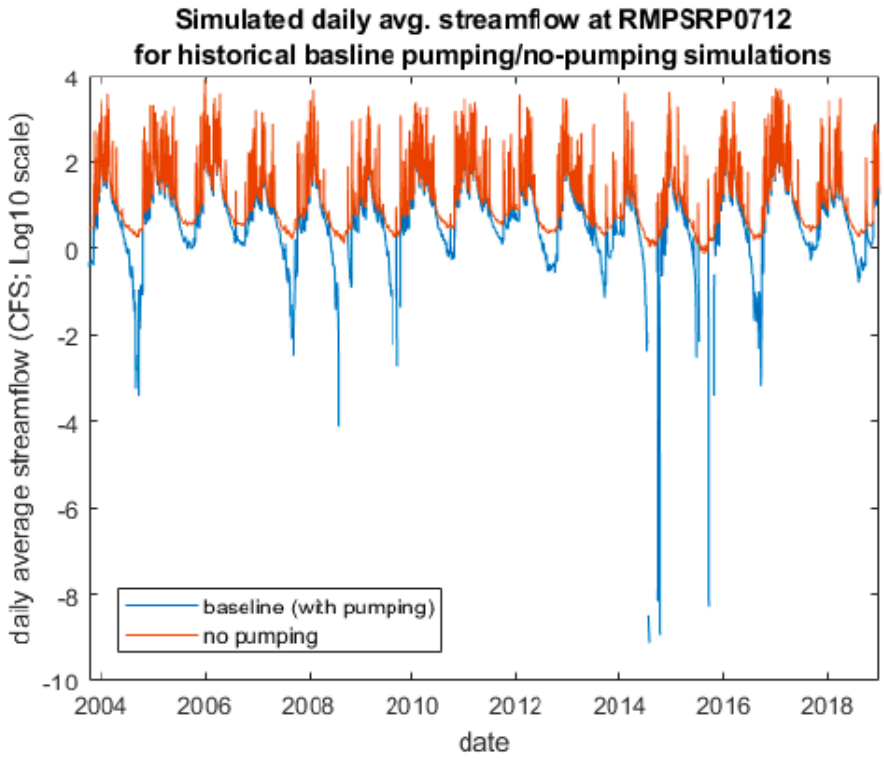


Groundwater in subsurface aquifers located along tributaries of the Russian River is in hydraulic communication with surface water resources and, therefore, groundwater extraction influences the streamflow of adjacent surface waters. (Vander Vorste et al., at p. 3835–3837.) Hydrogeologic consultants O'Connor Environmental, Inc. ("OEI") generated a comprehensive model of groundwater interconnection with surface flows in the Green Valley/Atascadero and Dutch Bill Creek watersheds using seven surface flow gages and seven groundwater elevation monitoring wells in preparation of a 2016 report for the Gold Ridge Resource Conservation District. (OEI, Integrated Surface and Groundwater Modeling and Flow Availability Analysis for Restoration Prioritization Planning: Green Valley/Atascadero and Dutch Bill Creek Watersheds (2016).) The OEI report shows significant surface water to groundwater exchanges (*id*. at pp. 101–103); minimal groundwater discharge to surface flows in the summer months (*id.* at pp. 110–113); and significant depletion of groundwater in the region between October 2009 and October 2014 (*Id*. at p. 117).

In the Appendices of its Groundwater Sustainability Plan, the Santa Rosa Plain Groundwater Sustainability Agency (SRPGSA) presented results of a model simulating depletion of interconnected surface water flows by groundwater pumping. (Santa Rosa Plain Groundwater Sustainability Agency (2021) Groundwater Sustainability Plan for the Santa Rosa Plain

Subbasin, app. 4-D.) In several cases, predicted surface flows with pumping drop below zero, indicating dry creek beds, where the predicted flows without pumping indicate positive surface flows (Figures 5–6). (*Id*.)





Figures 5─6. Simulated surface water flow depletion by groundwater pumping at two monitoring sites. Source: Groundwater Sustainability Plan for the Santa Rosa Plain Subbasin, app. 4-D, at pp. 10, 12.

The model showed the largest reductions in surface flows by groundwater pumping in the lower reaches of the Laguna de Santa Rosa Creek, Santa Rosa Creek, and Mark West Creek (Figure 6). (*Id*., app. 4-C, at p. 119.)

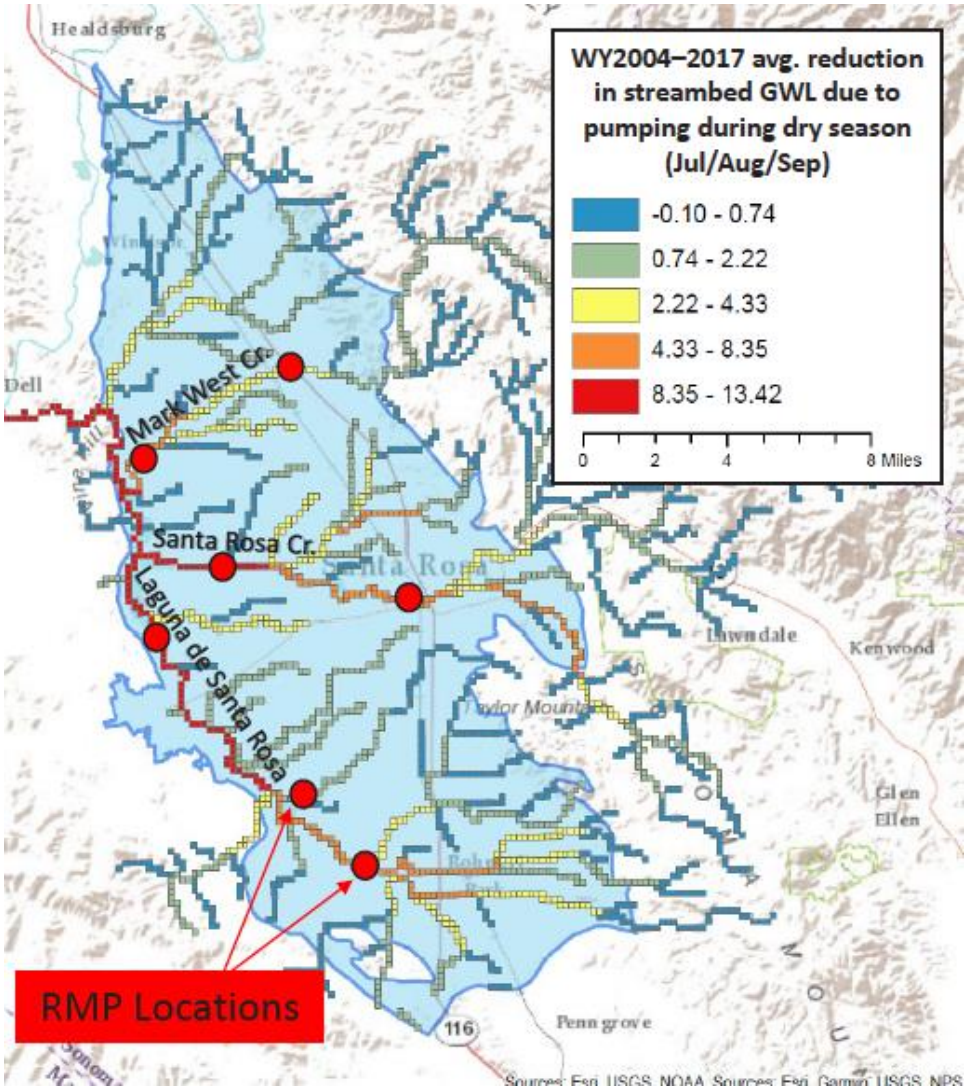


Figure 6. Estimated average reduction in surface flows due to pumping during summer months in the Santa Rosa Plain. Source: Groundwater Sustainability Plan for the Santa Rosa Plain Subbasin, app. 4-C, at p. 119.

The California Natural Flows Database, developed by The Nature Conservancy, the U.S. Geological Survey, and other partners, also simulates depletion of interconnected surface water flows by groundwater pumping, using aggregated observed surface flow data from available stream gages paired with modeled estimates of predicted surface flow in the absence of human water use. (Zimmerman et al., The Nature Conservancy, *California Unimpaired Flows Database v2.1.0*, at <https://rivers.codefornature.org/>.) Figure 7 represents all months between 2014 and 2021 when mean monthly surface flow measured at any of six stream gage sites fell below 0.1

cubic foot per second (cfs), juxtaposed against the modeled ranges of mean surface flow at those sites in the absence of human water use. (*Id*.)

Stream	COMID Site	Year	Month	Current Min Flow cfs	Natural Flow (range) cfs	
Austin	8271049	2015	Aug	<0.1	1.39	1.39
Austin	8271049	2020	Aug-Oct	<0.1	1.01	2.00
Austin	8271049	2021	July-Sept	<0.1	0.63	3.12
Big Sulphur	8271875	2014	July-Sept	<0.1	2.03	3.40
Big Sulphur	8271875	2015	Aug-Sept	<0.1	2.02	2.48
Big Sulphur	8271875	2020	Sept-Oct	<0.1	2.14	2.14
Big Sulphur	8271875	2021	July-Sept	<0.1	1.05	2.00
Laguna	8273287	2014	July-Oct	<0.1	2.96	4.46
Laguna	8273287	2015	Aug-Nov	<0.1	2.98	10.26
Laguna	8273287	2016	Aug-Sept	<0.1	3.83	4.23
Laguna	8273287	2018	July-Sept	<0.1	3.97	4.99
Laguna	8273287	2019	Sept-Oct	<0.1	3.87	5.78
Laguna	8273287	2020	July-Nov	<0.1	1.86	15.00
Laguna	8273287	2021	June-Sept	<0.1	1.99	6.09
Laguna	8273639	2021	Aug-Sept	<0.1	0.98	1.77
Laguna	8273659	2015	July-Oct	<0.1	1.36	2.75
Laguna	8273659	2018	Aug-Sept	<0.1	2.04	2.04
Laguna	8273659	2021	June-Sept	<0.1	0.95	2.76
Maacama	8272605	2014	July-Sept	<0.1	0.86	1.65
Maacama	8272605	2015	July-Oct	<0.1	0.67	3.84
Maacama	8272605	2016	Aug-Sept	<0.1	1.64	1.97
Maacama	8272605	2018	Aug-Sept	<0.1	0.89	1.64
Maacama	8272605	2020	Oct	<0.1	2.52	2.52
Maacama	8272605	2021	July-Sept	<0.1	0.40	1.66

Figure 7. Data compiled from the California Unimpaired Flows Database v2.1.0 for all months when mean monthly surface flow measured at six stream gage sites fell below 0.1cfs [as of May 11, 2022].

Numerous state and federal agencies have acknowledged and responded to the severe impact of groundwater extraction on surface water flows in the Russian River system. NMFS's most recent Biological Opinion assessing critical habitat degradation for the region's endangered species concludes "Stream desiccation is likely the result of intensive groundwater pumping in this semi-arid region." (NMFS Southwest Region 2008, at p. 86.) In a 2016 letter to the Sustainable Groundwater Management Section of the California Department of Water Resources ("CDWR"), NMFS reiterated:

> Over-extraction of streamflow (both surface and hydrologically-linked groundwater) within the state has been harming various salmon and steelhead populations for several

decades, and has been consistently noted as a leading threat to salmon and steelhead survival in various NMFS recovery plans. (e.g., NMFS 2012, 2013, 2014a, 2014b). (Maria Rea & Lisa Van Atta, NMFS, letter to CDWR (Jan. 12, 2016) at p. 2.)

In 2015, the State Water Resources Control Board adopted a drought-related emergency regulation requiring "enhanced conservation measures for all users of surface and sub-surface water diverted" from the Dutch Bill Creek, Green Valley Creek, Mark West Creek, and Mill Creek watersheds, where "the connectivity between surface water and sub-surface water is significant, and sub-surface withdrawals can have a significant effect on surface water flow." (SWRCB Res. No. 2015-0045 (June 17, 2015) pp. 2–3.) The regulation targeted these tributaries specifically for their role as high priority critical habitat for public trust resources, stating that "[i]n this severe drought, action is needed to maintain connectivity in the pools to support the rearing habitat of juvenile CCC coho salmon and CCC steelhead." (*Id.* at p. 2.)

In a 2015 comment letter submitted prior to the previous revisions to Sonoma County Code Chapter 25B, NMFS advised the County that "[w]ells for rural residential use or agriculture can place an enormous strain on groundwater aquifer levels, which can in turn lower summer baseflows where aquifers and streams are hydrologically connected." (Lisa Van Atta, NMFS, letter to Nathan Quarels, Sonoma Cty. Permit & Resources Management Division (Aug. 26, 2014) p. 2.) At that time, NMFS recommended sweeping revisions to the County's well permitting ordinance, warning that "the end result of granting ministerial well permits absent groundwater aquifer analysis is the steady, cumulative loss of summer baseflow and the attendant disappearance of associated aquatic resources, including nursery habitats for steelhead and salmon." (*Id.*) NMFS further stated that groundwater pumping that "affects the aquifer-surface flow connection . . . must legally have an appropriative water right." (*Id.*)

In a 2018 letter to the County regarding its cannabis permitting protocols, NMFS again warned that continued permitting of groundwater extraction wells "will likely impair summer baseflows in the future," and recommended limiting such permits in the Mark West Creek and Green Valley Creek watersheds "until the effects of long-term, chronic groundwater depletion and its impact on summer baseflow are properly analyzed." (Robert Coey, NMFS, letter to Tennis Wick, Sonoma Cty. Permit Resource Management Dept. (Aug. 30, 2018) at p. 5.)

In a comment on the Draft 2019 Sustainable Groundwater Management Act Basin Prioritization Phase 2 Process and Results for the Wilson Grove Highland Formation Groundwater Basin, the California Department of Fish and Wildlife ("CDFW") urged the California Department of Water Resources ("CDWR") that "[t]he overwhelming preference for groundwater extraction, combined with the documented streamflow impairment, strongly suggests that any meaningful water management strategy in this area, must address groundwater." (Gregg Erickson, CDFW, memorandum to Craig Altare, CDWR (May 30, 2019)

p. 3.) The comment cited data showing that 93% of individual water diversions in the Upper Green Valley Creek and Purrington Creek watershed areas were sourced from groundwater extraction wells, compared to 4% diverted from surface water. (*Id.*)

Most recently, in a comment letter to the CDWR regarding the Santa Rosa Plain Groundwater Basin Final Groundwater Sustainability Plan, the CDFW urged formulation of more conservative Sustainable Management Criteria for depletion of interconnected surface waters, stating:

> Minimum Thresholds should ensure regional groundwater extractions do not lead to significant and adverse impacts on fish or wildlife resources by meeting plant and animal species temporal/spatial water needs including water availability especially for Threatened and Endangered species and Species of Special Concern. They should be designed to account for climatic/water year type variability. Where specific data are lacking, MTs should be conservative with respect to preserving fish and wildlife beneficial users of groundwater from undesirable results. . . . Setting Minimum Thresholds and measurable objectives using data from years with historically low rainfall (i.e., 2014-2016) would likely create historically high streamflow depletion rates and potentially negatively impact [groundwater dependent ecosystems] and their critical habitat.

(Erin Chappell, CDFW, letter to Monica Reis, CDWR (Apr. 8, 2022) p. 3.)

B. Impacts of Groundwater Extraction to Public Trust Resources in the Russian River System

Ongoing depletion of groundwater resources in the Russian River system has severely reduced instream flow during the dry season, leading to persistent habitat loss for coho salmon and other public trust resources. "Insufficient summer streamflow has been identified as a bottleneck to recovery of Russian River salmonid populations." (California Sea Grant, 2020 Wetted Habitat Assessment Overview (December 3, 2020) at p. 1.) Salmonid species have rigorous habitat requirements, chief among which are adequate stream flows and cool water temperatures, necessary for the anadromous fish to successfully migrate, reproduce, grow, combat diseases, and survive to persist and perpetuate the species. Many impairments in water quality and physical habitat are closely associated with inadequate stream flows. As lamented by CDFW in advising more protective groundwater policy in Sonoma County: "Despite the substantial investment of efforts to recover Coho salmon in Green Valley Creek, no policy mechanism exists to comprehensively address the predominant water use type in the basin: groundwater extraction." (CDFW 2019, at p. 3.)

Migrant adult salmon require sufficient water depths in riffles in order to reach spawning areas, which in the Russian River system may be well over 40 miles from the Pacific Ocean.

Adult CCC Coho salmon also require unimbedded and silt-free gravel for successful reproduction, preferentially spawning in stream reaches with alluvial substrate, which is "particularly sensitive to water withdrawals from diversions and groundwater pumping, increasing the risk of dewatering redds and stranding juvenile fish." (Vander Vorste et al., at p. 3842.) Field observations demonstrate that "[h]ydrologic connectivity is critical in supporting rearing juvenile coho salmon throughout the summer season" and that "hydrogeological factors (e.g. clay substrate v. alluvium, riparian cover, land use, etc.) play a strong role in influencing" variations in CCC Coho survival rate. (Sarah Nossamon et al., Flow and Survival Studies to Support Endangered Coho Recovery in Flow-Impaired Tributaries of the Russian River Basin (May 2018) at p. 3.)

CCC Coho salmon, in particular, are susceptible to "ecological traps," which occur when residual pools in intermittent stream reaches become atypically dry, "especially when river flow regimes are altered by anthropogenic activities." (Vander Vorste et al., at p. 3835). Fish trapped in disconnected and drying pools face "declines in dissolved oxygen as well as increased water temperatures, competition, and/or predation." (*Id.*) A study funded by CDFW and NMFS analyzing hydrological and ecological data between 2014 and 2017 observed, in the two creeks for which sufficient data existed, 84% and 93%, respectively, of CCC Coho salmon in stream reaches where pools become disconnected during drought events and 32% and 42% in stream reaches where pools become disconnected in years with average stream flow. (OEI, Salmonid Rearing Habitat Delineation & Restoration Prioritization: East Austin, Pena, Mill, and Redwood Creek Watersheds (June 2018) at pp. 44–45).

Russian River Coho Water Resources Partnership ("RRCWRP") calculated stream connectivity thresholds, representing the amount of water required to keep all pools connected by continuous surface flow, within three Green Valley Creek priority reaches between 2010 and 2018. (RRCWRP, Upper Green Valley Creek Streamflow Improvement Plan (2019) p. 76.) Comparing field observations of the onset of disconnection each summer season with hydrographs generated from representative flow gages, RRCWRP determined the approximate flow level at which one or more pools within each reach became disconnected. (*Id.* at pp. 76–78) Figure 8 shows the number of dry season days during which surface flows at three priority reaches fell below the calculated connectivity threshold. (*Id*. at p. 77.)

Reach name	Connectivity threshold (ft^3/s)	Priority reach range (river km from mouth)	Flow gage river km	Number of days below threshold								
				2010	2011	2012	2013	2014	2015	2016	2017	2018
Green Valley Reach A	0.20	9.78 -10.76	9.39	21	22	82	118	115	n/a	n/a	n/a	n/a
Green Valley Reach B	0.20	10.76 -13.03	12.70	n/a	n/a	n/a	n/a	n/a	123	119	90	119
Green Valley Reach C	0.20	13.03 -16.76	14.12	75	83	123[1]	123[2]	123	123	118	105	112

[1] *Missing 54 days of flow data (after 8/23); total number of days extrapolated based on flow on end date and neighboring flow conditions through end of season.*

[2] *Missing 49 days of flow data (after 8/28); total number of days extrapolated based on flow on end date and neighboring flow conditions through end of season.*

Figure 8. Dry season days below connectivity threshold in the Green Valley Creek priority reaches. Source: RRCWRP, Upper Green Valley Creek Streamflow Improvement Plan (2019) p. 77.

"Juvenile CCC coho salmon and CCC steelhead can survive very dry conditions in these watersheds in pools in the upper watersheds, provided the pools have sufficient water and stream connectivity to maintain appropriate temperature, dissolved oxygen, and other water quality conditions." (SWRCB 2015, at p. 2.) However, groundwater extraction reduces "the influx of cooler groundwater [that] tends to keep instream surface waters cooler — a dynamic that is particularly important for cold-water fish in late summer/early fall when ambient air temperatures tend to be warmer." (Stanton Kibel et al., *Fisheries Reliant on Aquifers: When Groundwater Extraction Depletes Surface Water Flows*, 54 U.S.F. L. Rev. 473, 481.) Diminished streamflow also leads to loss of connection between pools, such that "movement of individuals among pools could no longer occur, preventing salmon from relocating to pools that may have had more suitable environmental conditions as drought conditions worsened over the summer." (Vander Vorste et al., at p. 3841.)

California Sea Grant's UC Coho Salmon and Steelhead Monitoring Report: Summer-Fall 2015 documented Coho salmon and steelhead redds and rearing juveniles in stream reaches that would later become intermittent or dry:

> A total of 224 salmonid redds were documented during the winter of 2014-2015 in streams where wetted habitat surveys occurred in the summer of 2015. Of these, 65% were observed in reaches that later went dry, 18% in reaches that became intermittent, and 17% in reaches that remained wet. . . .
>
> At the time snorkeling surveys were conducted, surface flows were already extremely low and it is unlikely that fish had the opportunity to move out of drying reaches into reaches that remained wet. PIT tag antenna data on specific study reaches indicates that almost no movement occurred between mid-June and December of 2015 (UC unpublished data). We therefore conclude that salmonids observed in reaches that later became dry had no chance of surviving the summer. Previous research conducted by UC through the Partnership, has documented inverse relationships between juvenile coho

survival and the number of days that pools are disconnected from surface flow (UC unpublished data). Given these relationships and the length of time that pools in intermittent reaches were disconnected during the summer of 2015 (over four weeks in most reaches), it is likely that most juveniles in intermittent reaches perished.

(Obedzinski et al., UC Coho Salmon and Steelhead Monitoring Report: Summer-Fall 2015 (2016) at pp. 21-22.) Although other factors could account for the drying of stream channels in those study reaches, groundwater pumping is likely a significant contributing factor critical to the survival and viability of CCC Coho salmon.

To reiterate, every agency, coalition, non-profit, or consultant that has examined the issue has confirmed the significant, detrimental impact of current levels of groundwater extraction on surface streamflow in the Russian River system, and consequently on salmonids and other public trust resources.

III. The Proposed Amendment to the Sonoma County Code Chapter 25B Will Not Ensure the County Meets Its Duties under the Public Trust Doctrine to Protect Public Trust Resources

As submitted, the proposed ordinance amendment adds generalized language responding to Sonoma County's public trust duties when issuing permits for the construction of groundwater extraction wells—essentially repeating the County's duties as articulated by the *ELF* decision. The proposed amendment does not specifically identify or address any public trust resources or uses in the Russian River system, grapple with the ongoing and cumulative harms of existing permitted wells, nor define permitting criteria adequate to meet its duties to protect public trust resources.

A. Terms of the Proposed Amendment

As proposed, the Amendment:

- Adds definitions for the terms "navigable waters," "new water supply well," and "public trust resources" (sec. 25B-3);

- Adds a "public trust resources limitation" prohibiting permit issuance "if in the determination of the Enforcing Agency it will have an adverse impact on public trust resources of navigable waters after the imposition of mitigation measures that protect those public trust resources" (sec. 25B-4(d)(1));

- Adds a requirement, without any definition, that any applicant for a new water supply well "shall provide as part of its application information to the satisfaction of the

Enforcing Agency that is sufficient for the Enforcing Agency to determine that the issuance of the new water supply well permit will or will not have an adverse impact on public trust resources of navigable waters after imposition of all feasible mitigation measures that can be imposed to protect the public trust resources" (sec. 25B-4(d)(2));

- Adds a requirement that "the Enforcing Agency shall make written findings as to whether the issuance of the requested permit will or will not substantially impair public trust resources in navigable waters after the imposition of feasible mitigation measures to protect those public trust resources" and provides that "[a]ny project features or mitigation measures that are necessary to the Enforcing Agency's written findings for approval of any new water supply well permit shall become conditions on the new water supply well permit" (sec. 25B-4(d)(3));

    - Adds a procedure to appeal permit application determinations to the Board of Supervisors (sec. 25B-4(d)(4));

The amendment then articulates a series of exceptions to the undefined process for preventing impacts to public trust resources:

- Adds multiple procedures for the Board of Supervisors to make exemptions and exceptions to the "public trust resources limitation" (sec. 25B-4(d)(5) and (7));

- Adds a procedure for an applicant for a new water supply well to request expedited processing "where the proposed well drilling is immediately necessary to protect human life, health, and safety or property due to a sudden, unforeseen impairment in the quantity or quality of water available," where "accompanied by verifiable evidence demonstrating necessity of the proposed well" (sec. 25B-5(d));

- Defines an exemption to the "public trust resources limitation" for any "replacement well limited to 2.0 acre feet or less per year that serves a parcel that is solely used for domestic purposes." (sec. 25B-5(e)(1));

The amendment requires gauging—but only for new wells, and only starting 5 months from the hearing date:

- Adds a requirement that any "water supply well for which a permit is issued after January 1, 2023, shall be installed with a totalizing water meter" and, unless abandoned, monitor and report readings to the Enforcing Agency as specified in permit conditions (sec. 25B-5(z)).

Finally, the amendment continues the requirement that issuance of well permits be "consistent with any regulations adopted by the board of supervisors" to implement an approved groundwater management plan (sec. 25B-4(b)). Because the GSP for the Santa Rosa Plain sets a "minimum threshold" level for potentially restricting groundwater pumping many feet below the streambed, pumping "consistent with" the SRP GSP will not protect salmon dependent on adequate instream flow.

B. The Proposed Amendment Does Not Identify or Address the Russian River System's Public Trust Resources and Uses nor Define Standards for Their Protection in Well Permit Issuance

Notwithstanding the decades of science and policymaking dedicated to characterizing the Russian River system's public trust resources and uses, the proposed amendment fails to mention surface streamflow or identify any wildlife or habitat dependent on it. The ordinance under consideration cannot itself adequately consider or prevent harm to public trust resources, nor ensure the lawful issuance of permits for construction of new water supply wells, without even naming the subject matter(s) it purports to protect.

Moreover, the "public trust resources limitation" added to qualify the well permitting framework defines no standards for limiting permit issuance beyond "the determination of the Enforcing Agency [that] it will have an adverse impact on public trust resources of navigable waters after the imposition of mitigation measures that protect those public trust resources" (sec. 25B-4(d)(1)), subject to appeal to the Board of Supervisors (sec. 25B-4(d)(4)). Even this general "limitation" is illusory: the "Enforcing Agency" may approve permit applications subject to the public trust resources limitation at its discretion (sec. 25B-5(e)(2)), and request the Board of Supervisors consider "overriding considerations" concurrently with any appeal (sec. 25B-4(d)(5)–(6)). Despite its stated intent "to address evaluation of impacts to public trust resources for proposed water supply wells," the proposed amendment fails to articulate any cognizable standards for evaluation of such impacts.

C. The Proposed Amendment Fails to Grapple with the Ongoing and Cumulative Harms of Existing Permitted Wells to the Russian River System's Public Trust Resources and Uses

The proposed amendment expressly limits its added requirements to permits for construction of "new water supply wells." Permit Sonoma does not require any gauging or reporting of the ongoing operation of existing permitted wells. As NMFS advised Permit Sonoma in 2018 regarding cannabis permitting, "[i]ncomplete consideration of existing and abandoned wells could lead to insufficient data generation when evaluating: 1) interconnections with the nearest surface water bodies and 2) pumping well interference with surrounding wells."

(NMFS 2018, at pp. 2-3.) Without quantification of the individual and cumulative impacts of existing well operations, it is impossible for the County to adequately consider or prevent harm where feasible to public trust resources and uses according to law when issuing new permits.

D. The Existing Requirement that Well Permit Issuance be "Consistent With" Regulations Implementing Adopted Groundwater Management Plans Likely Ensures Harm to the Russian River System's Public Trust Resources

As currently in force, section 25B-4(b) requires issuance of well permits:

> in areas where a groundwater management plan has been approved and has been adopted by the county the requirement for the issuance of well permits and any limitations imposed on well permits shall be consistent with any regulations adopted by the board of supervisors to implement the adopted groundwater management plan.

However, the Santa Rosa Plain Groundwater Sustainability Plan, the only groundwater management plan presently approved by the County, imposes no restrictions on groundwater extraction until a Minimum Threshold ("MT") for groundwater levels, representing the greatest depletion for the three years between 2004 and 2018, is met. (SRPGSA, App. 4-D, at p. 3.) The SRPGSP provides no explanation as to how the MT will prevent impacts to interconnected surface waters and endangered salmonids, or even any relationship between surface flows and the MT.

In fact, the limited analysis provided in the SRPGSP confirms the continued harms to endangered salmonids that will result from the proposed MT. For example, at monitoring location RMPSRP0707, identified as a critical bottleneck to significant salmonid spawning habitat, the SRPGSP indicates that predicted streamflow without pumping would be robust, peaking at over 3.5 cfs and never dipping below 0.5 cfs. (SRPGSP, App. 4-D, at p. 9.) However, streamflow with pumping consistently dips below 0.5 cfs, and between 2019 and 2021 fell below the approximate streambed elevation at all times—meaning current levels of groundwater pumping dried out this tributary for two years. (*Id.* at pp. 9, 25.) Yet the SRPGSP, proposes an MT of 111.4 ft above mean sea level for this location—12.9 feet below the approximate streambed elevation. (SRPGSA, at p. 4-55.)

CDFW's recent comment letter confirms that the MTs proposed in the SRPGSP do not protect salmonids in the Russian River system:

> [T]he GSP states "undesirable result occurs if MTs are exceeded at 40 percent of RMP wells during drought years and 10 percent of RMP wells during non-drought years." It is unclear how these percentages relate to ecological impacts. The GSP should identify monitoring metrics for GDEs that will enable the GSA to characterize GDE vulnerability

> to groundwater depletion and associated undesirable results, and to undertake management intervention accordingly. . . . Setting Minimum Thresholds and measurable objectives using data from years with historically low rainfall (i.e., 2014-2016) would likely create historically high streamflow depletion rates and potentially negatively impact GDEs and their critical habitat.

(CDFW 2022, at p. 3.)

Since the SRP GSP's established MT has no relationship to public trust protection, section 25B-4(b)'s requirement that well permits issuance be "consistent with" this approved groundwater management plan will authorize, rather than prevent, harm to the Russian River system's public trust resources and uses. The County should revise this element of its ordinance to ensure public trust resources are protected consistent with the recommendations provided above.

E. Exemptions to the "Public Trust Resources Limitation" Violate the County's Fiduciary Duties to Consider and Prevent Harm Where Feasible to the Public Trust

The proposed amendment provides current and future exceptions to the public trust analysis and mitigation First the "public trust resources limitation" would not apply to any "proposed replacement water supply well" (sec. 25B-5(e)(1)). The proposed amendment and staff report provides no facts or analysis supporting the implicit assertion that replacement wells—either individually or cumulatively—have no impact on public trust resources.

Second, public trust analysis and mitigation will be applied on an expedited basis to wells "where the proposed well drilling is immediately necessary to protect human life, health, and safety or property due to a sudden, unforeseen impairment in the quantity or quality of water available" (sec. 25B-5(d)). Obviously protection of human health is good public policy, and Coastkeeper supports accelerated permitting where appropriate. However, "emergency" wells are not exempt from the County's public trust duty. At a minimum, the impacts of these "emergency" wells must be evaluated and offset or otherwise mitigated elsewhere in the groundwater basin. We are concerned that by expediting review, necessary consideration of public trust impacts will be insufficient. We therefore recommend imposition of mandatory mitigation measures and continuing oversight of these wells to adjust mitigation as necessary to protect public trust resources (as described in our recommendations provided above).

Third, the proposed amendment allows the Board of Supervisors to "establish screening criteria to identify categories of water supply well permit applications which do not substantially impair public trust resources, and which shall be approved pursuant to a ministerial permit" (sec. 25B-4(d)(7)). As with the other provisions of the proposed amendment, 25B-4(d)(7) provides no

definition, guidance, or limitation on the future "categorical" exemptions—exemptions which can easily swallow the rule.

Finally, the proposed amendment includes an exemption from protection of public trust resources where the Supervisors find:

> "…overriding considerations that balance protection of public trust resources with the health, safety, and welfare needs of the community, including the need for drinking water…" (sec.25B-4(d)(5)

Thus, where the supervisors determine that the need for drinking water outweighs impacts to public trust resources, public trust resources are sacrificed. As climate change and over-appropriation continues to impact water supplies, political pressure to issue well permits at the cost of river ecosystems is likely to increase. However, the California Supreme Court has specifically rejected this sort of discretionary trade off. Instead, the Supreme Court stated:

> Thus, the public trust is more than an affirmation of state power to use public property for public purposes. It is an affirmation of the duty of the state to protect the people's common heritage of streams, lakes, marshlands and tidelands, surrendering that right of protection only in rare cases when the abandonment of that right is consistent with the purposes of the trust. *Nat'l Audubon Soc'y v. Superior Court*, 33 Cal. 3d 419; 441.

Section 25B-4(d)(5)'s authorization of destruction of aquatic public trust resources is clearly inconsistent with the purposes of the trust. Section 25B-4(d)(5) discretionary exception renders the proposed amendment's prohibition on harming public trust resources meaningless, and therefore illegal. To remedy this flaw, we propose the ordinance be revised to comport with the Supreme Court's conclusion that impacts to the public trust be mitigated as required.

IV. CEQA

A. Class 7 and 8 Categorical Exemptions to CEQA Do Not Apply to the Amendment

Staff asserts that the amendment is exempt from CEQA under California Code of Regulations § 15307 and § 15308 (Class 7 and 8 exemptions). The board states the basis of their determination is that the ordinance "does not in itself approve any construction activities, but instead imposes a requirement to consider and address impacts to public trust resources when permitting new water supply wells." (Ordinance at p. 2.)

Both categorical exemptions explicitly do not apply to construction activities. And while staff asserts that "the ordinance itself does not approve any construction activities," the ordinance being amended is titled "Chapter 25B Water Well Construction Standards." As the title states, Chapter 25B sets standards for obtaining permits and *constructing* water wells. The amended ordinance chapter uses the word "construction" 62 times. Staff's argument that its amendment to the well construction standards ordinance does not directly involve approval of well construction is specious at best. As such, exemptions 7 and 8 do not apply.

Staff further asserts that Class 7 and 8 exemptions apply to their ordinance because they are imposing a requirement to consider and address impacts to public trust resources to "assure the maintenance, restoration, enhancement, and protection of natural resources and the environment." The amendment as proposed instead at a minimum guarantees continued, unsustainable levels of pumping—and thus severe impacts to salmon. The proposed amendment also exempts broad categories of wells from any public trust review, further impacting instream resources.

In addition, the amendment provides that "the requirement for the issuance of well permits and any limitations imposed on well permits shall be consistent with any regulations adopted by the board of supervisors to implement the adopted groundwater management plan." (Ordinance, Ex. A, at p. 5.) As noted above, the SRPGSP admits it fails to protect salmon, and only promises progress towards reducing the impacts at some future, undetermined date. Allowing pumping "consistent with" the SRPGSP is "relaxation of standards allowing environmental degradation" again rendering the exception to CEQA inapplicable.

B. The Cumulative Impact Exceptions to the Exemptions Apply

CEQA guidelines state that even if a project is categorically exempt from CEQA, the exemption does not apply if, over time, the cumulative impact of successive projects of the same type have a significant impact; or, if there is a reasonable possibility that the activity will have a significant effect of the environment due to unusual circumstances. (CEQA Guidelines, § 15300.2) Thus, even if the Class 7 and 8 categorical exemptions applied to the board's ordinance, the cumulative impacts exception would preclude reliance on the exemptions. An agency may not rely on a categorical exemption where "the cumulative impact of successive projects of the same type in the same place, over time is significant." (CEQA Guidelines § 15300.2 (b).) The cumulative impacts of groundwater pumping wells on Sonoma County's already over-subscribed groundwater resources, and the interconnected surface waters, cannot be reasonably disputed. See Section II above.

C. The "Common Sense" Exemption Does Not Apply

Staff further asserts that the amendment is exempt from CEQA under the "common sense" exemption, claiming "it can be seen with certainty that there is no possibility that this ordinance may have a significant effect on the environment." (Ordinance, at p. 2) Staff states the basis for this determination is that the ordinance makes "miscellaneous technical, clarifying, or conforming changes to permit requirements and facilitates data collection related to public trust resources through metering and eliminates emergency well drilling without prior review or approval." (Ordinance, at p. 2) Further, staff claims that adoption of the ordinance "will not result in any direct or indirect physical change to the environment and will instead assure the maintenance, restoration, enhancement, and protection of natural and public trust resources and the environment by providing a framework for discretionary review of applications requiring a public trust analysis."

CEQA's "common sense" exemption can be relied on only if a factual evaluation of the agency's proposed activity reveals that it applies. (*Muzzy Ranch Co. v. Solano County Airport Land Use Com.* (2007) 41 Cal.4th 372, *as modified* Sept. 12, 2007.) Whether a particular activity qualifies for the "common sense" exemption presents an issue of fact, and the agency invoking the exemption has the burden of demonstrating it applies. (CEQA Guidelines, § 15061(b)(3). Before determining that an activity is exempt from CEQA under the "common sense" exemption, the agency must examine the evidence presented in the administrative record. (CEQA Guidelines, § 15061(b)(3).) This exemption applies only where "it can be seen with certainty that there is no possibility that the activity in question may have a significant effect on the environment." (CEQA Guidelines, § 15061(b)(3).) "[It] is reserved for those obviously exempt projects where its absolute and precise language clearly applies." (*Cal. Farm Bureau Fed.* (2006) 143 Cal.App.4th 173, 194 (internal quotations omitted); *see also Davidson Homes v. City of San Jose* (1997) 54 Cal.App.4th 106, 117 ("If legitimate questions can be raised about whether the project might have a significant impact . . . the agency cannot find with certainty that a project is exempt.").)

Again, there is no reasonable dispute additional groundwater wells in aquifers connected to surface waters—the majority of aquifers in Sonoma County—will further impact public trust resources. Staff provides no basis for its bald assertion otherwise, failing to meet the burden required to apply the exemption.

In sum, the proposed amendment to the Sonoma County Code Chapter 25B (Well Ordinance) fails to satisfy the County's fiduciary duties, as clarified by the *Environmental Law Foundation v. State Water Resources Control Board* decision, to consider adverse effects to the Russian River system's public trust resources and uses when issuing water well permits and to prevent harm to public trust resources and uses where feasible. Moreover, despite the Notice of Categorical Exemption filed by Permit Sonoma, the proposed amendment is subject to CEQA review prior to adoption.

For all the foregoing reasons, Coastkeeper requests that the Board of Supervisors reject the Amendment to the Sonoma County Code Chapter 25B (Well Ordinance) as submitted, and direct Permit Sonoma to develop well permitting criteria that protect the Russian River system's public trust resources and comply with law.

Sincerely yours

Drevet Hunt
Legal Director
California Coastkeeper Alliance

cc: Don McEnhill, Russian Riverkeeper
Jaime Neary, Russian Riverkeeper

Attachment C

September 30, 2022

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Clerk of the Board of Supervisors
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Subject: CALIFORNIA COASTKEEPER ALLIANCE COMMENTS ON

(A) THE PROPOSED AMENDMENT TO THE SONOMA COUNTY CODE CHAPTER 25B (WELL ORDINANCE) AND

(B) ORDINANCE ESTABLISHING A TEMPRORARY MORATORIUM ON PROCESSING AND APPROVAL OF APPLICATIONS FOR WATER SUPPLY WELL PERMITS

To Sonoma County Board of Supervisors:

California Coastkeeper Alliance (CCKA) thanks you for the opportunity to comment on the proposed amendment to the Sonoma County Code Chapter 25B (Proposed Amendments) and the urgency ordinance establishing a temporary moratorium on processing and approval of applications for water supply well permits (Temporary Moratorium). We submitted written comments on a previous draft of the proposed amendment on August 4, 2022, and oral comments on that draft at the hearing held August 9, 2022. To the extent the text of that proposed draft remains unchanged, we incorporate those comments here by reference, and have attached a copy of those comments here for convenience.[1]

First, we are pleased that the County is considering the Temporary Moratorium on processing permit applications. The moratorium will, hopefully, prevent a rush of permit applications prior to the effective date of the Proposed Amendments. However, the moratorium does not serve the more important purpose – and the reason a moratorium is necessary here - of allowing County staff to undertake the

[1] Key comments related to unchanged elements of the Proposed Amendments include: (1) the absence of standards or criteria that Permit Sonoma will be called on to apply when making a determination on a well permit application, and the specific request to include reference to and application of instream flow standards, groundwater level-based criteria (beyond those in the adopted GSPs), etc..; (2) the need to squarely and comprehensively address the ongoing and cumulative impacts of proposed and existing permitted wells in permitting decisions and permit conditions, including by ensuring offsets in oversubscribed areas prior to permit issuance and developing a program to ensure all users do their share to mitigate impacts; (3) and the failure to perform CEQA as required.

necessary analysis and develop the modeling, mitigation measures, and other elements of a fully supported groundwater well permitting program that ensures the County meets its duty under the public trust doctrine. We therefore urge the County to revise the Temporary Moratorium to be long enough for the County to develop a complete set of proposed amendments that ensures the County meets its public trust duties with respect to permitting groundwater extraction in Sonoma County.

Second, we appreciate and support the County's efforts to improve the Proposed Amendments since the draft considered on August 9, 2022. These improvements include:

- Accounting for the cumulative impact of proposed and existing wells on public trust resources by requiring Permit Sonoma to determine whether the issuance of a well permit "will or will not cause or exacerbate" an adverse impact on public trust resources;
- Identification of feasible "Water Conservation and Best Management Practices" that if implemented would help mitigate adverse impacts to public trust resources;
- The effort to define the "Public Trust Review Area" to provide clarity to the public and permit applicants regarding whether the Public Trust Review would be required for a specific water well permit.

While certain aspects of these improvements still fall short, we support their inclusion in the Proposed Amendments provided they are modified and supported with facts, data, and evidence in the record, as explained in our comments below.

Third, despite these improvements, we have significant concerns with the Proposed Amendments and their failure to ensure the County both considers the public trust and protects the public trust when regulating the extraction of groundwater in Sonoma County. As discussed in detail below, the Proposed Amendments should not be adopted because:

- They represent a significant step back from the previous draft because they only require Permit Sonoma to "consider" the impact on public trust resources, while completely failing to ensure that the identified impacts to public trust resources are mitigated as required.
- They establish an inadequately supported and too narrow, "Public Trust Review Area" that excludes wells in areas of the County where groundwater extraction impacts public trust resources.
- They exempt wells from public trust review and mitigation without any analysis, facts or evidence to support the necessary conclusion that the exempted wells will not cause or contribute to adverse impacts on public trust resources or uses.
- They establish water conservation and best management practices that if implemented will qualify wells for exemption from public trust review without any analysis, facts, or evidence to demonstrate that these measures will ensure the exempted wells will not cause or contribute to adverse impacts on public trust resources or uses.

We want to work with the County to get this right, and where possible we have provided revised language that would help ensure the County satisfies its public trust duties.

However, the County can only address many of the shortcomings we identify here (and in our August 4 comment letter) by taking the time necessary to develop the record and analysis to support an effective well ordinance. As currently proposed, the amendments will expose the County to lawsuits from all sides on grounds that (1) the ordinance focuses solely on the County's duty to consider the public trust, and does not ensure the County satisfies its duty to mitigate harm to the public trust where feasible; (2) the exemptions to public trust review established in Sec. 25B-4(e) – including the exemptions based on implementation of the water conservation and best management practices in Sec. 25B-13 – are arbitrary and capricious and not support by facts, data, or other evidence as required; and (3) given these failures, the proposed ordinance will result in significant harm to the environment, triggering CEQA review.

The solution is for the County to slow down and put a pause on the processing of water well permits that is long enough for it to develop and support - with facts, evidence, and analysis – a comprehensive ordinance that ensures it meets its duty to both consider and protect the public trust resources and uses of Sonoma County's waters.

Specific Comments and Concerns

I. The Proposed Ordinance Does Not Satisfy the County's Duty to Both Consider and Protect the Public Trust.

Under the public trust doctrine, the County has "an affirmative duty to take the public trust into account in the planning and allocation of water resources, and to protect public trust uses whenever feasible." *National Audubon Society v. Superior Court*, 33 Cal.3d 419, 446 (Cal. 1983). This is more than an obligation to merely consider the public trust, it is a directive to protect it.

In Sec. 25B-4(d) of the proposed amendments, the County attempts to address the first half of it public trust obligation. As the prefatory text of 25B-4(d) explains, the section addresses "how the County of Sonoma fulfills its obligation *to consider the public trust*." (Emphasis added). It does not claim to establish how the County will satisfy its duty to protect the public trust, public trust resources, or public trust uses whenever feasible, as required. The County may believe that the Sec. 25B-4(d)(3) requirement that project features or mitigation measures "necessary to the Enforcing Agency's written findings for approval" become conditions in the new well permit satisfies its duty to protect resources whenever feasible. However, there is no indication of what mitigation measures are "necessary" for approval and nothing makes approval contingent upon a finding that the public trust will be protected. Because the Proposed Amendments only require consideration of the public trust, and does not mandate its protection,

the Well Ordinance fails to fulfill the County's public trust obligations. Therefore, we recommend the ordinance be edited:

Section 25B-4. Prohibitions and limitations should be amended to read:

(d) Public trust resources limitation. This section addresses how the County of Sonoma fulfills its obligation to consider and protect the public trust for* the extraction of groundwater that ~~adversely~~ affects a navigable waterway.

(d)(3) Findings and Determinations:

i. As part of the issuance, issuance with conditions, or denial of any water well permit ~~within the Public Trust Review Area~~, the Enforcing Agency shall consider best available information and make written findings as to whether the issuance of the requested permit will or will not cause or exacerbate a substantial adverse impact on public trust resources and public trust uses ~~in navigable waters~~ after the imposition of feasible mitigation measures to protect those public trust resources. Any project features or mitigation measures that are necessary to the Enforcing Agency's written findings for approval of any new water well permit shall become conditions on the new water well permit.

ii. The Enforcing Agency shall not issue a permit for the construction or installation of a new water well within the contributing watershed of navigable waters, if in the determination of the Enforcing Agency it will have or exacerbate an adverse impact on public trust resources or their public trust uses after the imposition of mitigation measures that protect those public trust resources and public trust uses.

*The "for" in the sentence above appears to be grammatically incorrect but we are not sure the County's intent, so it is difficult to propose alternative language to address the issue. What does the County mean "to consider [and protect] the public trust **for** the extraction of groundwater"?

II. The Ordinance Must, but as Drafted Does Not, Protect Public Trust Resources and Public Trust Uses of Those Resources.

The public trust doctrine requires the state to protect both public trust resources and public trust uses of those resources for the benefit of the people. *National Audubon Society v. Superior Court*, 33 Cal.3d 419, 435, 446 (Cal. 1983). There is no question that fishing and wildlife habitat, among others, are public trust uses that the County has a duty to consider and protect. *Id*. at 434-435; *Center for Biological Diversity, Inc. v. FPL Group, Inc.*, 166 Cal.App.4th 1349, 1361 (Cal. Ct. App. 2008). For public trust uses to be protected, the attributes of public trust resources (like water and fish) necessary to support these uses must also be protected. Even when harm to these attributes occurs in a non-navigable tributary, it can impact public trust resources. Harming the fish that form the fishery of the navigable waterways, regardless of where that harm occurs, injures the public trust resource and diminishes its uses. *National Audubon Society v. Superior Court*, 33 Cal.3d 419, 437 (Cal. 1983). Despite these clear and logical directives, the Proposed Amendments fail to ensure that the impacts of groundwater extraction on public trust resources (e.g. the fishery) and public trust uses (fishing) are evaluated and protected against, wherever they occur, as required.

First, while the Ordinance acknowledges that there are multiple elements of navigable waterways protected by the public trust doctrine, it does not specify the public trust resources of navigable waterways that must be protected to ensure the identified public trust uses are maintained. Within the Well Ordinance, public trust resources are defined as "waterways" held "for the benefit of the public for the purpose of commerce, navigation, recreation, fishing, and preservation of wildlife habitat and natural resources." By not recognizing the indivisible attributes of these waterways, such as the recreational uses, the fish, or the wildlife habitat of the waters, the definition is subject to interpretation that could lead to unnecessary disputes over the scope of the County's public trust obligations. To ensure the Ordinance clearly informs the public regarding the scope of the County's obligations, the Ordinance should describe the public trust resources of navigable waterways, such as the water, the fish, and the wildlife, that support the public trust uses, such as commerce, fishing, and recreation. Providing this additional clarity to the definition will ensure that water users and the general public fully understand that the County has a duty to protect public trust resources (such as salmon that form the fishery in navigable waters), even if the impacts to the resources occur in non-navigable tributaries.

Second, Sec. 25B-4(d)(1)(i) directs Permit Sonoma to analyze how a groundwater well will impact "public trust resources of navigable waterways," but it is not similarly clear that Permit Sonoma must also consider impacts of the well on the uses of those resources and preserve those uses. As noted in *Audubon*¸ the public trust doctrine imposes an obligation to "to preserve, so far as consistent with the public interest, the uses protected by the trust." *National Audubon Society v. Superior Court*, 33 Cal.3d 419, 447 (Cal. 1983). We provide edits to the draft ordinance below that would ensure Permit Sonoma makes necessary findings regarding the impacts to public trust uses as well as public trust resources. At its core, the Proposed Amendments must be revised to ensure there is no confusion that protecting the public trust requires evaluating impacts to public trust resources and uses, including if the direct impacts occur in non-navigable tributaries.

Third, perhaps in part due to the too-narrow definition of public trust resources, the Proposed Amendments improperly limit the scope of where the impacts to public trust resources are to be evaluated. For example, Sec. 25B-4(d)(1)(i) and (d)(3) directs Permit Sonoma to analyze impacts to "public trust resources *of* navigable waters" and "public trust resources *in* navigable waters." (Emphasis added). It is unclear whether the Ordinance requires consideration of impacts to public trust resources *only* in navigable waters, or whether it requires consideration of impacts to public trust resources (e.g., fish) of navigable waters wherever they are found. Relevant here, the proposed amendments as drafted could exclude evaluation of the impact of groundwater pumping on non-navigable tributaries to Sonoma County rivers—tributaries essential to coho and steelhead for spawning. The law requires consideration of impacts to public trust resources and public trust uses, wherever those impacts occur, not just in navigable waters.

To remedy these issues, we recommend the Ordinance be edited:

Sec. 25B-2 Purpose should be amended to read:

(e) Improperly regulated groundwater extraction can harm public trust resources of navigable waters.

Sec. 25B-3. Definitions should be amended to read:

"Public trust resources" means the waters, fish, wildlife habitat, and other natural resources of navigable waters ~~waterways~~ the government is obligated to hold in trust pursuant to the public trust doctrine for the benefit of the public for purposes of commerce, navigation, recreation, fishing, and preservation of wildlife habitat and natural resources.

Sec. 25B-4. Prohibitions and Limitations should be amended to read:

(d)(1)(i) The Enforcing Agency shall consider whether a proposed well within a Public Trust Review Area, as described in subsection (d)(1)(ii), will cause or exacerbate a substantial adverse impact on public trust resources and public trust uses of those resources ~~of navigable waters~~ after the imposition of mitigation measures to protect public trust resources and their public trust uses.*

*This, or similar language, should also be used throughout the Ordinance, including specifically in sections: (d)(2) and (d)(3).

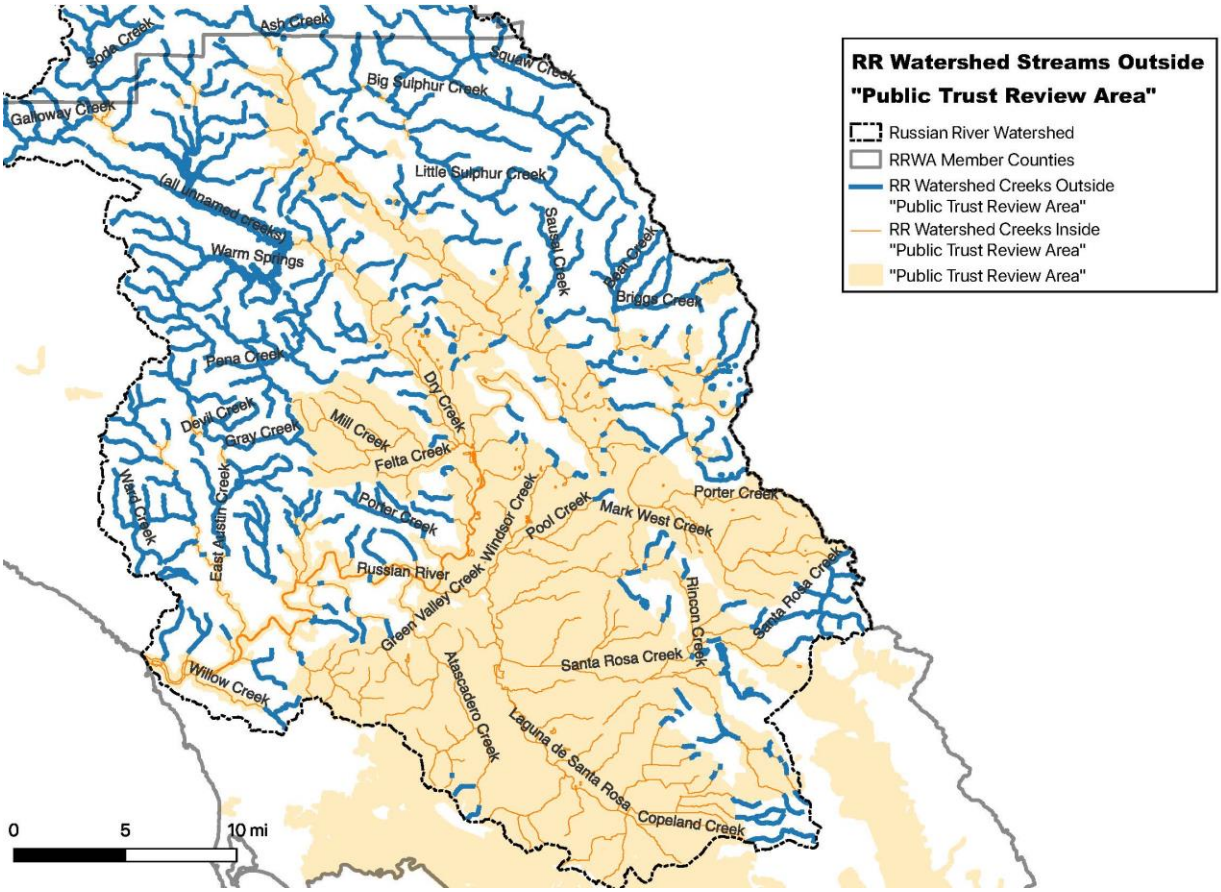
III. The "Public Trust Review Area" as Defined in the Proposed Amendments Does Not Include All Areas where a Public Trust Review and Limitation Is Necessary and Is Not Supported by Evidence Sufficient to Ensure that the County Meets Its Public Trust Duties as Required

We appreciate the County's effort to clearly define the areas within the County where public trust review will be required during the well permit application and issuance process. However, the area defined by the Proposed Amendments and depicted in the map provided for public review on the County's website does not include all areas where groundwater extraction may adversely impact public trust resources. In addition, the County as failed to identify evidence or provide an adequate analysis based on evidence to support any finding or conclusion that the Public Trust Review Area represents the entirety of the area where a public trust review is required; and thus fails to support any finding or conclusion that any well permit issued outside that area is properly exempted from public trust review. As a result, the County's adoption of the Proposed Amendments is unlawful and arbitrary and capricious. Likewise, any issuance of a well permit outside the Public Trust Review Area would similarly expose the County to allegations that it has failed to satisfy its public trust duties with respect to that permit.

As an initial matter, we agree with and support the County's determination that the areas it identifies as within the Public Trust Review Area belong there. These areas are all within portions of the watersheds of

"navigable waters" where groundwater extractions are likely to cause or contribute to adverse impacts on public trust resources and uses.

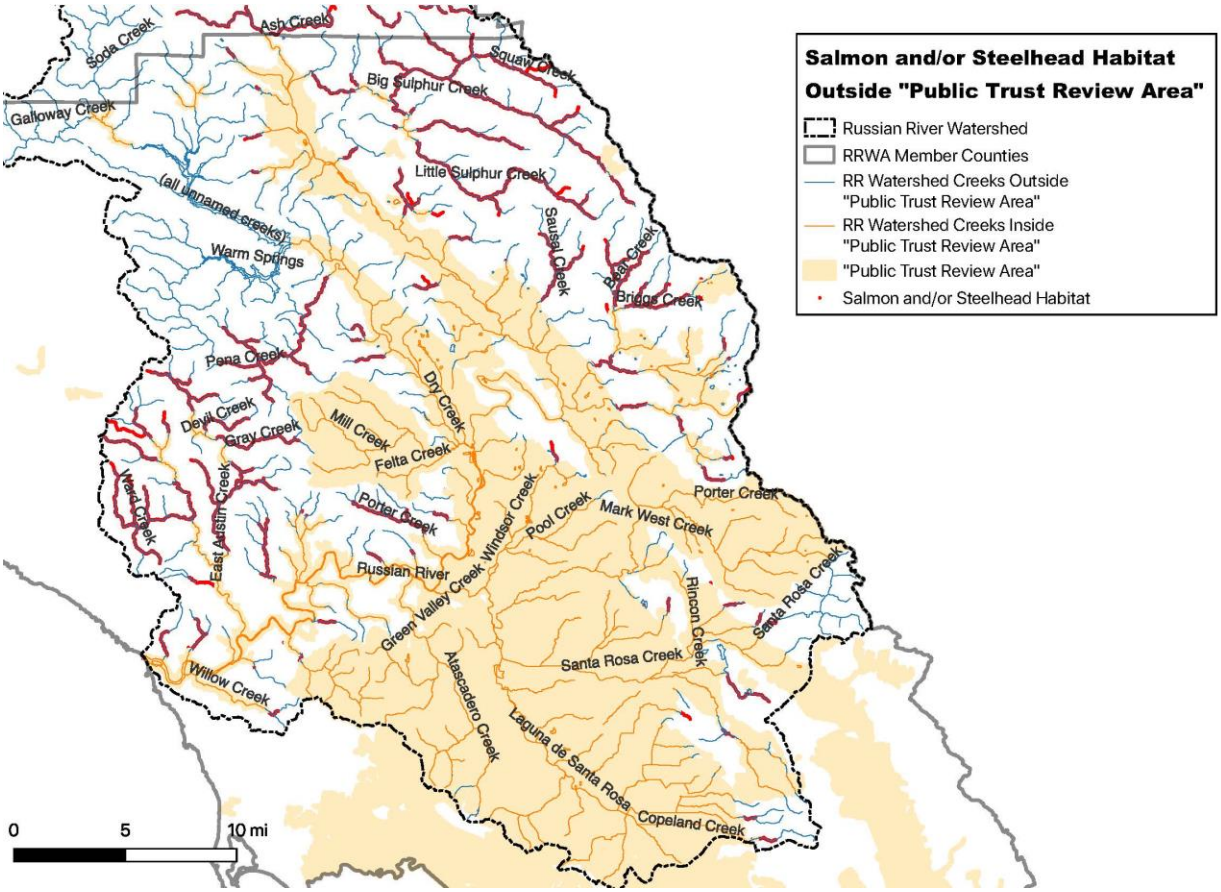
However, taking the Russian River watershed as an example, as depicted on the map below, the Public Trust Review Area defined by the County excludes dozens of creeks and streams in the County without providing any evidence or analysis to support their exclusion.



In addition, available evidence indicates that groundwater extraction in additional areas must also be included in the Public Trust Review Area. This includes, but is not limited to, areas further upstream from the mapped boundaries of the proposed Public Trust Review Areas characterized by fractured bedrock, and areas in proximity to numerous known and expected salmonid-bearing streams and creeks. Upstream areas in fractured bedrock have greater porosity, permeability, and hydraulic conductivity than bedrock and these characteristics are "the reason why springs are common and wells can provide adequate yield for domestic and agricultural uses in Franciscan geology."[2]

[2] Center for Ecosystem Management and Restoration (CEMAR). 2015. Report on the Hydrologic Characteristics of Mark West Creek. Nov 14, 2014 (Updated Jan 28, 2015) at page 31. Available at: http://www.cemar.org/pdf/Report_on_the_Hydrologic_Characteristics_of_Mark_West_Creek.pdf; Phillips, J.T. 2012. Testimony of John T. Phillips, regarding a hearing of the North Gualala Water Company, to the State Water Resources Control Board, Sacramento, CA at pages 7, 11-12, 14-15. Available at:

The map below identifies known and expected salmonid-bearing streams and creeks in the Russian River watershed outside the defined Public Trust Review Area.



The solution here is for the County to take a precautionary approach and either conduct the public trust review for all wells in Sonoma County, or pause or condition issuance of well permits until such time as the County develops the factual record and associated analysis to support any limitation on the scope of the Public Trust Review Area. Once that analysis is complete, the County could potentially reopen the Well Ordinance to define the Public Trust Review Area based on available information and ensure it is exempting well permit applications from public trust review on the basis of sound factual evidence and supporting analysis.

IV. The Proposed Exemptions Are Not Supported by Facts, Evidence or Analysis to Demonstrate the County Has Met Its Public Trust Obligations with Respect to Permitting of these Wells.

The County of Sonoma has failed to articulate or provide sufficient evidentiary support for the proposed exemption of wells identified in Sec. 25B-4(e) from public trust review and protection. Instead, the

https://www.waterboards.ca.gov/waterrights/water_issues/programs/hearings/ngwc_groundwater/docs/gualala_exhibits.pdf.

County merely assumes that either the public trust doctrine does not apply to these classes of wells, or that the County's public trust obligations have been satisfied for those wells. However, without any indication that the public trust was considered when establishing these exemptions, and without referring to any evidence that these classes of wells will not cause or contribute to adverse impacts to public trust resources, approval of the proposed exceptions both violates the County's public trust duty and is arbitrary and capricious.

a. Exemptions for Wells Limited to the Amount Used for Legally Established Land Uses that Existed as of October 4, 2022 (Exemption (e)(5)), Wells for Which Applications Were Submitted Prior to the Ordinance Effective Date (Exemption (e)(2)), and Exemptions for Replacement Wells (Exemptions (e)(3) and (e)(4)) Are Not Supported by the Law or Evidence.

The County has provided no factual support, analysis based on evidence, or otherwise explained how its proposal to exempt "existing" and replacement wells (Exemptions (e)(2), (e)(3), (e)(4) and (e)(5)) from public trust review is consistent with or otherwise ensures it has or will meet its public trust obligations when issuing permits for these wells. To do so the County would need to conduct an analysis, supported by evidence, that demonstrates that these exempted wells do not cause or contribute to adverse impacts on public trust resources and that any such impacts have been mitigated when feasible. Not only is adoption of the Proposed Amendments without this required analysis unlawful and an abuse of discretion, the County's approval of each and every well permit that is exempted from the public trust review under these exemptions will be unlawful and an abuse of discretion because no such analysis will be done on a case by case basis.

Furthermore, existing information – including the substantial evidence CCKA provided with its comments on August 4, 2022 – demonstrates that in many areas throughout Sonoma County existing groundwater use is already causing significant adverse impacts to public trust resources. As NOAA-Fisheries explains in its comments regarding Exemption (e)(5) of the proposed amendments (submitted September 28, 2022)

> "allowing a new water well supplying a parcel to avoid public trust analysis 'as long as the proposed groundwater usage does not exceed the use established prior to October 4, 2022', (i.e., "grandfathering" past groundwater usage) is not consistent with protecting public trust uses and will not consider potential impacts to ESA-listed species and their habitat. […] Grandfathering past groundwater use will likely seriously compromise the County's ability to manage groundwater resources in a way that avoids impacting public trust resources or adequately minimizes impacts to ESA-listed salmonids and their habitat."

The issues identified by NMFS are relevant not only to Exemption (e)(5), but apply equally to replacement or new wells on parcels that use less than 2.0 acre-feet per year because grandfathering in the cumulative impact of dozens of small wells in already oversubscribed areas will prevent the County from ensuring that it mitigates impacts to public trust resources where feasible. Absent an analysis based on evidence of the impacts of issuing well permits that grandfather in existing extraction rates and uses, the County's adoption of the Proposed Amendments will be arbitrary and capricious and unlawful. So too will any issuance of a well permit that relies on any of these exemptions and proceeds ministerially without public trust review and mitigation.

As a legal matter, as trustee over public trust resources, the County has a "duty of continuing supervision" over actions which implicate the public trust. Included in this duty is the "the power to reconsider allocation decisions even though those decisions were made after due consideration of their effect on the public trust. The case for reconsidering a particular decision, however, is even stronger when that decision failed to weigh and consider public trust uses." *National Audubon Society v. Superior Court*, 33 Cal.3d 419, 447 (Cal. 1983).

Despite this duty to consider the public trust, especially when an original allocation decision failed to make such a consideration, Sec. 25B-4(e)(2) exempts wells with applications completed before the effective date of the amended Ordinance, and Sec. 25B-4(e)(3) (and arguably Exemptions (e)(4) and (e)(5)) exempts replacement wells. However, the mere fact that a well's application is complete before the Proposed Amendments are adopted does not excuse the County from its duties. Likewise, replacement wells must be subject to the same scrutiny as new wells, not exempted from this process.

In addition, simply because water is being used for a legally established use does not mean that the public trust doctrine is satisfied. Indeed, the court in *Audubon* acknowledged that the State Water Board granted Los Angeles Department of Water and Power water rights from Mono Lake's tributaries to use that water for domestic purposes because California law dictated that "the use of water for domestic purposes is the highest use of water." *National Audubon Society v. Superior Court*, 33 Cal.3d 419, 427 (Cal. 1983). Even though the water was being used legally and in a manner California law favors above all else, the court found that "some responsible body ought to reconsider the allocation of the waters of the Mono Basin," and held that the state had a duty to make such a consideration under the public trust doctrine *National Audubon Society v. Superior Court*, 33 Cal.3d 419, 447 (Cal. 1983). The fact that the water was being used for a legally established use did not shield the County from its public trust obligations.

However, contrary to the Supreme Court's conclusion in *Audubon*, exemption (e)(5) specifically exempts wells which are limited to using an amount of groundwater used "for legally established land uses that existed as of October 4, 2022." Putting aside whether Exemption (e)(5) applies to new wells or replacement wells, or both, the fact that the proposed well's water is used for legally established land uses does not mean the well will have no impact on the public trust.

b. Exemption for Public Water Wells for which CEQA Is Complete (Exemption (e)(7)) Is Not Supported by the Law or Evidence.

While compliance with environmental statues, like CEQA, may incidentally satisfy the County's public trust obligations, it does not do so automatically. *San Francisco Baykeeper, Inc. v. Cal. State Lands Comm'n*, 242 Cal.App.4th 202, 243 (Cal. Ct. App. 2015) ["on this record we cannot find that the [State Lands Commission] fulfilled its obligation to conduct a public trust analysis in the CEQA process."]. Instead, the County may only use CEQA as a vehicle for completing its public trust analysis, and compliance with CEQA is not a replacement for compliance with the public trust doctrine. For this reason, exemption seven, for wells in which CEQA review is complete, is improper.

Furthermore, the County has done no analysis, based on evidence, to demonstrate that the wells that would fit into Exemption (e)(7) will not cause or contribute to adverse impacts on public trust resources and that any such impacts have been mitigated when feasible. Absent this evidence and analysis, the County's adoption of Exemption (e)(7) is unlawful and an abuse of discretion.

c. Exemptions for Low Volume Wells (Exemption (e)(3) and (e)(4)) Are Not Supported by the Law or Evidence.

The County of Sonoma has failed to articulate how wells with low annual volume will, in all circumstances, not adversely impact the public trust. Exemption 25B-4(e)(3) and (4) would allow the County to approve any number of low volume wells without considering whether they will cause or exacerbate a substantial adverse impact to the public trust. Two acre-feet per year per parcel is not an insignificant amount of water.

As an initial matter, even assuming 2.0 acre-feet per year is insignificant on a per parcel basis, the County has provided no analysis of the potential cumulative impact of dozens or even hundreds of low volume extractions in a particular area, or in close proximity to larger volume annual extraction in a particular area. Absent this analysis, based on evidence, the County has failed to satisfy its obligations to ensure it considers and protects the public trust when issuing permits exempted by (e)(3) and (e)(4). These failures make the County's action unlawful and an abuse of discretion.

Specifically regarding Exemption (e)(3), the County has provided no analysis or evidence to demonstrate that cumulative extraction of less than 2.0 acre-feet per year, per parcel, that serves a parcel used solely for domestic purposes is per se not going to cause or exacerbate adverse impacts to public trust resources or public trust uses of the public trust. That is especially true considering there is no requirement that the owner or user of the replacement will implement conservation measures that appear to be required by Exemption (e)(4) for new wells.

Regarding Exemption (e)(4), the County has provided no analysis or evidence to demonstrate that cumulative extraction of less than 2.0 acre-feet per year, per parcel, for parcels serving any purpose is per se not going to cause or exacerbate adverse impacts to public trust resources or public trust uses of the public trust. And while we appreciate reference to specific water conservation and monitoring requirements that the County believes will ensure adverse impacts will not be caused, the County has failed to conduct the required analysis, based on evidence, to meet its public trust obligations (as described in Section V below).

V. The Water Conservation and Best Management Practices that Are Relied Upon to Exempt Wells from Public Trust Review Are Not Supported by Facts, Evidence or Analysis to Demonstrate the County Has Met Its Public Trust Obligations to Mitigate the Impacts of these Wells.

The County's duty to mitigate impacts of groundwater wells is grounded in its duty to "protect public trust uses whenever feasible." *See National Audubon Society v. Superior Court*, 33 Cal.3d 419, 446 (Cal. 1983). While we acknowledge the County's apparent effort to address this obligation by including the Water Conservation and Best Management Practices found in Sec. 25B-13, the County has failed to demonstrate with evidence and analysis that the identified measures will in fact mitigate the harm that may be caused or contributed to by the permitted well (or that this is the extent of feasible mitigation to protect public trust resources and uses). Absent this evidence and analysis, the County's adoption of these Proposed Amendments is unlawful and arbitrary and capricious. In addition, any issuance of a well permit that relies on any of these mitigation measures and proceeds ministerially without public trust review and mitigation will also be subject to challenge as unlawful and arbitrary and capricious in its consideration and protection of public trust resources.

Not only has the County failed to supply evidence and analysis necessary to support any finding that these mitigation measures will ensure it meets its public trust duties, on their face several of the mitigation measures do not appear sufficient to mitigate impacts to public trust resources as required. For example, as NOAA-Fisheries comments regarding Sec. 25B-13(a)(2)

> "the approach to calculate the amount of historic groundwater uses as an "average over the three-to-five -year period immediately prior" to October 2, 2022, is fundamentally flawed. The three-year period prior to this date was historically dry in Sonoma County, and groundwater use was likely historically high as a result. Grandfathering in this level of anomalous groundwater use will likely significantly constrain the County's attempt to protect public trust resources, and is unlikely to avoid impacting ESA-listed salmonids and their habitat."

In addition, the County's distinction between limiting use to 0.4 acre-feet per acre per year in critical watershed areas and 0.6 acre-feet per acre per year in priority basins does not make sense in light of information that indicates impacts to salmonids from groundwater pumping is not limited to critical watershed areas. *See* NOAA-Fisheries comments submitted September 28, 2022.

VI. Conclusion

We again thank you for the opportunity to provide comments on the Proposed Amendments. The County is taking a much needed, and legally required, step toward ensuring protection of public trust resources and the sustainable use of its water resources. However, the rush to adopt amendments to its ordinance is unnecessary and unwise. There is no question that groundwater resources throughout the County are oversubscribed, and that the rivers, streams, fish, and overall reliability of water supply throughout the County is at risk as a result. In light of the current situation, and predictions that it is only going to get worse, we strongly urge the County to place a temporary moratorium on the processing and issuance of groundwater well permits for the time it takes to develop a comprehensive and effective ordinance that addresses deficiencies raised in comments raised here and by other members of the public.

Sincerely yours,

Drevet Hunt
Legal Director
California Coastkeeper Alliance

cc: Don McEnhill, Russian Riverkeeper
Jaime Neary, Russian Riverkeeper

Attachment D

ROHDE Environmental Consulting, LLC

A proposal for assessing well impacts to public trust resources:
Methodological Outline

Melissa M. Rohde
Principal

Here, I propose a data-driven and science-based approach for assessing well impacts to public trust resources that can be applied throughout Sonoma County. This proposed methodology is based on analytical streamflow depletion functions that are implementable using python or other data processing software by appropriate County staff or automated through the development of a simple webapp. The main goal of this proposed methodology is to minimize impacts to public trust resources in a fair and equitable manner that is not overly burdensome for Sonoma County staff and well applicants.

The proposed method would account for existing and cumulative streamflow depletions within the public trust review area by evaluating all existing and proposed wells within navigable and non-navigable waterways. This methodology would conduct well impact analyses on individual stream reaches (as defined by the National Hydrography Dataset version 2.1), so that well permits could be assessed based science-based thresholds at each stream reach and account for aggregated streamflow depletions from nearby wells associated with the reach. Prior to evaluating whether new wells can be installed without causing adverse impacts to public trust resources, we first need to account for existing cumulative depletions and quantify streamflow and groundwater level targets that are protective of public trust resources. To practically achieve this, the proposed method relies on establishing streamflow criteria as a key proxy for quantifying public trust resource needs. The method is broken into five steps and designed to be simple, systematic, and scalable:

Simple. By accounting for streamflow depletion along all stream reaches, we simplify the impact analysis because we can assume that if impacts are occurring at a nearby stream reach that those impacts will propagate downstream. In contrast, if well impact analyses are only occurring in only navigable reaches, it is more difficult to prevent impacts to public trust in an equitable manner. For example, a well applicant located along a navigable reach may not be able to get their well permitted if the cumulative streamflow depletion occurring upstream has resulted in harm to the public trust resources in the applicant's stream reach (not to mention other harm upstream in more vulnerable tributary stream reaches).

Systematic. The burden should not be on the well applicant to conduct an analysis of impacts to public trust resources. Requiring well applicants to do so, creates inequity issues because not all applicants have the financial or technical means to conduct or hire consultants to conduct the analysis. Thus, the well permitting process needs to be systematic by utilizing the same methodology and data for all well applicants.

Scalable. Including both navigable and non-navigable waters in this proposed methodology is necessary. This methodology should be adaptive and iterative, such that impacts can be prevented, and that sufficient mechanisms are in place to monitor and mitigate unforeseen impacts resulting from the permitting process (e.g., significant streamflow depletion or rapid groundwater level changes for riparian vegetation that triggers an adverse impact to public trust resources).

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Proposed Methodology (an Outline)

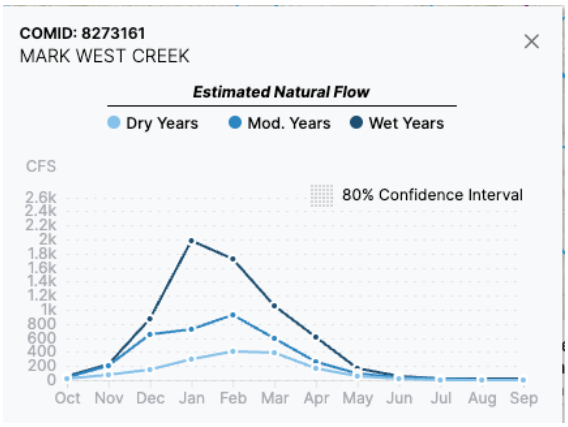
Step 1. Account for all existing depletions of surface water by stream reach

1. For each well in the county, gather the following info:
    a. Well Name / ID
    b. Latitude
    c. Longitude
    d. Well purpose
    e. Year that well was installed
    f. Length of screen in well
    g. Determine which stream reach (National Hydrography Database version 2.1 Common identifier "ComID") that each well location is linked to (this should be the first stream reach that stream depletion would intercept) ← requires spatial analysis (e.g., spatial join using HUC boundaries)
    h. Distance between well and stream ← requires spatial analysis
    i. Pumping Rate (if metered data aren't available, make assumption based on well purpose and best available info. For example, for domestic wells assume annual pumping not to exceed 2 AF/year. If well pumping varies throughout the year, then create a separate field for each month (e.g., Jan_pump, Feb_pump, etc)).
    j. Specific Yield (Aquifer parameter). Based on well log and/or geologic maps. Take the weighted average across the well-stream continuum (e.g., if well is in fractured rock, but stream is in alluvium)
    k. Horizontal Hydrologic Conductivity (Aquifer parameter). Based on well log and/or geologic maps. Take the weighted average across the well-stream continuum (e.g., if well is in fractured rock, but stream is in alluvium)

2. Use analytical streamflow depletion functions to estimate streamflow depletion from each well. Outputs should include total streamflow depletion (since well installation) and monthly averaged streamflow depletion.

3. Aggregate the total streamflow depletion occurring from all existing wells associated with each stream reach (NHD v.2.1 "ComID") to create a monthly average. This is the sum of estimated streamflow (from above) for all wells within each ComID.

4. For each stream reach in Sonoma County, gather estimated natural flow data from The Nature Conservancy's Natural Flows Database (https://rivers.codefornature.org/#/map). Create a database containing the natural flows (in cfs) for each month and water year type (e.g., Jan_wet, Jan_moderate, Jan_dry, Feb_wet, Feb _moderate, Feb _dry, etc.; see figure below)



5. For each stream reach, month, and water year type:
    a. estimate the volume of water remaining instream by subtracting the aggregate total streamflow depletion estimated above in Step 1.3 from the estimated natural flow in Step 1.4. The flow rate in the natural flows database will have to be converted to flow volume, so that it can be compared with the aggregate streamflow depletion (or vice versa). Create a new column that calculates the percentage of depletion, and
    b. estimate the change in groundwater levels (water table depth) at each stream reach due to groundwater pumping.

OUTPUT: Visualize the results, by creating three separate maps (one for each water year type). Each stream reach should be color coded by the depletion percentage.

Step 2. Set Streamflow triggers and targets for each stream reach

Streamflow triggers and targets need to be established for each stream reach in collaboration with subject matter expertise from NOAA, California Department of Fish and Wildlife, State Water Resources Control Board, etc. The following topics should be determined:

- In the absence of flow criteria for each stream reach (which would ideally be set by the California Environmental Flows Framework), science experts should temporarily establish flow thresholds.
- Determine which stream reaches have the greatest public trust value (e.g., critical species habitat).
- Absolute and relative (rate) of groundwater level change acceptable based on rooting depth information for mapped phreatophytes.

OUTPUT: Update the maps developed in Step 1 to quantify and map which stream reaches have allowable streamflow depletion remaining.

Step 3. Evaluate well impacts to public trust resources for all proposed wells

1. Gather the following info during the well application process:
    a. Applicant ID / name
    b. Latitude
    c. Longitude
    d. Proposed well purpose
    e. Length of screen in well (use information from industry standards or summary statistics from existing wells in similar geology, etc).
    f. Determine which stream reach (ComID) the well location is linked to (this should be the first stream reach that stream depletion would intercept) ← requires spatial analysis (e.g., spatial join using HUC boundaries)
    g. Distance between proposed well location and stream ← requires spatial analysis
    h. Pumping Rate (make assumption based on well purpose and best available info from industry standards or summary statistics from existing wells in similar geology, etc). For example, for domestic wells assume annual pumping not to exceed 2 AF/year. If well pumping will vary throughout the year, then create a separate field for each month (e.g., Jan_pump, Feb_pump, etc)).
    i. Specific Yield (Aquifer parameter). Based on well log and/or geologic maps. Take the weighted average across the well-stream continuum (e.g., if well is in fractured rock, but stream is in alluvium)
    j. Horizontal Hydrologic Conductivity (Aquifer parameter). Based on well log and/or geologic maps. Take the weighted average across the well-stream continuum (e.g., if well is in fractured rock, but stream is in alluvium)

2. Use analytical streamflow depletion equation to estimate streamflow depletion from the proposed well. Outputs should include total streamflow depletion for a 50-year lifespan and monthly averaged streamflow depletion.

3. Determine whether the estimated streamflow depletion is within or exceeds the streamflow depletion target for the associated stream reach. If the pumping at the well would exceed the streamflow depletion target in the associated stream reach, then the well application would not be permitted.

Step 4. Monitor for Impacts to public trust resources

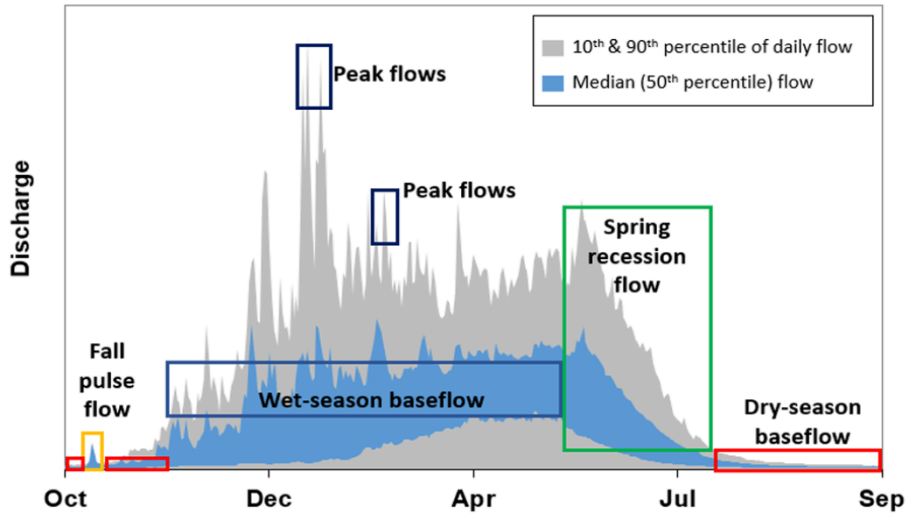
Hydrologic and environmental indicators need to be monitored to ensure impacts to public trust resources are not occurring and that the well impact assessment methodology can be refined and improved over time. In general, monitoring should be prioritized for the most sensitive public trust resources, such as summer rearing habitat or critical habitat for species). Impacts during July-September should be prioritized since that is when we would expect most adverse impacts to public trust resources to occur.

Hydrologic indicators:

- Shallow monitoring wells along waterways some of which are nested to measure vertical groundwater gradients between aquifer formations.
- Stream gauges
- Seepage meter measurements
- Well metering (flow rate, pumping volume and monthly schedule)

Ecologic Indicators:

- **Phreatophytes** – rooting depth information for different vegetation provides a good indication of what groundwater levels should be throughout the riparian corridor. Existing vegetation maps can be used to monitor vegetation greenness (Normalize Difference Vegetation Index) using satellite imagery.
- **Salmonids** – Salmonids are a good indicator species for aquatic environments because they rely on groundwater both indirectly and directly depending on life-stage and habitat requirements (e.g., juvenile rearing, migration). These life processes are in sync with seasonal flows that are supported by groundwater – surface water interactions.



The five functional flow components for California depicted on a representative hydrograph.

Step 5. Develop mitigative efforts to prevent harm to public trust resources

If public trust resources are being impacted by existing pumping, then the following actions could be employed:

- Water conservation rules and technologies
- Restricted pumping during certain times of the year
- Restricted pumping at certain depths
- Well density rules, including preclusion of new wells
- Offset requirements for impacts
- Specified minimum distance for pumping along sensitive public trust resources.

Attachment A

REVIEW COMMENTS OF:

[1]. SONOMA COUNTY WELL WORDINANCE

PUBLIC TRUST REVIEW AREA DELINEATION BY O'CONNOR ENVIRONMENTAL INC. MARCH 2023 (APPENDIX C or ATTACHMENT H) OF THE OUTCOMES AND RECOMMENDATIONS REPORT DATED MARCH 13, 2023)

[2]. SUMMARY REPORT: Consideration of an Ordinance: (1) Amending Sonoma County Code Chapter 25B (Well Ordinance) to Add Provisions Related to Evaluation of Public Trust Resources, Well Monitoring, and Other Miscellaneous and Technical Changes; (2) Setting a Fee for Discretionary Well Permit Applications; and (3) Determining Exemption from the California Environmental Quality Act. Consideration of Urgency Ordinance for Temporary Extension of the Moratorium on Water Well Permitting. [Agenda date: April 4, 2023].

COMMENTS BY HUGO A. LOAICIGA, Ph.D., P.E., P.H., D.WRE

(hugo.loaiciga@gmail.com; (805) 450 4432)

MARCH 30, 2023

1. Executive Summary.

These review comments identify several shortcomings associated with the contents of Appendix C (Attachment H, item [1]) and the proposed well ordinance (SUMMARY REPORT, item [2]) to be considered by Sonoma County. The following shortcomings were detected in our review of Appendix C (Attachment H):

(i) The use of fragmentary, insufficient, and poor-quality data about streamflow, water use, and groundwater levels employed in hydrologic modeling periods that were not climatically representative. The modeling approach of Appendix C did not account for data uncertainty.

(ii) The application of unsound methodologies to implement the MIKE SHE hydrologic model to construct a predictive formula for streamflow depletion based on the pumping ratio. The MIKE SHE hydrologic model was calibrated with limited data and it was not validated for prediction purposes.

(iii) The arbitrary definition of buffer zones to protect stream reaches in which there is a combination of (i) Moderate Habitat Value and Sensitivity with Streamflow Depletion in the range 10% to 20% % relative to unimpaired streamflow, and (ii) High Habitat Value and Sensitivity with Streamflow Depletion less than 10% relative to unimpaired streamflow. Buffer zones were not defined for other combinations of Habitat Value and Sensitivity with Streamflow Depletion, such as very High Habitat Value and Sensitivity with High Streamflow Depletion.

(iv) Not reporting the values of unimpaired streamflow in stream reaches with Moderate-, High-, and Very High-value Habitat Value and Sensitivity. The unimpaired streamflow values are necessary to calculate the streamflow depletion within stream reaches. The unimpaired streamflow in a stream reach occurs when the stream reach is not affected by groundwater withdrawal, by surface-water diversions and imports, and by reservoir regulation of streamflow.

(v) Ignoring the cumulative impacts of wells installed near impacted stream reaches with Moderate- and High Habitat Value and Sensitivity.

(vi) Failing to connect the protection of public trust resources with the management of medium- and high-priority groundwater basins.

(vii) Failing to address the cumulative impacts of groundwater withdrawals in Sonoma County groundwater basins.

(viii) It is possible to improve the MIKE SHE hydrologic model applications reported in Appendix C (Attachment H) by (i) improving the model input data, (ii) re-calibrating and validating the models, and (iii) estimating the unimpaired streamflow along stream reaches impacted by groundwater withdrawal through climatic and hydrologic analyses and modeling. These improvements would lead to a significantly better scientific foundation on which to base a new well ordinance.

Our review of the SUMMARY REPORT outlining the proposed well ordinance to be considered by Sonoma County revealed several shortcomings:

(i) The SUMMARY REPORT states in page 16 "*Under the proposed ordinance, most well permits will be ministerial, less than 5% are expected to require discretionary review"*. The implication of this projection is profound. It basically means that unless the implementation of the level 1 and level 2 water-conservation requirements[1] is successful the proposed well ordinance would accomplish next to nothing in conserving public trust resources because, on average, fewer than 5 wells among every 100 wells would undergo discretionary review.

(ii) The SUMMARY REPORT is nearly silent about what a discretionary review would entail. It simply states in its page 15 that "*for discretionary permits, staff exercises discretion and judgment on a case-by-case basis to see if more subjective ordinance standards are met and can impose conditions on the permit to help meet such standards. Discretionary permits are thus subject to ordinance requirements and may also be subject to additional conditions.*" The SUMMARY REPORT does not specify what the "*more subjective ordinance standards"* and "*additional conditions"* would be. Would they include the analysis of acute (i.e., individual well) and cumulative (i.e., multiple well) effects on public-trust resources?

(iii) The proposed well ordinance recommends metering of wells with annual water use larger than 2 acre feet and monitoring of the groundwater level in wells using more than 5 acre feet annually (SUMMARY REPORT, item [2], page 14), thus institutionalizing the practice of not collecting accurate, comprehensive, and reliable data with which to assess the cumulative impacts of existing and new wells on public-trust resources and groundwater overdraft.

(iv) The effectiveness of level 1 and level 2 water-conservation requirements would be seriously compromised if the well metering and monitoring recommendations made in the proposed well ordinance are adopted.

(v) The proposed well ordinance would result in the predominance of ministerial (i.e., routine) well reviews and inadequate well metering that would be ineffective in protecting public-trust and groundwater resources in Sonoma County. This Reviewer recommends (i) that all wells be metered regardless of their water use, and (ii) that groundwater levels be monitored in all wells using more than

[1] The level 1 and level 2 water conservation requirements are listed in pages 19 and 20 of the SUMMARY REPORT.

2 acre feet annually, in order to gather accurate, comprehensive, and reliable data with which to make sound public-trust resources and groundwater management decisions.

2. Introduction.

Background. These review comments provide a technical evaluation of the Sonoma County Well Ordinance: Public Trust Review Area (PTRA) delineation prepared by O'Connor Environmental, Inc. (OE Inc.), for Permit Sonoma, dated March 2023. The review comments also evaluate the SUMMARY REPORT presenting the proposed well ordinance to be considered for possible approval by Sonoma County.

The PTRA delineation prepared by OE Inc. is herein alternatively referred to as "Appendix C or Attachment H" because that is how the PTRA delineation is named in the Outcomes and Recommendations Report dated March 13, 2023, submitted to Director Tennis Wicks (Permit Sonoma) and developed by the Consensus Building Institute in collaboration with the Policy and Technical Work Group members and Permit Sonoma Staff.

The PTRA delineation by OE Inc. is part of the scientific/technical recommendations submitted to the Permit Sonoma Director, who will consider those recommendations when preparing a draft well ordinance for the Board of Supervisor of Sonoma County.

The PTRA delineation by OE Inc. (i.e., Appendix C or Attachment H) outlines the methodology to be adopted by the new well ordinance being considered by Sonoma County for evaluating applications for the installation of new wells and the replacement or modification of existing wells. The stated purpose of the proposed well ordinance is to develop a procedure for well permitting that considers the impacts of groundwater withdrawal on public-trust resources as required by the California Constitution and the Public Resources Code. Coho salmon and steelhead trout were chosen in the PTRA delineation as the indicator species for the purpose of defining Habitat Value and Sensitivity in streams. The PTRA delineation by OE Inc. developed a classification scheme of the land that integrates streamflow depletion and the sensitivity of public-trust resources. Areas of Sonoma County were categorized as being Low-, or Moderate-, or High-Risk. Low-risk areas include (i) those with Low Habitat Value and Sensitivity, and (ii) those with Moderate Habitat Value and Sensitivity and less than 10% streamflow depletion relative to unimpaired streamflow[2]. Low-risk areas are not included in the proposed Public Trust Review Area. Well permitting in Low-Risk areas will continue to be routine subject to level 1 water-conservation requirements. Moderate-risk areas include (i) those with Moderate Habitat Value and Sensitivity and streamflow depletion between 10 and 20%, and (ii) those classified as High Habitat Value and Sensitivity with less than 10% streamflow depletion. The proposed well ordinance would require buffer zones separating wells from streams in moderate-risk areas. The buffer zones vary in magnitude depending on the type of geologic formation where wells are installed. High-risk areas include (i) those with Moderate Habitat Value and Sensitivity and streamflow depletion in excess of 20%, (ii) those with High Habitat Value and Sensitivity and streamflow depletion of 10% or more, and (iii) those with Very High Habitat Value and Sensitivity regardless of the level of streamflow depletion. In High-risk areas the Public Trust Review Area consists of entire sub-watersheds designed to protect public-trust resources. Moderate-Risk and High-Risk areas are within the PRTA delineation. Well permitting within the PTRA will be

[2] Unimpaired streamflow occurs when it is not affected by groundwater pumping, surface-water diversions or imports, and flow regulation by reservoirs and ponds.

discretionary with exemptions allowed for (i) injection wells, (ii) public water wells, (iii) surface-water diversion wells with level 1 water-conservation requirements, (iv) wells in low-water use parcels with level 1 water-conservation requirements, and (v) existing-use or zero net-increase wells with level 1 and 2 water-conservation requirements. Discretionary permitting is intended to prevent "*significant degradation of public trust resources*" (see Appendix C, page 2).

The SUMMARY REPORT (item [2]) states in page 16 that "*for discretionary permits, staff exercises discretion and judgment on a case-by-case basis to see if more subjective ordinance standards are met and can impose conditions on the permit to help meet such standards. Discretionary permits are thus subject to ordinance requirements and may also be subject to additional conditions*[3]." Furthermore, the SUMMARY REPORT (item [2], page 16) states that "*Under the proposed ordinance, most well permits will be ministerial, less than 5% are expected to require discretionary review. From 2017 through 2021, an average of 143 of the 317 well permits were processed each year were located on parcels that intersect the Public Trust Review Area. Of those, roughly 90% are for residential uses, 10% are for agriculture, and less than 1% are for commercial uses. Staff are unable to determine definitively from permit data which well permits would have qualified as a ministerial class; however, most residential wells are expected to qualify as a low water use well. Assuming residential wells are ministerial and some fraction of wells for agriculture and commercial uses are also ministerial, less than 15 well permits a year are expected to be subject to discretionary public trust review under the proposed ordinance*[4]."

The procedure presented in the proposed well ordinance leading to either ministerial (i.e., routine) or discretionary well permitting is evaluated in these review comments.

Scope. These review comments evaluate (i) the data, methods, assumptions, and results presented in the PTRA delineation (Appendix C or Attachment H), and (ii) the recommendations made in the SUMMARY REPORT (item [2]). The review comments also provide recommendations for improving the proposed well ordinance being considered by Sonoma County.

3. Review comments. Statements within quotation marks and written in italicized font were extracted from the PTRA delineation report (Appendix C or Attachment H) and the SUMMARY REPORT listed in page 1.

3.1 "*Salmonids have been found to be particularly sensitive to flow conditions in non-navigable tributary streams during periods of summer rearing*" (Page 1 of Appendix C).

Comment. The proposed well ordinance considers streamflow reduction in July – September. It is known from research in California streams by the California Department of Fish and Wildlife (CDF&W), and by the National Marine Fisheries Service (NMFS) that salmonids have instream flow requirements during the entire year. Table 1, for instance, lists the recommended instream flow requirements for the federally listed endangered southern California steelhead (*Oncorhynchus mykiss*) in reach 3 of the lower Ventura River and Coyote Creek (Ventura County, California):

[3] SUMMARY REPORT [item [2], page 15].
[4] SUMMARY REPORT [item [2], page 16].

Table 1. Recommended instream flow requirements for California steelhead (*Oncorhynchus mykiss*) in reach 3 of the lower Ventura River (Ventura County, California)[5].

Month(s)	Season	Reach 3 recommended flow (cfs)
January-May	Spawning/adult migration	33
June-September	Rearing	14
October	Rearing	14
November	Rearing	24
December	Spawning/Adult migration	33

The steelhead trout found in the Russian River of Sonoma County is also the species *Oncorhynchus mykiss*, which shares the riverine habitat with Coho salmon (*Oncorhynchus kisutch*) and Chinook salmon (*Oncorhynchus tshawytscha*)[6]. It is seen in Table 1 that the larger instream flow for steelhead is from December through May, and the lowest in stream flow is in the period June through September. In view of the recommended instream flow requirement listed in Table 1 it follows that the proposed well ordinance's consideration of streamflow reduction in July – September is arbitrary and not founded on scientific evidence establishing the instream flows need to create healthy aquatic habitat.

3.2. "*Non-navigable waters that do not support salmonids are not proposed for consideration in the permit process*" (Page 2 of Appendix C, Attachment H).

Comment. This decision to omit non-navigable waters that do not support salmonids from the permitting process seems arbitrary and capricious, especially when one considers the fact that three of Sonoma County groundwater basins (listed in Table 2) fall under the California Sustainable Groundwater Management Act's (SGMA's) designation of medium priority (Santa Rosa Valley-Santa Rosa Plain, and Petaluma Valley) and high priority (Napa-Sonoma Valley). These SGMA-regulated groundwater basins are in a state of overdraft, whereby the long-term volume of groundwater withdrawal exceeds the volume of groundwater recharge. The effect of overdraft is a long-term[7] trend of declining groundwater levels, reduction of groundwater storage, and, in the case of streams hydraulically connected to groundwater storage, this means possible streamflow depletion that can adversely impact wildlife habitat for species other than the steelhead and Coho salmon. The management of medium- and high-priority basins is governed by newly-formed groundwater sustainability agencies (GSAs) that develop groundwater sustainability plans (GSPs) intended to remediate groundwater overdraft by 2040. Yet, the permitting of wells in Sonoma County is done by Permit Sonoma. This Reviewer assumes that the proposed well ordinance would apply to all wells permitted in Sonoma County, including wells permitted in the medium- and high-priority groundwater basins listed in Table 2.

[5] California Department of Fish and Wildlife. (2021). Draft instream flow recommendations - Lower Ventura River and Coyote Creek, Ventura County. CDF&W, South Coast Region, San Diego, California.

[6] See https://caseagrant.ucsd.edu/russian-river-salmon-steelhead/russian-river-learning-center/russian-river-native-fish/

[7] Long-term trends extend over 20 years or longer periods.

Table 2. Characteristics of medium- and high-priority basins in Sonoma County. Source: SGMA basin prioritization dashboard (https://gis.water.ca.gov/app/bp-dashboard/final/).

	Groundwater Basin		
	Santa Rosa Valley – Santa Rosa Plain	Napa-Sonoma Valley	Petaluma Valley
Bulletin 118[8] basin number	1-055.01	2-002.02	2-001
Basin designation	Medium priority	High priority	Medium priority
Number of wells	7,008	1,287	1,145
Area (miles square)	125	72	72

The number of wells in the three groundwater basins listed in Table 2 adds up to 9,444 spread out over an area of about 269 mi^2. Sonoma County occupies 1,768 mi^2. Scaling the number of wells by the ratio of areas gives a projection of a county-wide number of well equal to 1,768/269 x 9,444, or about 62,000 wells. This projection is likely to overestimate the number of wells in Sonoma County because the density of wells is higher in the medium- and high-priority basins than in low-priority basins. The County of Sonoma Administrator's Office has estimated the number of wells in that county at roughly 45,000[9], which implies a per capita density of about 93 wells per thousand inhabitants, the highest in any California county. The proliferation of groundwater wells has significant implications for the cumulative impact of groundwater withdrawal on public-trust resources that are not considered in Appendix C (Attachment H) or the in well ordinance presented in the SUMMARY REPORT.

It is unreasonable for Appendix C to state that there are non-navigable waters in the groundwater basins listed in Table 2 that do not support salmonids, considering that non-navigable water that drain to non-navigable and navigable waters that support salmonids-based fisheries, which are public trust resources under the California Constitution. Equally unreasonable is the fact that the proposed well ordinance does not consider in its criteria for differentiating between ministerial and discretionary reviews the effect that new wells of any production capacity would have on the already overdrafted state of important groundwater basins in Sonoma County. Groundwater withdrawal in SGMA-regulated (medium- and high-priority) basins exceeds their safe yield (also known as basin yield, perennial yield[10]) and permitting of new wells would aggravate the cumulative effects of wells on the basins' overdraft and on public trust resources.

3.3. On well metering the SUMMARY REPORT states (page 14): "*Many technical and policy working group members advocated for metering of all wells including residential and domestic wells using less than 2.0-acre feet per year. One rational is that there is a lack of metered data on which to base estimates of water use for rural residential parcels. A mandatory metering program would help to fill the data gap and thus improve the accuracy of water use estimates and groundwater models that are used to simulate streamflow depletion and assess adverse impacts. Another rationale is that metering and reporting can*

[8] California's Groundwater Update 2020 Highlights (Bulletin 118, 2021) published by the California Department of Water resources.

[9] https://sonomacounty.ca.gov/county-unveils-resources-for-well-owners-impacted-by-drought#:~:text=Groundwater%20is%20an%20essential%20resource,of%20any%20county%20in%20California

[10] Loaiciga, H.A. (2017). The safe yield and climatic variability: implications for groundwater management. *Groundwater* 55, no. 3: 334–345.

encourage water conservation and facilitate permit compliance. Staff does not recommend mandatory metering of low water use residential wells. This recommendation is based on a number of factors including: (1) consistency with the Sustainable Groundwater Management Act;(2) public perception; and (3) implementation. Under the Sustainable Groundwater Management Act, de minimis extractors may not be metered. Recent public outreach in relation to fee studies by local groundwater sustainability agencies found that many rural residents oppose any mandatory metering of private wells and consider such a program an invasion of privacy. Similar observations were conveyed to staff by technical and policy working group members." De minimis wells, i.e., those using 2 or less acre feet annually may account for about one half of the wells in Sonoma County given the rural and semi-rural demographics of the county[11]. Yet, de minimis wells (or low water use wells) would be exempted from discretionary review under the proposed well ordinance in spite of their significant cumulative share of groundwater withdrawal in Sonoma County (see SUMMARY REPORT, item [2], page 11). Furthermore the proposed well ordinance would exempt metering the water use in low water use wells (de minimis extractors, see SUMMARY REPORT, item [2], page 14), thus institutionalizing the practice of not collecting accurate and reliable data with which to assess the cumulative impacts of existing and new wells on public trust resources and groundwater overdraft. It is noteworthy also that the proposed well ordinance would require monitoring of groundwater levels in wells using more than 5 acre feet of water annually (see SUMMARY REPORT, item [2], page 14). This Reviewer recommends (i) that all wells be metered regardless of their water use, and (ii) that groundwater levels be monitored in all wells using more than 2 acre feet annually, in order to compile accurate data with which to make sound resource management decisions. There are commercial vendors that provide automated groundwater-level monitoring services with imbedded capacity to compute streamflow depletion and the change in groundwater storage with arbitrary spatial and temporal resolution[12].

3.4 The proposed well ordinance neglects the cumulative effects of wells and well interference. In its page 7 the SUMMARY REPORT states that "*Under the proposed ordinance, water well permits located outside the Public Trust Review area will be ministerial and processed in a similar fashion as they are under the current ordinance. However, all water well permits (excluding public water wells and injection wells) will be subject to Level 1 water conservation requirements discussed below. Water well permits within the Public Trust Review Area will be subject to discretionary public trust review, unless the well qualifies as one of the ministerial well classes. Level 1 and 2water conservation requirements are dependent on the ministerial well class*". The proposed well ordinance would rely largely on level 1 and level water-conservation requirements and on a very small number of discretionary well reviews (less than 5% as stated in page 16 of the SUMMARY REPORT) to achieve protection of public-trust resources. At the same time, many wells would not be metered as discussed in review comment 3.3. The combination of a predominance of ministerial (i.e., routine) well reviews and inadequate well metering does not bode well for the protection of public-trust resources and groundwater resources in Sonoma County.

The proposed well ordinance does not have any provisions for evaluating the effects of proposed wells permitted in any given year on the overdraft conditions in SGMA-regulated groundwater basins or other low-priority groundwater basins that could become overdrafted. This is so because the proposed well ordinance does not consider the cumulative impacts of wells on public-trust resources and groundwater

[11] See also descriptions for basins 1-055.1, 2-002.02, and 2-001 in Bulletin 118.
[12] See, e.g., products offered by Groundswell Technologies.

storage. Governor Newson's executive order N-7-22 paragraph 9.a orders that no new-well or well-modification permits be issued unless groundwater extraction by the well is consistent with the sustainable groundwater management programs established for medium and high-priority basins. Furthermore, executive order N-7-22 paragraph 9.b prohibits issuing a permit for a new groundwater well or for alteration of an existing well without first determining that extraction of groundwater from the proposed well is (1) not likely to interfere with the production and functioning of existing nearby wells, and (2) not likely to cause subsidence that would adversely impact or damage nearby infrastructure. Executive order N-7-22's paragraphs 9.a and 9.b exempt wells that would withdraw less than two acre-feet per year of groundwater for individual domestic users, or that would exclusively provide groundwater to public water supply systems as defined in section 116275 of the Health and Safety Code.

Well interference is ignored in the proposed well ordinance, even though it is one the main causes of unsustainable groundwater withdrawal and the degradation of public trust resources. Well interference manifests itself by the deleterious effects that neighboring wells tapping the same aquifer have on each other as the cumulative groundwater extraction lowers hydraulic head and reduces groundwater storage, thus causing losses in the wells' yields. In addition, the aggregation of the wells' effects on the lowering of groundwater levels worsens streamflow depletion, and in the long causes land subsidence, seawater intrusion, and aridification (vegetation loss) depending on local and regional conditions. Well interference can be avoided or controlled by specifying adequate inter-well separation and by regulating the wells' pumping rates judiciously to avoid adverse impacts on public trust resources and on sustainable groundwater extraction in general. The proposed well ordinance does not address the issue of inter-well separation for new wells. The Groundwater Thresholds Manual for Environmental Review of Water Resources in Santa Barbara County provides a methodology to calculate thresholds of significance for proposed wells in overdrafted and over over-committed groundwater basins. There are relatively simple, peer-reviewed, methodologies to estimate the effect of well interference in groundwater basins[13,14].

3.5 "*The relationship between estimated groundwater pumping and estimated groundwater recharge as a predictor of streamflow depletion is derived from existing distributed hydrologic models of three watersheds that are calibrated using existing data to directly simulate streamflow depletion as a function of groundwater pumping (Kobor and O'Connor, 2016, Kobor et al., 2020; Kobor et al., 2021)*". (Page 3 of Appendix C or Attachment H).

Comment. O'Connor Environmental Inc. (OE Inc.) produced three reports dealing with Integrated Surface and Groundwater Modeling and Flow Availability Analysis for Restoration Prioritization Planning. The 2016 (Kobor and Connor, 2016), 2020 (Kobor et al., 2020), and 2021 (Kobor et al., 2021) reports dealt respectively with the Green Valley/Atascadero and Dutch Bill Creek Watersheds, the Upper Mark West Creek Watershed, and the Mill Creek Watershed, Sonoma County. The three studies applied the proprietary hydrologic model MIKE SHE. MIKE SHE can simulate the land phase of the hydrologic cycle and allows components to be used independently and customized to local needs. MIKE SHE evolved from the Système Hydrologique Européen (SHE) and has been extensively applied since 1977 by a consortium of the Institute of Hydrology (the United Kingdom), SOGREAH (France), and DHI

[13] Loáiciga, H.A. (2004). Analytic game-theoretic approach to groundwater management. Journal of Hydrology, 297, 22-33.
[14] Bear, J. (1979). Hydraulics of Groundwater. McGraw-Hill Publishing Co., New York.

(Danish Hydraulic Institute, Denmark). DHI currently supports the research and development of MIKE SHE and markets it.

The 2016[15], 2020[16], and 2021[17] studies by OE Inc. simulated hydrologic fluxes in water years 2010 through 2014 (the Green Valley/Atascadero and Dutch Bill Creek Watersheds), 2010-2019 (the Upper Mark West Creek Watershed), and 2010 – 2019 (the Mill Creek Watershed, Sonoma County), respectively. It is significant that these hydrologic simulation periods were marred by hydrologic drought. The 2016, 2020, and 2021 studies estimated water use in their respective watersheds indirectly by classifying it into the following categories: Residential, Vineyard Irrigation, Pasture Irrigation, Cannabis Irrigation, Irrigation of Other Miscellaneous Crops, Vineyard Frost Protection, and Winery Production and Visitation Use. The water use for each category was estimated on a per-assessor parcel basis and aggregated over the watershed. The estimation was made not by using metered data, but, rather, by applying presumptive unit water uses (e.g., per capita residential water use, or per acre applied water in irrigated lands, or water used per 1,000 cases of wine) on a per-parcel basis. The estimated water use is shrouded by uncertainty given the paucity of actual measured data.

Limited data availability affected other facets of the MIKE SHE implementation in the 2016, 2020, and 2021 OE Inc. studies. Of particular relevance in this respect is the paucity of streamflow data. Kobor & O'Connor (2016), page 68, stated the following: *"The available stream flow gauging data consists of data from three stations operated by the Center for Environmental Management and Restoration (CEMAR) in the DBC watershed, five stations operated by CEMAR in the GVC watershed, and three stations operated by the National Marine Fisheries Service (NMFS) in the AC watershed. The periods of record are short (Water Year 2010 or 2011 to present) at all of these gauges and complete rating curves extending throughout the range of recorded flow were not available for any of them".* Kobor et al. (2020), page 79, stated the following: *"Several stream gauges have been operated in the watershed at various times over the past ten years including a series of gauges installed in 2010 by the Center for Ecosystem Management and Research (no longer in existence); some of which were re-established by Trout Unlimited (TU) in 2018. In 2018, Sonoma Water established several new gauges to serve as a warning system for potentially hazardous post-fire runoff events and the CRWI installed a gauge on lower Monan's Rill in the upper watershed. Additionally, OEI installed two gauges on upper Monan's Rill tributaries in 2017 and gauging in and near Humbug Creek has also been undertaken by CDFW in recent years".*

It is noteworthy that the 2016, 2020, 2021 OE Inc. studies did not use quality-controlled streamflow data such those collected at USGS stream gauges where long-term flow and stage data are recorded, and from which flow-duration curves and flood-frequency analysis can be derived. Therefore, the modeling results reported in the 2016, 2020, and 2021 OE Inc. are of questionable validity.

Another limitation of the 2016, 2020, and 2021 OE Inc. studies is that they performed hydrologic simulation studies during drought periods, and this raises questions about the climatic representativeness

[15] Kobor, J., O'Connor, M. (2016). Integrated Surface and Groundwater Modeling and Flow Availability Analysis for Restoration Prioritization Planning, Green Valley\Atascadero and Dutch Bill Creek Watersheds, Sonoma County, California, 149 p.

[16] Kobor, J., O'Connor, M., and Creed, W. (2020). Integrated Surface and Groundwater Modeling and Flow Availability Analysis for Restoration Prioritization Planning, Upper Mark West Creek Watershed, Sonoma County, California, 234 p.

[17] Kobor, J., O'Connor, M., and Creed, W. (2021). Integrated Surface and Groundwater Modeling and Flow Availability Analysis for Restoration Prioritization Planning, Mill Creek Watershed, Sonoma County, California, 198 p.

of their results. Climatically representative periods for the purpose of hydrologic model calibration and validation are those that include dry, wet, and average sub-periods, and extend commonly for at least 20 years (see footnote 8) in regions with high interannual climatic variability such as Sonoma County. Therefore, the modeling results reported in the 2016, 2020, and 2021 OE Inc. are of questionable validity.

3.6 Groundwater Recharge, Pumping, & the Pumping Ratio: Appendix C (Attachment H), pages 8, 9, 10.

Comment. The Appendix C (Attachment H) presents a formula (2) in page 8, which is as follows:

Groundwater Recharge ≅ Streamflow + Groundwater pumping ± change in storage *(2)*

Formula (2) is incorrect. It ignores the evapotranspiration from aquifers. It is stated in Appendix C (page 8) that: "*Over the long-term, changes in storage and recharge generally stabilize such that the majority of water supplied to wells is balanced by streamflow depletion (Barlow & Leake, 2012). Cumulative streamflow depletion increases in proportion to cumulative groundwater pumping. As the rate of groundwater pumping approaches the rate of groundwater recharge, streamflow approaches zero; this scenario is equivalent to a ratio of groundwater pumping to groundwater recharge equal to one. From these relationships, it can be seen that the ratio of groundwater pumping to groundwater recharge (i.e., groundwater pumping divided by groundwater recharge) provides an objective, hydrologically significant, indicator of the relative magnitude of streamflow depletion occurring in a given watershed*." The statement that "*As the rate of groundwater pumping approaches the rate of groundwater recharge, streamflow approaches zero*" is not correct because the 2016, 2020, and 2021 OE Inc. studies did not cover long-term hydrologic simulation periods and they ignored evapotranspiration. In fact, the hydrologic simulation periods were all less than ten years long and, therefore, the change in storage shown in the right-hand side of equation (2) is not likely to vanish because of the shortness of the hydrologic simulation periods (i.e., they are not climatically representative). Including evapotranspiration and letting the rate of groundwater pumping approach the rate of groundwater recharge we have that:

Streamflow ≅ - change in storage – evapotranspiration, when Groundwater Recharge ≅ Groundwater pumping, and not:

Streamflow ≅ 0, when Groundwater Recharge ≅ Groundwater pumping as claimed by the Appendix C.

If one includes the evapotranspiration, averages the annual fluxes appearing in formula (2) over many years (more than 20 years), and assumes that the average long-term change in storage approaches zero one obtains:

$$\overline{R} \cong \overline{Q} + \overline{P} + \overline{ET} \qquad (A)$$

in which $\overline{R}$, $\overline{Q}$, $\overline{P}$, and $\overline{ET}$ denote the average annual groundwater recharge, average annual streamflow, average annual groundwater pumping, and average annual evapotranspiration, respectively. Dividing the left-hand and right-hand sides of equation (A) by the average annual recharge and solving for the pumping ratio ($\overline{P}/\overline{R}$) one obtains:

$$\frac{\overline{P}}{\overline{R}} \cong 1 - \left(\frac{\overline{Q} + \overline{ET}}{\overline{R}}\right) \qquad (B)$$

Neglecting the average annual evapotranspiration, it follows that:

$$\frac{\bar{P}}{\bar{R}} \cong 1 - \left(\frac{\bar{Q}}{\bar{R}}\right) \quad \text{(C)}$$

Formula (C) states that under the assumption of a long-term average annual change in groundwater storage equal to zero and average annual evapotranspiration equal to zero then there is an approximate linear relation between the pumping ratio and the ratio of average annual streamflow to the average annual recharge. This Reviewer believes that Appendix C proposes to exploit the relation implied by formula (C) between the pumping ratio and the average annual streamflow divided by the average annual recharge. However, there are strong assumptions underlying formula (C). Those assumptions do not conform with the conditions that existed in the watersheds modeled by the 2016, 2020, and 2021 OE Inc. studies, and therefore, the modeling results reported in the 2016, 2020, and 2021 OE Inc. are of questionable validity.

Based on the assumption that "*the ratio of groundwater pumping to groundwater recharge (i.e., groundwater pumping divided by groundwater recharge) provides an objective, hydrologically significant, indicator of the relative magnitude of streamflow depletion occurring in a given watershed*" made in Appendix C, page 8, Appendix C estimated the pumping ratio in the watersheds studied by Kobor and O'Connor (2016), and Kobor et al. 2020, 2021, calculated the mean July-September streamflow depletion with the MIKE SHE hydrologic model in the same watersheds, and fitted a regression equation between the model-calculated streamflow depletion and the estimated pumping ratios. The results are presented in Figure 7 of the Appendix C, which presents the following regression equation between the July-September streamflow depletion and the pumping ratio:

Streamflow depletion (% on unimpaired flow) = 2.19 pumping ratio (fractional) – 0.030 (D)

Formula (D)'s applicability is circumscribed to a pumping ratio less than 16% and streamflow depletion less than 35% (see Figure 7 of the Appendix C). Formula (D) implies that a pumping ratio equal to 0.0137 would produce zero streamflow depletion in watersheds that meet the assumptions that lead to the construction of formula (D). Formula (D) relates the streamflow depletion that is, the reduction or change of streamflow with respect to unimpaired streamflow (i.e., streamflow that is not affected by surface diversions or imports, groundwater pumping, or reservoir regulation of streamflow) to the pumping ratio. For this reason one must rewrite formula (C) in terms of changes in variables, i.e.:

$$\Delta\left(\frac{\bar{P}}{\bar{R}}\right) \cong -\Delta\left(\frac{\bar{Q}}{\bar{R}}\right) \quad \text{(E)}$$

Formula (E) establishes that change in the pumping ratio is related to the change in the streamflow ratio (the streamflow divided by the recharge). This is in contrast to formula (D) used in Appendix C, which must be viewed as an empirical regression formula not based on actual physical causation effects between the pumping ratio and the streamflow depletion.

The above comments establish that Appendix C's proposed methodology to estimate streamflow depletion based on the pumping ratio is questionable because of its reliance on poor data availability, nonrepresentative climatic periods, and the lack of sound theoretical foundation. One must knowledge, however, that Appendix C's methodology to predict streamflow depletion based on the pumping ratio is better than having no approach for estimating streamflow depletion in Sonoma County. It has been said in relation to the use of empirical regression formulas such as formula (D) used in Appendix C that "correlation is not causation, but it might be useful."

It is noteworthy that there are analytical formulas that estimate streamflow depletion by wells of known pumping rate and location relative to stream reaches. These formulas are much easier to use than complex models such as MIKE SHE and GSFLOW[18]. The latter models are data-intensive and require a level of knowledge in spatial and hydrologic modeling possessed only by specialized technical personnel. There are analytical formulas for calculating streamflow depletion such as the Glover and Balmer (1954)[19], Jenkins (1968)[20], and the Hunt (1999)[21] formulas, among others.

3.7 Calibration and Validation of the OE Inc. MIKE SHE 2016, 2020, 2021 models. Read Appendix C (Attachment H) pages 15 and 16.

Comment. The 2016, 2020, and 2021 OE Inc. studies report calibration results for the MIKE SHE model. This means that estimated or observed groundwater level data and streamflow data were compared with model-simulated data corresponding to the chosen calibration period. This comparison was made to adjust the parameters (e.g., aquifer parameters, streambed conductance, etc.) that the user must specify in the MIKE SHE model. This process of adjusting model parameters until the model produces reasonable agreement between simulated data and estimated/observed data is called model calibration. Once a hydrologic model is calibrated it must be validated (or tested)[22]. Model validation (or testing) is successful if the calibrated model produces simulated data that are in reasonable agreement with observed groundwater level data, streamflow data, and other observed data that are different from those data used in the calibration phase. It is imperative that the data used in model calibration differ from the data used in model validation[23]. A properly calibrated and validated model can predict accurately hydrologic variables such as streamflow depletion in periods other than the calibration period.

An example of a calibrated/validated hydrologic model that simulates groundwater level and streamflow depletion in salmonid-supporting streams is the GSFLOW model implemented by Geosyntec and DBS&A for the Ventura River, Ventura County, California[24]. This model used a simulation period from 1993 through 2017. The calibration and validation periods covered water years 1998-2017 and 1994-1997, respectively.

The 2016, 2020, and 2021 OE Inc. studies did not validate their calibrated MIKE SHE models. Therefore, their predictive skill cannot be warranted outside the range of pumping ratio (equal to the ratio of average annual pumping to average annual recharge) and streamflow depletion considered in the 2016, 2020, and 2021 OE Inc. studies. Figure 8 of the Appendix C (or Attachment H) is worthy of analysis with respect to its implications for the PTRA delineation:

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[18] Rohde, M. (2022). A proposal for assessing well impacts to public trust resources: Methodological Outline. Seattle, WA.
[19] Glover, R.E., and G.G. Balmer. (1954). River depletion resulting from pumping a well near a river. *Eos, Transactions American Geophysical Union* 35, no. 3: 468–470. https://doi.org/10.1029/TR035i003p00468
[20] Jenkins, C.T. (1968). Computation of Rate and Volume of Stream Depletion by Wells, Techniques of Water-Resources Investigations of the U.S. Geological Survey, Book 4 Hydrologic Analysis and Interpretation, 21 p.
[21] Hunt, B. (1999). Unsteady stream depletion from ground water pumping. *Groundwater* 37, no. 1: 98. https://doi.org/10.1111/j.1745-6584.1999.tb00962.x
[22] Klemeš, V. (1986). Operational testing of hydrological simulation models, Hydrological Sciences Journal, 31:1, 13-24.
[23] See, e.g., Kelleher, J.D., Tierney, B. (2018). Data Science. The MIT Press, Cambridge, Massachusetts.
[24] Geosyntec and DBS&A. (2021). Draft model documentation report for the groundwater-surface water model of the Ventura River watershed.

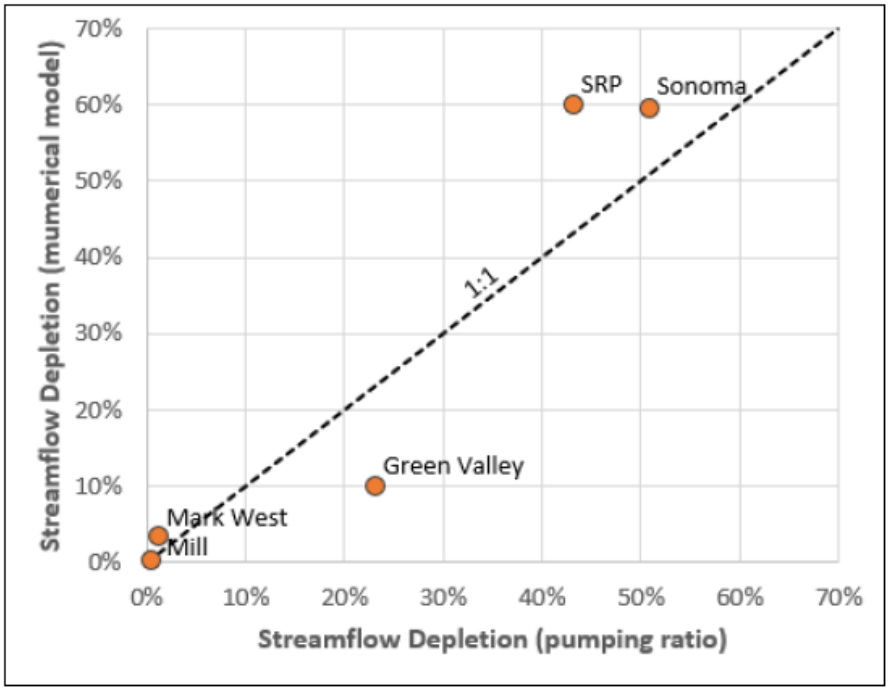

Figure 8: Comparison between summer (July-September) streamflow depletion estimated with the pumping ratio approach used to inform the PTRA mapping and estimates obtained from available numerical models.

The streamflow depletion plotted on the horizontal axis of Figure 8 was calculated with formula (D) presented above. The streamflow depletion plotted on the vertical axis of Figure 8 was calculated with numerical hydrologic models (MIKE SHE for Mill, Mark West, and Green Valley, GSFLOW for SRP, and MODFLOW-2000 for Sonoma, see below).

The Green Valley (Kobor and O'Connor, 2016), the Mark West (Kobor et al., 2020), and the Mill Creek (Kobor et al., 2021) studies' results graphed in Figure 8 indicate that the calibration results were limited to relatively low streamflow depletion (equal to or less than 25% of unimpaired flow). It is misleading to use Figure 8 as a validation of the MIKE SHE results obtained by Kobor and O'Connor (2016) and Connor et al. (2020, 2021). Figure 8 does not constitute model validation, as claimed in the Appendix C (pages 15 and 16). It simply shows that the 2016, 2020, and 2021 OE Inc. results cover different ranges of streamflow depletion than those obtained by GSFLOW modeling of the Santa Rosa Plain(SRP) [25]and MODFLOW-2000 modeling of the Sonoma Valley[26] by USGS hydrologists. There was nothing presented in the 2016, 2020, and 2021 OE Inc. results that would demonstrate that MIKE SHE model applications would provide results comparable to those reported by the USGS had the MIKE SHE model been calibrated, validated, and applied to the Santa Rosa Plain and Sonoma Valleys. Furthermore, Figure 8 does not prove that if the MIKE SHE models calibrated in Kobor and O'Connor (2016) and Connor et

[25] Farrar, C.D., Metzger, L.F., Nishikawa, T., Koczot, K.M., and Reichard, E.G. (2006). Geohydrological Characterization, Water Chemistry, and Ground-Water Flow Simulation Model of the Sonoma Valley Area, Sonoma County, California, U.S. Geological Survey Scientific Investigations Report 2006-5092.

[26] Woolfenden, L.R., and Nishikawa, T. (2014). Simulation of Groundwater and Surface-Water Resources of the Santa Rosa Plain Watershed, Sonoma County, California, U.S. Geological Survey Scientific Investigations Report 2014-5052.

al. (2020, 2021) were applied with data different to those employed in the calibration period they would produce accurate predictions of streamflow depletion.

The introduction of a 1:1 (a 45-degree line) in Figure 8 is misleading for the purpose of proving or claiming to prove MIKE SHE model validation. Such a line would only make sense if it were used for evaluating the accuracy of streamflow depletion calculated with a pumping ratio vs streamflow depletion formula (derived with validated MIKE SHE models) by comparing it with measured streamflow depletion or with streamflow depletion calculated with validated hydrologic models (MIKE, GSLOW, MODFLOW-2000 or others) over a wide range of streamflow depletion.

3.8 PTRA decision matrix and streamflow depletion. Table 1, Appendix C (Attachement H), pages 17, 18, 19.

Comment. Table 1 of Appendix C (see next page) provides the criteria for public trust review area (PTRA) delineation. Table 1 of Appendix C is used in conjunction with Figure 1 of the SUMMARY REPORT (page of the report), and both of them summarize the public-trust review process of the proposed well ordinance. Table 1 of Appendix C delineates or defines three types of areas within Sonoma County:

(1) **low-risk areas** where well permitting would be ministerial (routine) but water use would be subjected to level 1 water conservation requirements. These are areas where (i) there is Low Habitat Value and Sensitivity and the streamflow depletion (relative to unimpaired conditions) may be up to 100%, or (ii) where there is Moderate Habitat Value and Sensitivity and the streamflow depletion is less than 10%;
(2) **moderate-risk areas** where there is High Habitat Value and Sensitivity and the streamflow depletion is less than 10%, or areas where there is Moderate Habitat Value and Sensitivity and the streamflow depletion is in the range 10 to 20%. Buffer zones (i.e., a minimal distance between a well and a stream) would be required for well permitting in moderate-risk areas. Well permitting in these areas may be ministerial if it is an injection well, a public water well, a surface-water diversion well with level 1 water-conservation requirements, a well in a low-water use parcel with level 1 water-conservation requirements, or an existing use or zero net increase well with level 1 and 2 water-conservation requirements (see Figure 1 of the SUMMARY REPORT, item [2]);
(3) **high-risk areas** where there is Moderate Habitat Value and Sensitivity and the streamflow depletion exceeds 20%, or areas where there is High Habitat Value and Sensitivity and the streamflow depletion is 10% or more, or areas there is Very High Habitat Value and Sensitivity regardless of the magnitude of streamflow depletion. Well permitting in these areas may be ministerial if it is an injection well, a public water well, a surface-water diversion well with level 1 water-conservation requirements, a well in a low-water use parcel with level 1 water-conservation requirements, or an existing use or zero net increase well with level 1 and 2 water-conservation requirements (see Figure 1 of the SUMMARY REPORT, item [2]).

It is pertinent to stress that the PTRA delineation is based on the streamflow depletion formula (D), reviewed above, which was proposed in Appendix C to calculate the streamflow depletion based on the pumping ratio defined above. The Low SFD ([0, 10%[), Medium SFD ([10, 20%]), and High SFD (> 20%) defined in Table 1 of Appendix C (Attachment H) represent the streamflow depletion (SFD) as a percentage of the unimpaired streamflow in a stream reach.

Table 1: PTRA matrix indicating how areas were treated based on the results of the resource sensitivity and existing streamflow depletion classes.

	Low SFD (0 – 10%)	Medium SFD (10 – 20%)	High SFD (>20%)
Low Habitat Value	Low Risk Area Not included in PTRA	Low Risk Area Not included in PTRA	Low Risk Area Not included in PTRA
Moderate Habitat Value	Low Risk Area Not included in PTRA	Moderate Risk Area Stream buffers	High Risk Area Sub-watershed
High Habitat Value	Moderate Risk Area Stream buffers	High Risk Area Sub-watershed	High Risk Area Sub-watershed
Very High Habitat Value	High Risk Area Sub-watershed	High Risk Area Sub-watershed	High Risk Area Sub-watershed

The Appendix C (Attachment H) states in its page 19 the following concerning the buffer distance in moderate-risk areas: *"Based on this analysis, this distance is ~100 ft for the Franciscan Complex, ~250 ft for the Sonoma Volcanics, and ~750 ft for the Wilson Grove Formation and alluvial sediments."* The distance referred to in Appendix C is the shortest distance between a well and a stream, which defines the buffer zone for a well near a stream. The method applied in Appendix C to calculate the buffer distance is explained in the section entitled Stream Buffers Distance (see pages 17, 18, 19 of Appendix C).

Appendix C (Attachment H) arbitrarily selected (i) a streamflow depletion factor (SDF) equal to 30 days[27] and (ii) a pumping rate for wells near stream varying between 28 and 31 gallons per minute (gpm) maintained for 24 hours on the first day of each month (see Figure 9 of Appendix C) for the purpose of setting the buffer distances in moderate-risk areas. The SDF is a relative measure of how rapidly streamflow depletion occurs in response to a new pumping stress[28]. It does not measure the magnitude of streamflow depletion. The chosen SDF and pumping rate were applied with the Jenkins (1968) formula to calculate the buffers zones equal to 100 ft, 250, and 750 ft cited above for various geologic formations. One could have chosen instead, and more conservatively for the purpose of calculating buffer distances, a SDF equal to 100 days and this would produce buffer zones equal to about 200 ft, 460 ft, and 1400 feet instead of the Appendix-C recommended 100 ft, 250, ft, and 750 ft. The point being highlighted here is that the buffer zones must be calculated based on specific well and stream reach conditions, and considering the cumulative effects that are aggregated as new wells are installed near stream reaches already impacted by existing wells. One new well can be found to have a small effect on streamflow depletion and be permitted; yet, an analysis of the effect of well pumping considering the cumulative effects of the existing and proposed wells affecting a stream reach could reveal a significant and unacceptable magnitude of streamflow depletion.

3.9 Public Trust Review Permitting Framework. Figure 1, Page 7 of the SUMMARY REPORT.

[27] The SDF has units of time, and it equals d^2/D, where d and D denote respectively the shortest distance between a well and a stream and the aquifer diffusivity.

[28] Barlow, P.M., S.A. Leake. (2012). Streamflow depletion by wells: understanding and managing the effects of groundwater pumping on streamflow. U.S. Geological Survey Circular 1376.

Comment. Figure 1, page 7, of the SUMMARY REPORT summarizes the proposed public trust review process for new wells or well modifications in Sonoma county. See Figure 1 next:

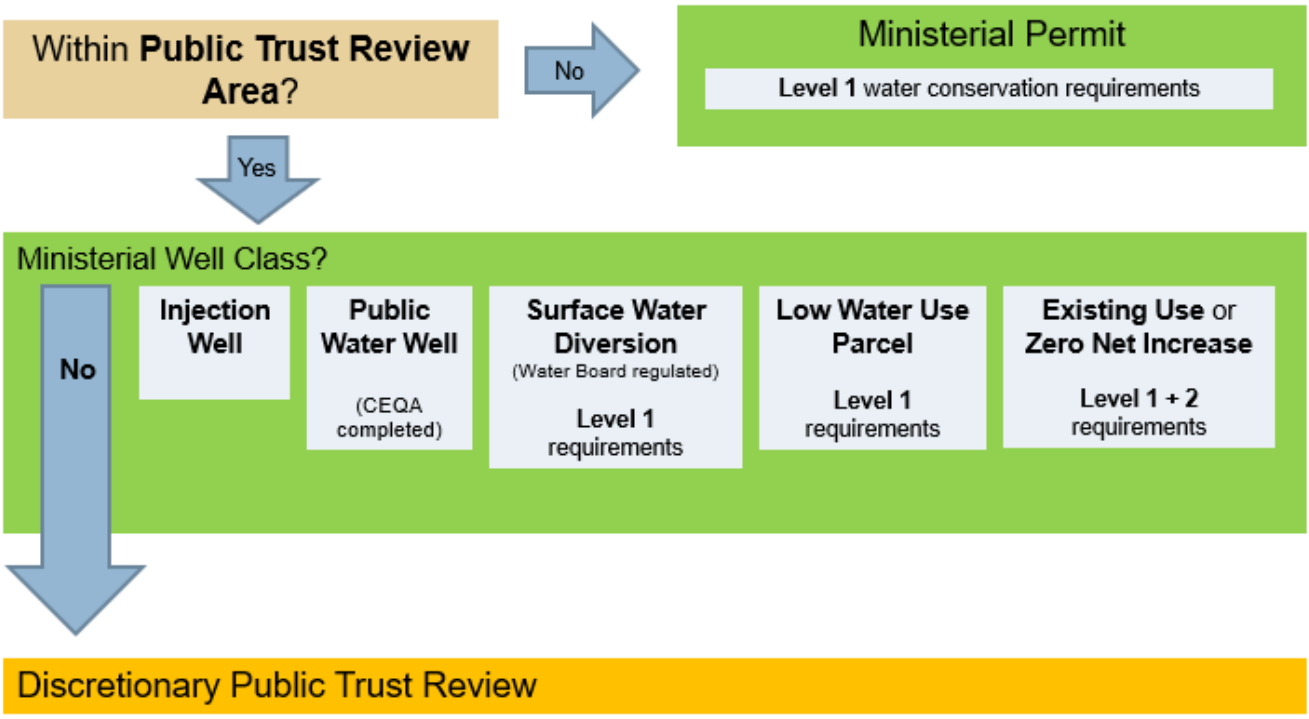

Figure 1 of the SUMMARY REPORT is used in conjunction with its Table 1, page 23, which is nearly identical to Table 1 of the Appendix C (attachment H) discussed in comment 3.8.

Table 1: Public trust decision framework indicating which areas were included in the Public Trust Review Area based on the results of the resource sensitivity and existing streamflow depletion classes.

Habitat Value and Sensitivity	Low Streamflow Depletion (0 – 10%)	Moderate Streamflow Depletion (10 – 20%)	High Streamflow Depletion (>20%)
Low	Not included	Not included	Not included
Moderate	Not included	Stream buffers	Sub-watershed
High	Stream buffers	Sub-watershed	Sub-watershed
Very High	Sub-watershed	Sub-watershed	Sub-watershed

It is commendable that the County of Sonoma is considering adopting a well ordinance that would protect its public-trust resources. Figure 1 and Table 1 of the SUMMARY REPORT synthetize the well ordinance. Our analysis of Appendix C (Attachment H) and the proposed well ordinance presented in the SUMMARY REPORT revealed several shortcomings:

(i) The use of fragmentary, insufficient, and poor-quality data about streamflow, water use, and groundwater levels employed in hydrologic modeling periods that were not climatically representative. The modeling approach of Appendix C did not account for data uncertainty.

(ii) The application of unsound methodologies to implement the MIKE SHE hydrologic model to construct a predictive formula for streamflow depletion based on the pumping ratio. The MIKE SHE hydrologic model was calibrated with limited data and it was not validated for prediction purposes.

(iii) The arbitrary definition of buffer zones to protect stream reaches in which there is a combination of (i) Moderate-habitat Value and Sensitivity with Streamflow Depletion in the range 10% to 20% % relative to unimpaired streamflow, and (ii) High-habitat Value and Sensitivity with Streamflow Depletion less than 10% relative to unimpaired streamflow. Buffer zones were not defined for other combinations of Habitat-vale and Sensitivity with Streamflow Depletion, such as very High-habitat Value and Sensitivity with High- Streamflow Depletion.

(iv) Not reporting the values of unimpaired streamflow in stream reaches with Moderate-, High-, and Very High- value Habitat Value and Sensitivity. The unimpaired streamflow values are necessary to calculate the streamflow depletion within stream reaches. The unimpaired streamflow in a stream reach occurs when the stream reach is not affected by groundwater withdrawal, by surface-water diversions and imports, and by reservoir regulation of streamflow.

(v) Ignoring the cumulative impacts of wells installed near impacted stream reaches with Moderate- and High-habitat Value and Sensitivity.

(vi) Failing to connect the protection of public trust resources with the management of medium- and high-priority groundwater basins.

(vii) Failing to address the cumulative impacts of wells in Sonoma County groundwater basins.

It is possible to improve the MIKE SHE model applications reported in Appendix C (Attachment H) by (i) improving the model input data, (ii) re-calibrating and validating the MIKE SHE model, and (iii) calculating through climatic and hydrologic analyses and modeling the unimpaired streamflow along stream reaches impacted by groundwater withdrawal.

Our review of the SUMMARY REPORT outlining the proposed well ordinance to be considered by Sonoma County revealed several shortcomings:

(i) The SUMMARY REPORT states in page 16 "*Under the proposed ordinance, most well permits will be ministerial, less than 5% are expected to require discretionary review"*. The implication of this projection is profound. It basically means that unless the implementation of the level 1 and level 2 water-conservation requirements[29] is successful the proposed well ordinance would accomplishment next to nothing in conserving public trust resources because, on average, fewer than 5 wells among every 100 wells would undergo discretionary review.

(ii) The SUMMARY REPORT is nearly silent about what a discretionary review would entail. It simply states in its page 15 that "*for discretionary permits, staff exercises discretion and judgment on a case-by-case basis to see if more subjective ordinance standards are met and can impose conditions on the*

[29] The level 1 and level 2 water conservation requirements are listed in pages 19 and 20 of the report.

permit to help meet such standards. Discretionary permits are thus subject to ordinance requirements and may also be subject to additional conditions."

(iii) The proposed well ordinance recommends metering of wells with annual water use larger than 2 acre feet and monitoring of the groundwater level in wells using more than 5 acre feet annually (SUMMARY REPORT, item [2], page 14), thus institutionalizing the practice of not collecting accurate, comprehensive, and reliable data with which to assess the cumulative impacts of existing and new wells on public trust resources and groundwater overdraft.

(iv) The proposed well ordinance's reliance on 1 and level 2 water-conservation requirements to achieve the protection of public-trust resources without comprehensive well metering would be ineffective.

(v) The proposed well ordinance would result in the predominance of ministerial (i.e., routine) well reviews and inadequate well metering that would be ineffective in protecting public-trust and groundwater resources in Sonoma County. This Reviewer recommends (i) that all wells be metered regardless of their water use, and (ii) that groundwater levels be monitored in all wells using more than 2 acre feet annually, in order to gather accurate, comprehensive, and reliable data with which to make sound public-trust resources and groundwater management decisions.

Attachment B

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4 August 2022

Subject: CALIFORNIA COASTKEEPER ALLIANCE COMMENTS ON THE PROPOSED AMENDMENT TO THE SONOMA COUNTY CODE CHAPTER 25B (WELL ORDINANCE)

To Sonoma County Board of Supervisors:

Thank you for the opportunity to comment on the proposed Amendment to the Sonoma County Code Chapter 25B (Well Ordinance).

The proposed amendment is a response to California Coastkeeper Alliance's (CCKA) Writ Action against the County. CCKA's lawsuit seeks to apply the 2018 *Environmental Law Foundation v. State Water Resources Control Board* ("ELF") decision clarifying the County's affirmative duty to take the public trust into account in the planning and allocation of groundwater well permits, as well as its continuing authority over permitted extractions. CCKA is pleased that the County is taking the first step towards meeting its public trust duties in regulating use of groundwater connected to surfaces waters. The County's acknowledgement of its public trust duty to protect salmon and other species in Sonoma County creeks and rivers, confirmation of the County's discretion to reject wells harming public trust resources, and the County's commitment to gauging new wells, are all important milestones.

Yet, as proposed by staff, the amendment adds only general language relating to Sonoma County's public trust duties and does not identify or address any public trust resources or uses in Sonoma County Creeks and rivers, including specifically the Russian River system. Further, the

proposed amendment fails to evaluate or address the ongoing and cumulative harms of existing permitted wells, or to define permitting criteria adequate to protect public trust resources. Moreover, contrary to the Notice of Categorical Exemption filed by the Sonoma County Permit and Resource Management Department ("Permit Sonoma"), the proposed amendment is subject to CEQA review prior to adoption. Therefore, rejection of the proposed amendment to the Sonoma County Code Chapter 25B (Well Ordinance) as submitted is both appropriate and required by law.

There is no reasonable debate that current levels of groundwater extraction in Sonoma County are unsustainable, and that a critical public trust resource—salmon—are at risk of extinction from that extraction. To protect this critical resource, and to comply with the law, the County must do more than state hopeful generalities. A well permitting ordinance that would meet the County's public trust duties and protect public trust resources in Sonoma County–including endangered salmon–must include at least the following elements:

1) A methodology for determining whether a proposed well will impact public trust resources, given current and future conditions, using modeling;
2) A requirement for gauging and metering on all wells across Sonoma County, including gauging on existing wells and around already impacted river and creek reaches sufficient to calibrate and verify the model;
3) Reference to and application of instream flow standards for all Sonoma County creeks to protect public trust resources that will be used in evaluating impacts to and establishing appropriate mitigation of harms to public trust resources from groundwater extractions;[1]
4) Reference to and application of groundwater level-based criteria that protect public trust resources and go beyond the Santa Rosa Plain GSP Minimum Threshold Levels to protect public trust resources;[2]
5) A requirement that any low volume domestic well or emergency well exempted from public trust review and limitations comply with specific mitigation measures intended to protect against potential public trust impacts (e.g., requirements to meet water conservation standards, limitations on use based on contribution to cumulative impacts on surface flows and public trust resources);;
6) A commitment to undertake and complete a study that will evaluate the cumulative impacts for all wells, and a mechanism to account for these impacts when permitting new wells and mitigating the impacts of current and existing groundwater impacts;

[1] While California Department of Fish and Wildlife and the State Water Resources Control Board develop and approve instream flow standards for Sonoma County creeks, use of National Marine Fisheries Service Bi-op standards, as well as modeled pre-pumping flows as developed by the Nature Conservancy can act as protective standards

[2] As explained below, the California Department of Fish and Wildlife's recent comment letter confirms that the MTs proposed in the SRPGSP do not protect salmonids in the Russian River system.

7) A program and mechanisms to be applied to both existing and future permitted wells countywide to restore instream flows and groundwater use to sustainable levels.

Therefore, Coastkeeper urges the Board return the draft amendment to staff, and to provide detailed direction as to the content and analysis required to protect Sonoma County's precious resources and to comply with law. Further, Coastkeeper urges the County to pause issuance of further groundwater extraction permits to prevent further harm to salmonids until an amended ordinance adequate to preserve instream flows for fish is implemented. Finally, we urge Sonoma County to suspend permit issuance unless and until the data and analysis are available to identify and mitigate impacts to surface waters from groundwater wells in Sonoma County rivers and creeks.

Coastkeeper looks forward to working with the Board to meet its duties and to protect public trust resources.

EXECUTIVE SUMMARY

Sonoma County has an ongoing duty to protect public trust resources—and specifically endangered salmon and other aquatic species—in Sonoma County. The County's duty extends to regulation of well permits where groundwater is connected to surface waters that support public trust resources. Further, the County must comply with CEQA when taking action that impacts the environment.

Every agency, scientist, non-profit, or consultant that has examined the issue confirms that salmonids in Sonoma County waters are severely impacted by low instream flows and high water temperatures and are threatened with extinction. Further, all available data confirms that current levels of groundwater pumping are causing or contributing to those low instream flows. Yet the proposed amendment fails to protect those endangered public trust resources. The proposed amendment provides only a vague prohibition on new wells impacting public trust resources, with no identification of those resources, or any methodology for evaluating or preventing impacts to salmon. Further, the proposed amendment includes significant exemptions from public trust analysis or mitigation, without analysis or factual support, and authorizes even broader future exempted categories of wells. As developed by staff, the proposed amendment also fails to comply with CEQA. Even as current levels of pumping have been killing and continue to kill fish, the proposed ordinance authorizes additional pumping near impacted creeks. There is no reasonable debate that the proposed amendment impacts the environment in Sonoma County. And because the proposed amendments modify the ordinance regulating construction of wells—wells with established cumulative impacts—no exemptions to CEQA apply.

I. <u>Legal Background</u>

A. The Public Trust Doctrine

The public trust doctrine is an "affirmation of the duty of the state to protect the people's common heritage of streams, lakes, marshlands and tidelands," enabled by its "authority as sovereign to exercise a continuous supervision and control." (*Nat. Audubon Society v. Super. Ct.* ("*Audubon*") (1983) 33 Cal.3d 419, 441, 425.) The legal concept that certain resources (e.g. navigable waters) and resource uses (e.g. commerce, fishing) must be preserved for the benefit of the public dates back as far as early Roman and English law. (*Id*. at pp. 433–34; Joseph L. Sax, *The Public Trust Doctrine in Natural Resource Law: Effective Judicial Intervention,* 68 Mich. L. Rev. 471 (1970).) The United States Supreme Court established in *Illinois Central Railroad v. Illinois* (1892) 146 U.S. 387 that states hold the land under navigable waters "in trust for the people of the State, in order that they may enjoy the navigation of the waters and carry on commerce over them." (*Envtl. Law Found. v. State Water Res. Control Bd.* ("*ELF*") (2018) 26 Cal.App.5th 844, 856–57 (quoting *Long Sault Development Co. v. Call* (1916) 242 U.S. 272, 278–79).) One of the most important public trust uses is "the preservation of those lands in their natural state, so that they may serve as ecological units for scientific study, as open space, and as environments which provide food and habitat for birds and marine life, and which favorably affect the scenery and climate of the area." (*Marks v. Whitney* (1971) 6 Cal.3d 251, 259–260.)

The public trust doctrine is codified in the California Constitution, which states that "[u]se of the people's waters is of vital public concern, and all waters shall be managed for the greatest public benefit." (Cal. Const., art. X, § 2.) The California Water Code implements this Constitutional mandate by providing that "All water within the State is the property of the people of the State" (§ 102) and that "the State shall determine what water of the State, surface and underground, can be converted to public use or controlled for public protection" (§ 104), as well as "in what way the water of the State, both surface and underground, should be developed for the greatest public benefit" (§ 105). A property right in water granted by the state is "only a usufruct—an interest that incorporates the needs of others" and it is the State's responsibility to account for "the public nature and the interdependency which the physical quality of the resource implies." (*ELF*, 26 Cal.App.5th at p. 856.) "[P]arties acquiring rights in trust property generally hold those rights subject to the trust, and can assert no vested right to use those rights in a manner harmful to the trust." (*Audubon*, 33 Cal.3d at p. 437.)

A county is a legal subdivision of the state and "shares responsibility for administering the public trust and may not approve of destructive activities without giving due regard to the preservation of these resources." (*ELF*, 26 Cal.App.5th at p. 868.) California's public trust doctrine imposes on all state agencies, including counties, "an affirmative duty to take the public trust into account in the planning and allocation of water resources." (*Audubon*, 33 Cal.3d at p. 446.) Prior to approval of any such allocation, state agencies such as counties must "consider the effect of [prospective water uses] upon interests protected by the public trust, and attempt, so far as feasible, to avoid or minimize any harm to those interests." (*Id.* at p. 426.) While the state

always retains the power to reconsider allocation decisions made "after due consideration of their effect on the public trust," its duty to do so is "even stronger when that decision failed to weigh and consider public trust uses." (*Id.* at p. 447.)

The California Supreme Court has recognized that "[t]he objective of the public trust has evolved in tandem with the changing public perception of the values and uses of waterways." (*Audubon*, 33 Cal.3d at p. 434 [internal quotations omitted].) In 1983, the *National Audubon* decision expanded the previously contemplated scope of planning and allocation activities that implicate the State's public trust duty to encompass "diversions from a nonnavigable tributary [that] impair the public trust in a downstream river or lake." (*Id.* at p. 436.) In 2018, the *ELF* decision clarified that this scope also encompasses planning and allocation activities involving groundwater "if the extraction of groundwater adversely affects a navigable waterway." (26 Cal.App.5th at p. 859.) "[T]he dispositive issue is not the source of the activity, or whether the water that is diverted or extracted is itself subject to the public trust." (*Id.* at pp. 859–60.) The *ELF* court described its holding as "unremarkable and well supported by the facts and logic of *National Audubon* and the precedent upon which it relies" because the application of the public trust doctrine "begins and ends with whether the challenged activity harms a navigable waterway and thereby violates the public trust." (*Id.* at p. 859.)

Therefore, California's Public Trust Doctrine prescribes that a county bears "a public trust duty to consider the impacts of new wells . . . when it issues permits for construction of the wells"; and where the county finds that "issuance of well permits will result in extraction of groundwater adversely affecting the public's right," the county has a duty to "protect public trust uses when feasible." (*Id.* at pp. 853–54.) The *ELF* court found that the Sustainable Groundwater Management Act of 2014 ("SGMA") does not "occupy the field" or "replace or fulfill public trust duties." (*Environmental Law Foundation*, 26 Cal.App.5th at p. 867.) Likewise, the Water Code's water rights appropriation framework does not limit the State's authority to protect the public trust from harms resulting from groundwater extraction. (*Id.* at p. 862.) Further, whether the relevant state action is a ministerial act exempt from analysis under the California Environmental Quality Act (CEQA) also "bears no relevance" to the State's authority and duty under the public trust doctrine. (*Id.* at p. 852 n.2.) Accordingly, "if the County's issuance of well permits will result in extraction of groundwater adversely affecting the public right to use the [stream] for trust purposes, the County must take the public trust into consideration and protect public trust uses when feasible." (*Id.* at pp. 853–54.)

B. The California Environmental Quality Act

The California Environmental Quality Act ("CEQA") plays a critical role in ensuring local agencies do their part in protecting the environment and preventing environmental degradation. CEQA discloses projects' environmental impacts to decision makers; identifies

ways to reduce or avoid environmental impacts; and requires feasible alternatives or mitigation measures. This process informs the public of the agency's reasons for approving projects with significant environmental impacts, fosters interagency coordination regarding project review, and enhances public participation in the planning process. At the heart of the CEQA process is the Environmental Impact Report (EIR). If an activity qualifies as a project under CEQA, an EIR must be done unless an exemption applies. Even when a particular exemption applies, there are exceptions to the exemptions that require an EIR regardless of exemption status.

"Projects" under CEQA are defined as any activities undertaken by an agency that may cause a direct or reasonably foreseeable indirect physical environmental change and involves the issuance of a permit (CEQA Guidelines, § 15378(a).) "Significant effect on the environment" means a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance. (CEQA Guidelines, § 15382.) Projects that substantially degrade or deplete groundwater resources; or interfere substantially with groundwater recharge are considered to have significant effects on the environment and the kinds of physical changes in the environment CEQA is designed to address. (*Azusa Land Reclamation Co. v. Main San Gabriel Basin Watermaster* (1997) 52 Cal.App.4th 1166, 1189 ("*Azusa*"), referencing appendix G to the CEQA guidelines.)

Where a fair argument may be made that a project or activity has the potential to degrade the quality of the environment, even where evidence exists to the contrary, an EIR must be completed. (*Azusa*, at p. 1201.) This standard is a low threshold for further environmental review and "reflects a preference for resolving doubts in favor of environmental review when the question is whether any such review is warranted." (*Sierra Club v. County of Sonoma*, 6 Cal.App.4th 1307, 1316–17 (1992).) When an agency's decision is not supported substantial factual evidence, the agency's action is unlawful. (CEQA §§ 21168, 21168.5.)

Limited exemptions from full environmental review under CEQA are available. For example, Class 7 exemptions are designed to cover "actions taken by regulatory agencies as authorized by state law or local ordinance to assure the maintenance, restoration, or enhancement of a natural resource where the regulatory process involves procedures for protection of the environment. Examples include but are not limited to wildlife preservation activities of the State Department of Fish and Game. Construction activities are not included in this exemption." (CEQA Guidelines, § 15307.) Class 8 exemptions apply to actions that "assure the maintenance, restoration, enhancement, or protection of the environment." (CEQA Guidelines, §15308.) Specifically, Class 8 exemptions do not include construction activities or relaxation of standards allowing environmental degradation. (*Id*.)

The scope of a categorical exemption is a question of law and underlying factual determinations are subject to the substantial evidence test. (*Save Our Big Trees v. City of Santa Cruz* (2015) 241 Cal.App.4th 694, 706 ("*Big Trees*").) The County bears the burden of showing "substantial evidence supports its finding that a particular CEQA exemption applies." (*Bus Riders Union v. Los Angeles County Metropolitan Transportation Agency* (2009) 179 Cal.App.4th 101, 107.) A court will not uphold an agency's exemption determination if the record lacks evidence showing that the project falls within the exemption. (*Big Trees,* 241 Cal.App.4th at p. 712.)

II. Public Trust Resources in the Russian River System

The Russian River and its tributaries are navigable waterways protected by the Public Trust Doctrine and contain wildlife resources which are further protected by the public trust. (State Water Res. Control Bd. ("SWRCB") Res. No. 2011-0047, adding § 862 to Cal. Code Reg., tit. 23, div. 3.) The hydrologic system supports federally-listed endangered species such as the Central California Coast ("CCC") Coho salmon, California tiger salamanders, and California freshwater shrimp, as well as federally-listed threatened species and state-listed species of special concern including CCC Steelhead, California Coastal ("CC") Chinook salmon, chum salmon, western pond turtles, western tailed frogs, and foothill yellow-legged frogs. (*See* Cal. Dept. of Fish & Wildlife, State & Federally Listed Endangered & Threatened Animals of California (Feb. 9, 2021) and Cal. Dept. of Fish & Wildlife, Special Animals List (Feb. 2021).) Maps from NOAA Fisheries Protected Resources App, at <https://www.webapps.nwfsc.noaa.gov/portal/apps/webappviewer/index.html?id=7514c715b8594944a6e468dd25aaacc9>, show critical habitat in the lower Russian River system for the three federally-listed anadromous salmonid species in Figures 1 (CCC Coho), 2 (CCC Steelhead), and 3 (CC Chinook).

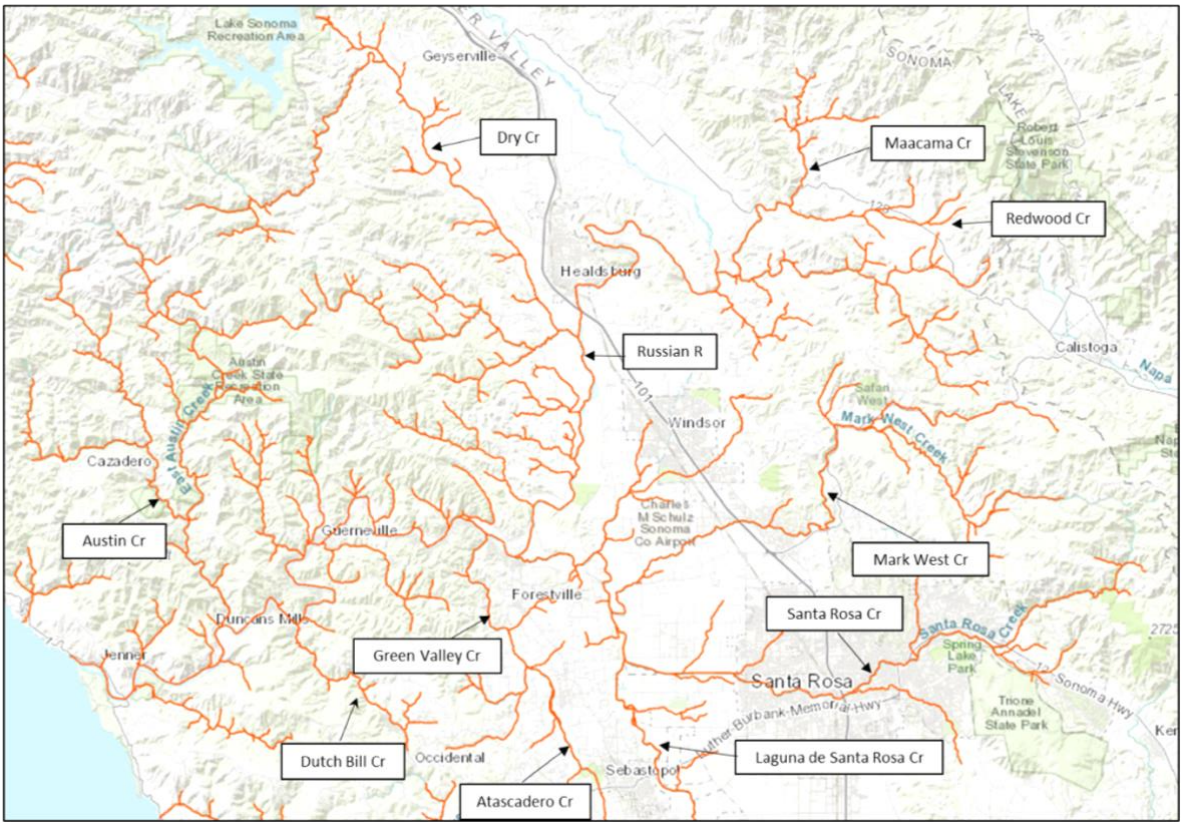


Figure 1. Critical habitat map for CCC Coho salmon. Source: NOAA Fisheries Protected Resources App.

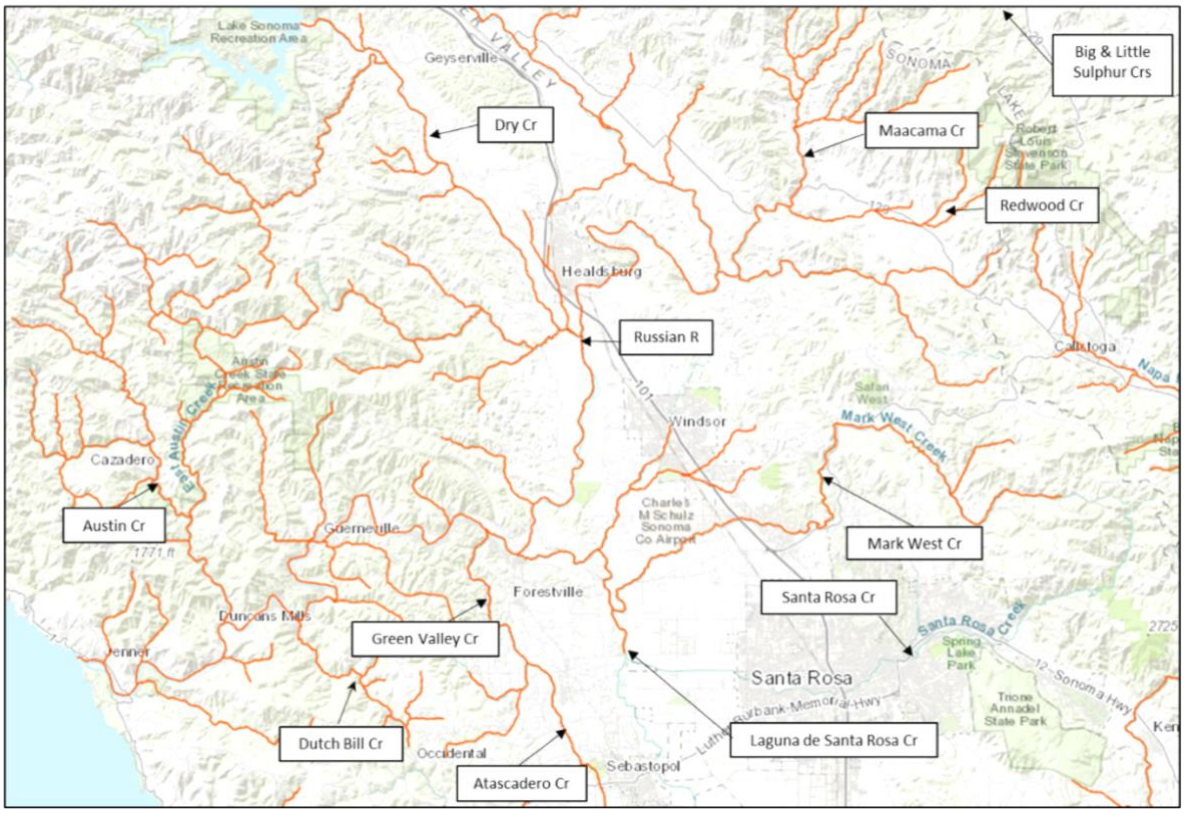


Figure 2. Critical habitat map for CCC Steelhead. Source: NOAA Fisheries Protected Resources App.

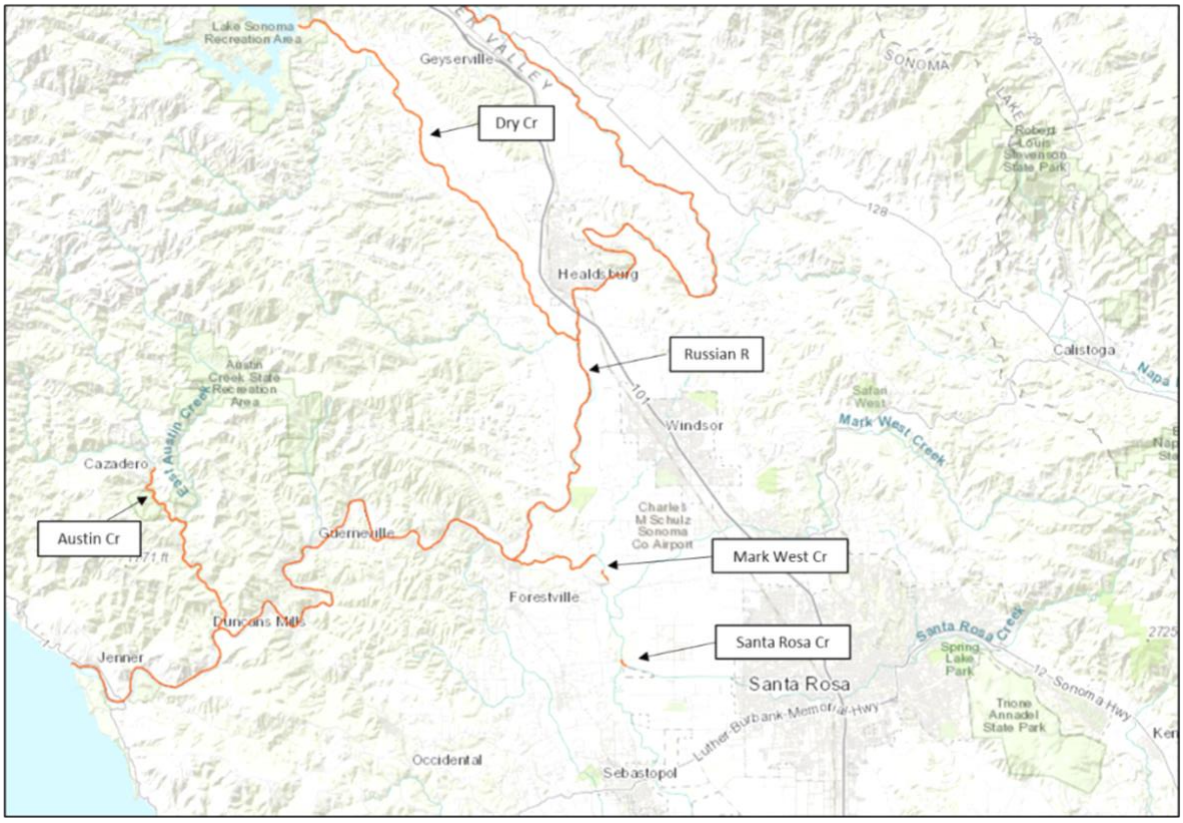


Figure 3. Critical habitat map for CC Chinook salmon. Source: NOAA Fisheries Protected Resources App.

Large, self-sustaining populations of CCC Coho salmon once occupied rivers and streams within the Russian River system. (Vander Vorste et al., *Refuges and ecological traps: Extreme drought threatens persistence of an endangered fish in intermittent streams* (July 2020) vol. 26, No. 7, Global Change Biology 3834, 3837.) However, the CCC Evolutionary Significant Unit of Coho salmon, for which the Russian River system supplies one third of total habitat, was "nearly extirpated by the late 1990s" and "listed as federally endangered in 2005 (70 FR 37160)." (*Id.*) As of NMFS's most recent Endangered Species Act Biological Opinion in 2008, "there is approximately 98 miles of coho salmon rearing habitat remaining in the Russian River watershed. This remaining habitat is only 14% of the estimated original 710 miles of historic coho salmon habitat in the Russian River watershed." (Nat. Marine Fisheries Service ("NMFS") Southwest Region, Endangered Species Act Sec. 7 Consultation Biological Opn. for Water Supply, Flood Control Operations, & Channel Maintenance (Sept. 24, 2008) p. 109.) Since the Russian River system accounts for one third of its habitat, "the survival and recovery of CCC coho salmon will likely depend on a substantial positive trend in the growth rate and abundance of coho salmon in the Russian River." (*Id.*, Executive Summary, at p. xvi.)

Substantial efforts are being made to restore CCC Coho salmon in the Russian River system. The Russian River Coho Salmon Captive Broodstock Program is a collaborative, conservation hatchery effort that is working to build a self-sustaining CCC Coho population

within the watershed. Partners include the US Army Corps of Engineers, the National Oceanic and Atmospheric Administration Fisheries Service, the California Department of Fish and Wildlife, Sonoma Water and CA Sea Grant. Since 2001, the Broodstock Program has been breeding CCC Coho salmon from local genetic stock at the Don Clausen Fish Hatchery at Lake Sonoma and releasing them as juveniles into historic CCC Coho streams in the Russian River watershed. California Sea Grant's Russian River Salmon and Steelhead Monitoring Program's observations of returning adult Coho salmon in the Russian River system showed near zero counts from 2000 to 2010, with improved counts—but remaining well below the delisting target of 10,100—of 192 to 763 returning adult Coho salmon from 2010 to 2020. (Cal. Sea Grant, Russian River Salmon and Steelhead Monitoring Program Reports and Publications, at <https://caseagrant.ucsd.edu/russian-river-salmon-steelhead/reports-publications> [as of July 20, 2022]; NMFS, Final CCC Coho Salmon ESU Recovery Plan (Sept. 2012) p. 260.) In 2020, the most recent year for which data is available, observations revealed a decade-low count of 214 adult Coho salmon returning to the Russian River system.

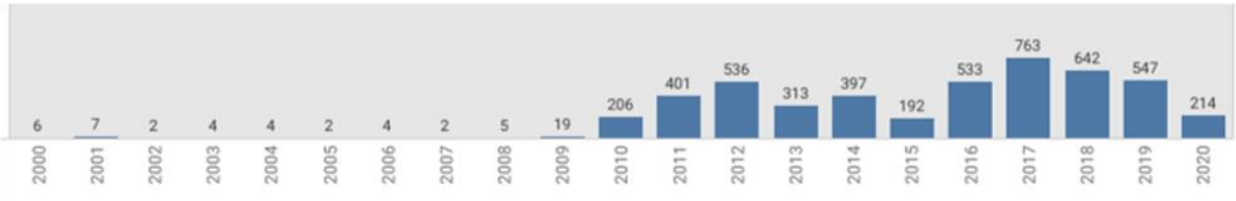
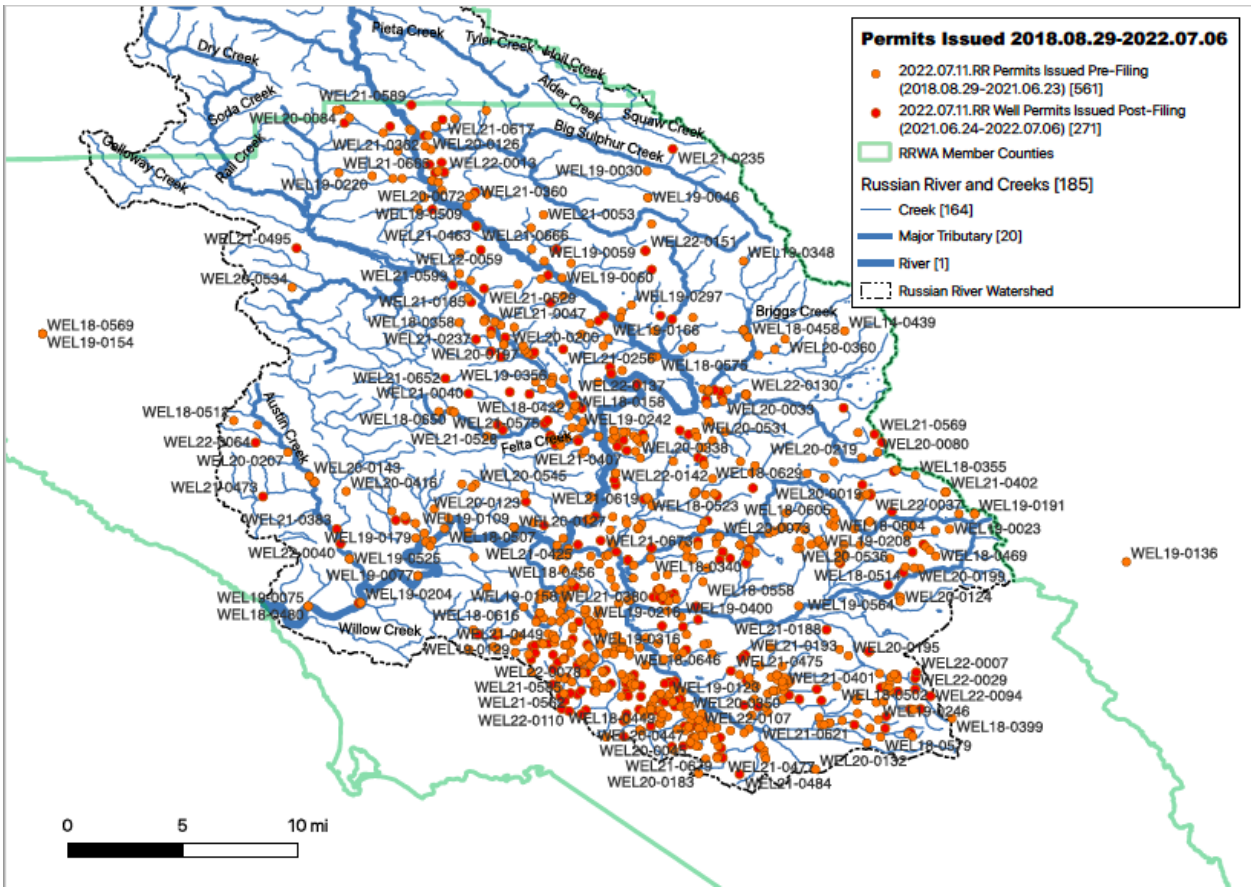


Figure 4. Estimated number of returning adult Coho salmon in the Russian River watershed from 2000 to 2020. Source: The Nature Conservancy, State of Salmon in California, <https://casalmon.org/salmon-rivers/#russian-river> [as of July 20, 2022].

In its 2021 Community Update, California Sea Grant noted the previous year's decade-low count, together with the devastating widespread drying in the Russian River stream ecosystems, concluding: "The increased severity and frequency of drought and the groundwater depletion associated with climate change and human impacts pose a significant threat to our keystone salmon and other native species." (Cal. Sea Grant, Russian River Salmon and Steelhead Monitoring Update 2021 (Jan. 21, 2021) pp. 2–3.)

A. Groundwater Extraction in the Russian River System

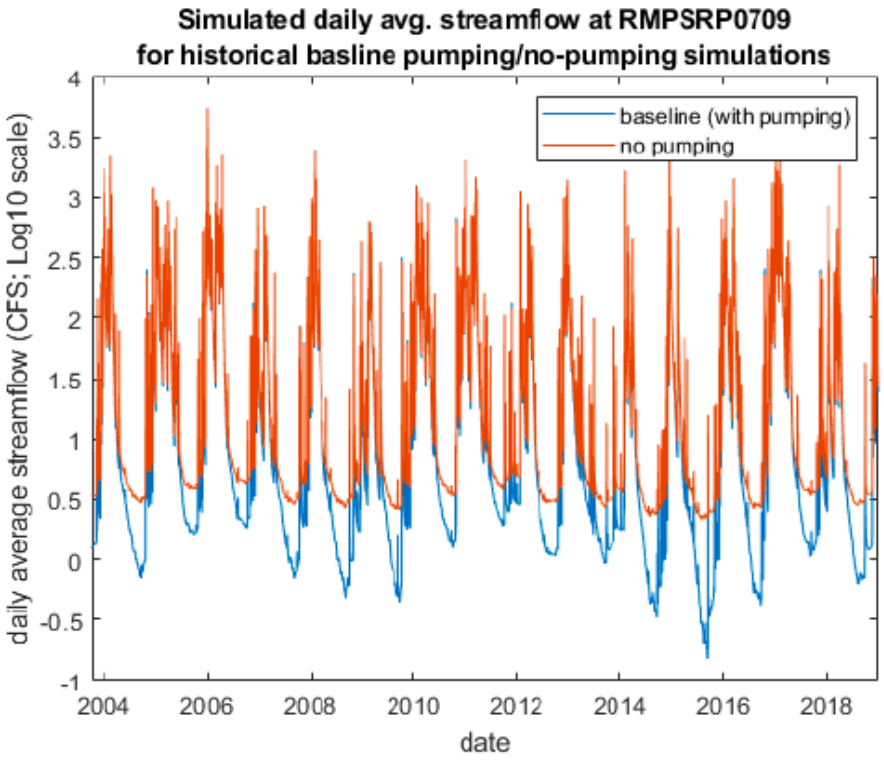
Sonoma County has permitted over 832 groundwater wells in the Russian River system since the 2018 *ELF* decision. These wells surround the Russian River, its tributaries, and other surface waters essential to salmon.

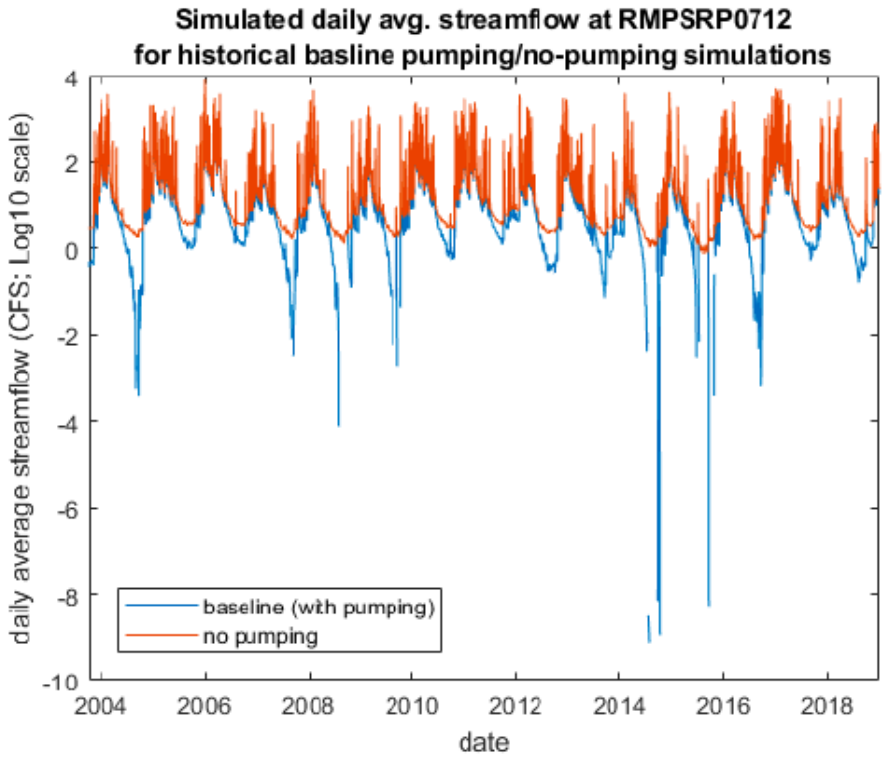


Groundwater in subsurface aquifers located along tributaries of the Russian River is in hydraulic communication with surface water resources and, therefore, groundwater extraction influences the streamflow of adjacent surface waters. (Vander Vorste et al., at p. 3835–3837.) Hydrogeologic consultants O'Connor Environmental, Inc. ("OEI") generated a comprehensive model of groundwater interconnection with surface flows in the Green Valley/Atascadero and Dutch Bill Creek watersheds using seven surface flow gages and seven groundwater elevation monitoring wells in preparation of a 2016 report for the Gold Ridge Resource Conservation District. (OEI, Integrated Surface and Groundwater Modeling and Flow Availability Analysis for Restoration Prioritization Planning: Green Valley/Atascadero and Dutch Bill Creek Watersheds (2016).) The OEI report shows significant surface water to groundwater exchanges (*id*. at pp. 101–103); minimal groundwater discharge to surface flows in the summer months (*id.* at pp. 110–113); and significant depletion of groundwater in the region between October 2009 and October 2014 (*Id*. at p. 117).

In the Appendices of its Groundwater Sustainability Plan, the Santa Rosa Plain Groundwater Sustainability Agency (SRPGSA) presented results of a model simulating depletion of interconnected surface water flows by groundwater pumping. (Santa Rosa Plain Groundwater Sustainability Agency (2021) Groundwater Sustainability Plan for the Santa Rosa Plain

Subbasin, app. 4-D.) In several cases, predicted surface flows with pumping drop below zero, indicating dry creek beds, where the predicted flows without pumping indicate positive surface flows (Figures 5–6). (*Id*.)





Figures 5─6. Simulated surface water flow depletion by groundwater pumping at two monitoring sites. Source: Groundwater Sustainability Plan for the Santa Rosa Plain Subbasin, app. 4-D, at pp. 10, 12.

The model showed the largest reductions in surface flows by groundwater pumping in the lower reaches of the Laguna de Santa Rosa Creek, Santa Rosa Creek, and Mark West Creek (Figure 6). (*Id*., app. 4-C, at p. 119.)

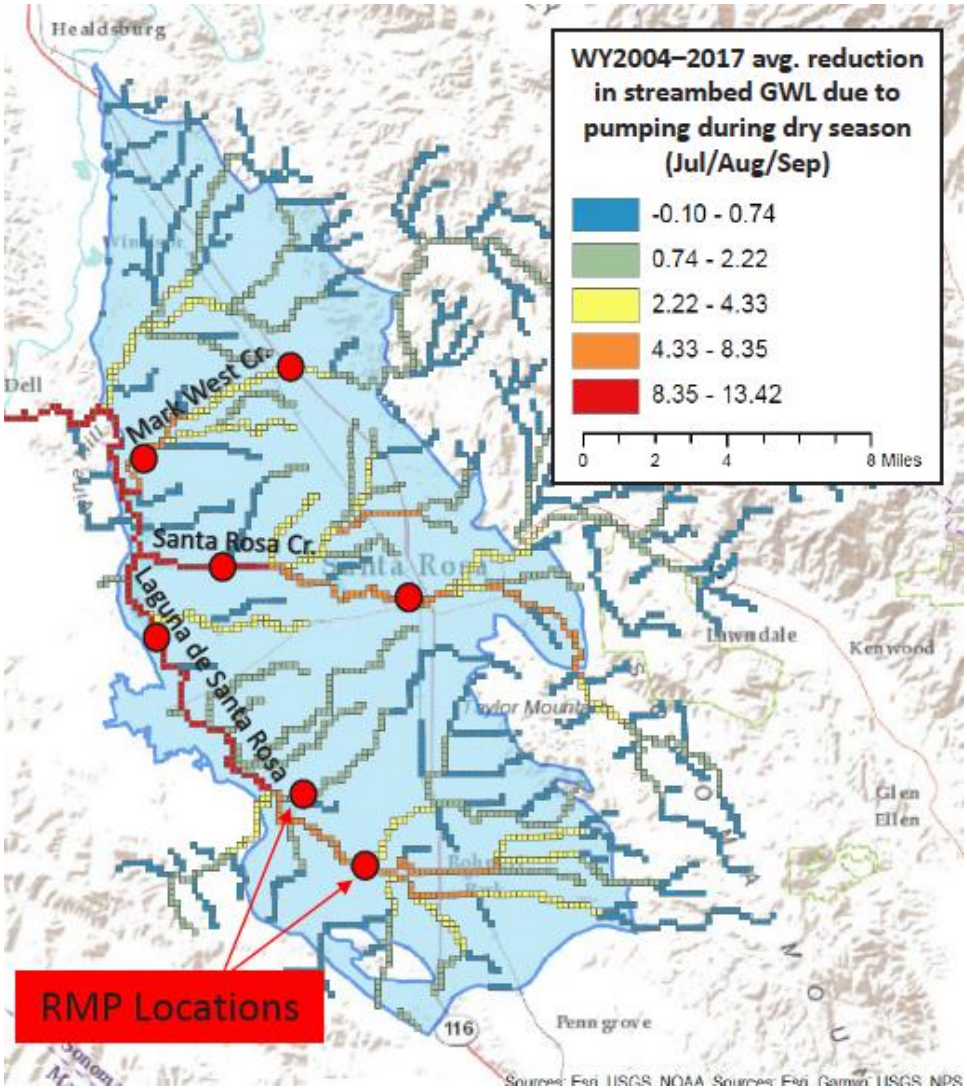


Figure 6. Estimated average reduction in surface flows due to pumping during summer months in the Santa Rosa Plain. Source: Groundwater Sustainability Plan for the Santa Rosa Plain Subbasin, app. 4-C, at p. 119.

The California Natural Flows Database, developed by The Nature Conservancy, the U.S. Geological Survey, and other partners, also simulates depletion of interconnected surface water flows by groundwater pumping, using aggregated observed surface flow data from available stream gages paired with modeled estimates of predicted surface flow in the absence of human water use. (Zimmerman et al., The Nature Conservancy, *California Unimpaired Flows Database v2.1.0*, at <https://rivers.codefornature.org/>.) Figure 7 represents all months between 2014 and 2021 when mean monthly surface flow measured at any of six stream gage sites fell below 0.1

cubic foot per second (cfs), juxtaposed against the modeled ranges of mean surface flow at those sites in the absence of human water use. (*Id*.)

Stream	COMID Site	Year	Month	Current Min Flow cfs	Natural Flow (range) cfs	
Austin	8271049	2015	Aug	<0.1	1.39	1.39
Austin	8271049	2020	Aug-Oct	<0.1	1.01	2.00
Austin	8271049	2021	July-Sept	<0.1	0.63	3.12
Big Sulphur	8271875	2014	July-Sept	<0.1	2.03	3.40
Big Sulphur	8271875	2015	Aug-Sept	<0.1	2.02	2.48
Big Sulphur	8271875	2020	Sept-Oct	<0.1	2.14	2.14
Big Sulphur	8271875	2021	July-Sept	<0.1	1.05	2.00
Laguna	8273287	2014	July-Oct	<0.1	2.96	4.46
Laguna	8273287	2015	Aug-Nov	<0.1	2.98	10.26
Laguna	8273287	2016	Aug-Sept	<0.1	3.83	4.23
Laguna	8273287	2018	July-Sept	<0.1	3.97	4.99
Laguna	8273287	2019	Sept-Oct	<0.1	3.87	5.78
Laguna	8273287	2020	July-Nov	<0.1	1.86	15.00
Laguna	8273287	2021	June-Sept	<0.1	1.99	6.09
Laguna	8273639	2021	Aug-Sept	<0.1	0.98	1.77
Laguna	8273659	2015	July-Oct	<0.1	1.36	2.75
Laguna	8273659	2018	Aug-Sept	<0.1	2.04	2.04
Laguna	8273659	2021	June-Sept	<0.1	0.95	2.76
Maacama	8272605	2014	July-Sept	<0.1	0.86	1.65
Maacama	8272605	2015	July-Oct	<0.1	0.67	3.84
Maacama	8272605	2016	Aug-Sept	<0.1	1.64	1.97
Maacama	8272605	2018	Aug-Sept	<0.1	0.89	1.64
Maacama	8272605	2020	Oct	<0.1	2.52	2.52
Maacama	8272605	2021	July-Sept	<0.1	0.40	1.66

Figure 7. Data compiled from the California Unimpaired Flows Database v2.1.0 for all months when mean monthly surface flow measured at six stream gage sites fell below 0.1cfs [as of May 11, 2022].

Numerous state and federal agencies have acknowledged and responded to the severe impact of groundwater extraction on surface water flows in the Russian River system. NMFS's most recent Biological Opinion assessing critical habitat degradation for the region's endangered species concludes "Stream desiccation is likely the result of intensive groundwater pumping in this semi-arid region." (NMFS Southwest Region 2008, at p. 86.) In a 2016 letter to the Sustainable Groundwater Management Section of the California Department of Water Resources ("CDWR"), NMFS reiterated:

> Over-extraction of streamflow (both surface and hydrologically-linked groundwater) within the state has been harming various salmon and steelhead populations for several

decades, and has been consistently noted as a leading threat to salmon and steelhead survival in various NMFS recovery plans. (e.g., NMFS 2012, 2013, 2014a, 2014b). (Maria Rea & Lisa Van Atta, NMFS, letter to CDWR (Jan. 12, 2016) at p. 2.)

In 2015, the State Water Resources Control Board adopted a drought-related emergency regulation requiring "enhanced conservation measures for all users of surface and sub-surface water diverted" from the Dutch Bill Creek, Green Valley Creek, Mark West Creek, and Mill Creek watersheds, where "the connectivity between surface water and sub-surface water is significant, and sub-surface withdrawals can have a significant effect on surface water flow." (SWRCB Res. No. 2015-0045 (June 17, 2015) pp. 2–3.) The regulation targeted these tributaries specifically for their role as high priority critical habitat for public trust resources, stating that "[i]n this severe drought, action is needed to maintain connectivity in the pools to support the rearing habitat of juvenile CCC coho salmon and CCC steelhead." (*Id.* at p. 2.)

In a 2015 comment letter submitted prior to the previous revisions to Sonoma County Code Chapter 25B, NMFS advised the County that "[w]ells for rural residential use or agriculture can place an enormous strain on groundwater aquifer levels, which can in turn lower summer baseflows where aquifers and streams are hydrologically connected." (Lisa Van Atta, NMFS, letter to Nathan Quarels, Sonoma Cty. Permit & Resources Management Division (Aug. 26, 2014) p. 2.) At that time, NMFS recommended sweeping revisions to the County's well permitting ordinance, warning that "the end result of granting ministerial well permits absent groundwater aquifer analysis is the steady, cumulative loss of summer baseflow and the attendant disappearance of associated aquatic resources, including nursery habitats for steelhead and salmon." (*Id.*) NMFS further stated that groundwater pumping that "affects the aquifer-surface flow connection . . . must legally have an appropriative water right." (*Id.*)

In a 2018 letter to the County regarding its cannabis permitting protocols, NMFS again warned that continued permitting of groundwater extraction wells "will likely impair summer baseflows in the future," and recommended limiting such permits in the Mark West Creek and Green Valley Creek watersheds "until the effects of long-term, chronic groundwater depletion and its impact on summer baseflow are properly analyzed." (Robert Coey, NMFS, letter to Tennis Wick, Sonoma Cty. Permit Resource Management Dept. (Aug. 30, 2018) at p. 5.)

In a comment on the Draft 2019 Sustainable Groundwater Management Act Basin Prioritization Phase 2 Process and Results for the Wilson Grove Highland Formation Groundwater Basin, the California Department of Fish and Wildlife ("CDFW") urged the California Department of Water Resources ("CDWR") that "[t]he overwhelming preference for groundwater extraction, combined with the documented streamflow impairment, strongly suggests that any meaningful water management strategy in this area, must address groundwater." (Gregg Erickson, CDFW, memorandum to Craig Altare, CDWR (May 30, 2019)

p. 3.) The comment cited data showing that 93% of individual water diversions in the Upper Green Valley Creek and Purrington Creek watershed areas were sourced from groundwater extraction wells, compared to 4% diverted from surface water. (*Id.*)

Most recently, in a comment letter to the CDWR regarding the Santa Rosa Plain Groundwater Basin Final Groundwater Sustainability Plan, the CDFW urged formulation of more conservative Sustainable Management Criteria for depletion of interconnected surface waters, stating:

> Minimum Thresholds should ensure regional groundwater extractions do not lead to significant and adverse impacts on fish or wildlife resources by meeting plant and animal species temporal/spatial water needs including water availability especially for Threatened and Endangered species and Species of Special Concern. They should be designed to account for climatic/water year type variability. Where specific data are lacking, MTs should be conservative with respect to preserving fish and wildlife beneficial users of groundwater from undesirable results. . . . Setting Minimum Thresholds and measurable objectives using data from years with historically low rainfall (i.e., 2014-2016) would likely create historically high streamflow depletion rates and potentially negatively impact [groundwater dependent ecosystems] and their critical habitat.

(Erin Chappell, CDFW, letter to Monica Reis, CDWR (Apr. 8, 2022) p. 3.)

B. Impacts of Groundwater Extraction to Public Trust Resources in the Russian River System

Ongoing depletion of groundwater resources in the Russian River system has severely reduced instream flow during the dry season, leading to persistent habitat loss for coho salmon and other public trust resources. "Insufficient summer streamflow has been identified as a bottleneck to recovery of Russian River salmonid populations." (California Sea Grant, 2020 Wetted Habitat Assessment Overview (December 3, 2020) at p. 1.) Salmonid species have rigorous habitat requirements, chief among which are adequate stream flows and cool water temperatures, necessary for the anadromous fish to successfully migrate, reproduce, grow, combat diseases, and survive to persist and perpetuate the species. Many impairments in water quality and physical habitat are closely associated with inadequate stream flows. As lamented by CDFW in advising more protective groundwater policy in Sonoma County: "Despite the substantial investment of efforts to recover Coho salmon in Green Valley Creek, no policy mechanism exists to comprehensively address the predominant water use type in the basin: groundwater extraction." (CDFW 2019, at p. 3.)

Migrant adult salmon require sufficient water depths in riffles in order to reach spawning areas, which in the Russian River system may be well over 40 miles from the Pacific Ocean.

Adult CCC Coho salmon also require unimbedded and silt-free gravel for successful reproduction, preferentially spawning in stream reaches with alluvial substrate, which is "particularly sensitive to water withdrawals from diversions and groundwater pumping, increasing the risk of dewatering redds and stranding juvenile fish." (Vander Vorste et al., at p. 3842.) Field observations demonstrate that "[h]ydrologic connectivity is critical in supporting rearing juvenile coho salmon throughout the summer season" and that "hydrogeological factors (e.g. clay substrate v. alluvium, riparian cover, land use, etc.) play a strong role in influencing" variations in CCC Coho survival rate. (Sarah Nossamon et al., Flow and Survival Studies to Support Endangered Coho Recovery in Flow-Impaired Tributaries of the Russian River Basin (May 2018) at p. 3.)

CCC Coho salmon, in particular, are susceptible to "ecological traps," which occur when residual pools in intermittent stream reaches become atypically dry, "especially when river flow regimes are altered by anthropogenic activities." (Vander Vorste et al., at p. 3835). Fish trapped in disconnected and drying pools face "declines in dissolved oxygen as well as increased water temperatures, competition, and/or predation." (*Id.*) A study funded by CDFW and NMFS analyzing hydrological and ecological data between 2014 and 2017 observed, in the two creeks for which sufficient data existed, 84% and 93%, respectively, of CCC Coho salmon in stream reaches where pools become disconnected during drought events and 32% and 42% in stream reaches where pools become disconnected in years with average stream flow. (OEI, Salmonid Rearing Habitat Delineation & Restoration Prioritization: East Austin, Pena, Mill, and Redwood Creek Watersheds (June 2018) at pp. 44–45).

Russian River Coho Water Resources Partnership ("RRCWRP") calculated stream connectivity thresholds, representing the amount of water required to keep all pools connected by continuous surface flow, within three Green Valley Creek priority reaches between 2010 and 2018. (RRCWRP, Upper Green Valley Creek Streamflow Improvement Plan (2019) p. 76.) Comparing field observations of the onset of disconnection each summer season with hydrographs generated from representative flow gages, RRCWRP determined the approximate flow level at which one or more pools within each reach became disconnected. (*Id.* at pp. 76–78) Figure 8 shows the number of dry season days during which surface flows at three priority reaches fell below the calculated connectivity threshold. (*Id*. at p. 77.)

Reach name	Connectivity threshold (ft^3/s)	Priority reach range (river km from mouth)	Flow gage river km	Number of days below threshold								
				2010	2011	2012	2013	2014	2015	2016	2017	2018
Green Valley Reach A	0.20	9.78 -10.76	9.39	21	22	82	118	115	n/a	n/a	n/a	n/a
Green Valley Reach B	0.20	10.76 -13.03	12.70	n/a	n/a	n/a	n/a	n/a	123	119	90	119
Green Valley Reach C	0.20	13.03 -16.76	14.12	75	83	123[1]	123[2]	123	123	118	105	112

[1] *Missing 54 days of flow data (after 8/23); total number of days extrapolated based on flow on end date and neighboring flow conditions through end of season.*

[2] *Missing 49 days of flow data (after 8/28); total number of days extrapolated based on flow on end date and neighboring flow conditions through end of season.*

Figure 8. Dry season days below connectivity threshold in the Green Valley Creek priority reaches. Source: RRCWRP, Upper Green Valley Creek Streamflow Improvement Plan (2019) p. 77.

"Juvenile CCC coho salmon and CCC steelhead can survive very dry conditions in these watersheds in pools in the upper watersheds, provided the pools have sufficient water and stream connectivity to maintain appropriate temperature, dissolved oxygen, and other water quality conditions." (SWRCB 2015, at p. 2.) However, groundwater extraction reduces "the influx of cooler groundwater [that] tends to keep instream surface waters cooler — a dynamic that is particularly important for cold-water fish in late summer/early fall when ambient air temperatures tend to be warmer." (Stanton Kibel et al., *Fisheries Reliant on Aquifers: When Groundwater Extraction Depletes Surface Water Flows*, 54 U.S.F. L. Rev. 473, 481.) Diminished streamflow also leads to loss of connection between pools, such that "movement of individuals among pools could no longer occur, preventing salmon from relocating to pools that may have had more suitable environmental conditions as drought conditions worsened over the summer." (Vander Vorste et al., at p. 3841.)

California Sea Grant's UC Coho Salmon and Steelhead Monitoring Report: Summer-Fall 2015 documented Coho salmon and steelhead redds and rearing juveniles in stream reaches that would later become intermittent or dry:

> A total of 224 salmonid redds were documented during the winter of 2014-2015 in streams where wetted habitat surveys occurred in the summer of 2015. Of these, 65% were observed in reaches that later went dry, 18% in reaches that became intermittent, and 17% in reaches that remained wet. . . .
>
> At the time snorkeling surveys were conducted, surface flows were already extremely low and it is unlikely that fish had the opportunity to move out of drying reaches into reaches that remained wet. PIT tag antenna data on specific study reaches indicates that almost no movement occurred between mid-June and December of 2015 (UC unpublished data). We therefore conclude that salmonids observed in reaches that later became dry had no chance of surviving the summer. Previous research conducted by UC through the Partnership, has documented inverse relationships between juvenile coho

survival and the number of days that pools are disconnected from surface flow (UC unpublished data). Given these relationships and the length of time that pools in intermittent reaches were disconnected during the summer of 2015 (over four weeks in most reaches), it is likely that most juveniles in intermittent reaches perished.

(Obedzinski et al., UC Coho Salmon and Steelhead Monitoring Report: Summer-Fall 2015 (2016) at pp. 21-22.) Although other factors could account for the drying of stream channels in those study reaches, groundwater pumping is likely a significant contributing factor critical to the survival and viability of CCC Coho salmon.

To reiterate, every agency, coalition, non-profit, or consultant that has examined the issue has confirmed the significant, detrimental impact of current levels of groundwater extraction on surface streamflow in the Russian River system, and consequently on salmonids and other public trust resources.

III. The Proposed Amendment to the Sonoma County Code Chapter 25B Will Not Ensure the County Meets Its Duties under the Public Trust Doctrine to Protect Public Trust Resources

As submitted, the proposed ordinance amendment adds generalized language responding to Sonoma County's public trust duties when issuing permits for the construction of groundwater extraction wells—essentially repeating the County's duties as articulated by the *ELF* decision. The proposed amendment does not specifically identify or address any public trust resources or uses in the Russian River system, grapple with the ongoing and cumulative harms of existing permitted wells, nor define permitting criteria adequate to meet its duties to protect public trust resources.

A. Terms of the Proposed Amendment

As proposed, the Amendment:

- Adds definitions for the terms "navigable waters," "new water supply well," and "public trust resources" (sec. 25B-3);

- Adds a "public trust resources limitation" prohibiting permit issuance "if in the determination of the Enforcing Agency it will have an adverse impact on public trust resources of navigable waters after the imposition of mitigation measures that protect those public trust resources" (sec. 25B-4(d)(1));

- Adds a requirement, without any definition, that any applicant for a new water supply well "shall provide as part of its application information to the satisfaction of the

Enforcing Agency that is sufficient for the Enforcing Agency to determine that the issuance of the new water supply well permit will or will not have an adverse impact on public trust resources of navigable waters after imposition of all feasible mitigation measures that can be imposed to protect the public trust resources" (sec. 25B-4(d)(2));

- Adds a requirement that "the Enforcing Agency shall make written findings as to whether the issuance of the requested permit will or will not substantially impair public trust resources in navigable waters after the imposition of feasible mitigation measures to protect those public trust resources" and provides that "[a]ny project features or mitigation measures that are necessary to the Enforcing Agency's written findings for approval of any new water supply well permit shall become conditions on the new water supply well permit" (sec. 25B-4(d)(3));

    - Adds a procedure to appeal permit application determinations to the Board of Supervisors (sec. 25B-4(d)(4));

The amendment then articulates a series of exceptions to the undefined process for preventing impacts to public trust resources:

- Adds multiple procedures for the Board of Supervisors to make exemptions and exceptions to the "public trust resources limitation" (sec. 25B-4(d)(5) and (7));

- Adds a procedure for an applicant for a new water supply well to request expedited processing "where the proposed well drilling is immediately necessary to protect human life, health, and safety or property due to a sudden, unforeseen impairment in the quantity or quality of water available," where "accompanied by verifiable evidence demonstrating necessity of the proposed well" (sec. 25B-5(d));

- Defines an exemption to the "public trust resources limitation" for any "replacement well limited to 2.0 acre feet or less per year that serves a parcel that is solely used for domestic purposes." (sec. 25B-5(e)(1));

The amendment requires gauging—but only for new wells, and only starting 5 months from the hearing date:

- Adds a requirement that any "water supply well for which a permit is issued after January 1, 2023, shall be installed with a totalizing water meter" and, unless abandoned, monitor and report readings to the Enforcing Agency as specified in permit conditions (sec. 25B-5(z)).

Finally, the amendment continues the requirement that issuance of well permits be "consistent with any regulations adopted by the board of supervisors" to implement an approved groundwater management plan (sec. 25B-4(b)). Because the GSP for the Santa Rosa Plain sets a "minimum threshold" level for potentially restricting groundwater pumping many feet below the streambed, pumping "consistent with" the SRP GSP will not protect salmon dependent on adequate instream flow.

B. The Proposed Amendment Does Not Identify or Address the Russian River System's Public Trust Resources and Uses nor Define Standards for Their Protection in Well Permit Issuance

Notwithstanding the decades of science and policymaking dedicated to characterizing the Russian River system's public trust resources and uses, the proposed amendment fails to mention surface streamflow or identify any wildlife or habitat dependent on it. The ordinance under consideration cannot itself adequately consider or prevent harm to public trust resources, nor ensure the lawful issuance of permits for construction of new water supply wells, without even naming the subject matter(s) it purports to protect.

Moreover, the "public trust resources limitation" added to qualify the well permitting framework defines no standards for limiting permit issuance beyond "the determination of the Enforcing Agency [that] it will have an adverse impact on public trust resources of navigable waters after the imposition of mitigation measures that protect those public trust resources" (sec. 25B-4(d)(1)), subject to appeal to the Board of Supervisors (sec. 25B-4(d)(4)). Even this general "limitation" is illusory: the "Enforcing Agency" may approve permit applications subject to the public trust resources limitation at its discretion (sec. 25B-5(e)(2)), and request the Board of Supervisors consider "overriding considerations" concurrently with any appeal (sec. 25B-4(d)(5)–(6)). Despite its stated intent "to address evaluation of impacts to public trust resources for proposed water supply wells," the proposed amendment fails to articulate any cognizable standards for evaluation of such impacts.

C. The Proposed Amendment Fails to Grapple with the Ongoing and Cumulative Harms of Existing Permitted Wells to the Russian River System's Public Trust Resources and Uses

The proposed amendment expressly limits its added requirements to permits for construction of "new water supply wells." Permit Sonoma does not require any gauging or reporting of the ongoing operation of existing permitted wells. As NMFS advised Permit Sonoma in 2018 regarding cannabis permitting, "[i]ncomplete consideration of existing and abandoned wells could lead to insufficient data generation when evaluating: 1) interconnections with the nearest surface water bodies and 2) pumping well interference with surrounding wells."

(NMFS 2018, at pp. 2-3.) Without quantification of the individual and cumulative impacts of existing well operations, it is impossible for the County to adequately consider or prevent harm where feasible to public trust resources and uses according to law when issuing new permits.

D. The Existing Requirement that Well Permit Issuance be "Consistent With" Regulations Implementing Adopted Groundwater Management Plans Likely Ensures Harm to the Russian River System's Public Trust Resources

As currently in force, section 25B-4(b) requires issuance of well permits:

> in areas where a groundwater management plan has been approved and has been adopted by the county the requirement for the issuance of well permits and any limitations imposed on well permits shall be consistent with any regulations adopted by the board of supervisors to implement the adopted groundwater management plan.

However, the Santa Rosa Plain Groundwater Sustainability Plan, the only groundwater management plan presently approved by the County, imposes no restrictions on groundwater extraction until a Minimum Threshold ("MT") for groundwater levels, representing the greatest depletion for the three years between 2004 and 2018, is met. (SRPGSA, App. 4-D, at p. 3.) The SRPGSP provides no explanation as to how the MT will prevent impacts to interconnected surface waters and endangered salmonids, or even any relationship between surface flows and the MT.

In fact, the limited analysis provided in the SRPGSP confirms the continued harms to endangered salmonids that will result from the proposed MT. For example, at monitoring location RMPSRP0707, identified as a critical bottleneck to significant salmonid spawning habitat, the SRPGSP indicates that predicted streamflow without pumping would be robust, peaking at over 3.5 cfs and never dipping below 0.5 cfs. (SRPGSP, App. 4-D, at p. 9.) However, streamflow with pumping consistently dips below 0.5 cfs, and between 2019 and 2021 fell below the approximate streambed elevation at all times—meaning current levels of groundwater pumping dried out this tributary for two years. (*Id.* at pp. 9, 25.) Yet the SRPGSP, proposes an MT of 111.4 ft above mean sea level for this location—12.9 feet below the approximate streambed elevation. (SRPGSA, at p. 4-55.)

CDFW's recent comment letter confirms that the MTs proposed in the SRPGSP do not protect salmonids in the Russian River system:

> [T]he GSP states "undesirable result occurs if MTs are exceeded at 40 percent of RMP wells during drought years and 10 percent of RMP wells during non-drought years." It is unclear how these percentages relate to ecological impacts. The GSP should identify monitoring metrics for GDEs that will enable the GSA to characterize GDE vulnerability

> to groundwater depletion and associated undesirable results, and to undertake management intervention accordingly. . . . Setting Minimum Thresholds and measurable objectives using data from years with historically low rainfall (i.e., 2014-2016) would likely create historically high streamflow depletion rates and potentially negatively impact GDEs and their critical habitat.

(CDFW 2022, at p. 3.)

Since the SRP GSP's established MT has no relationship to public trust protection, section 25B-4(b)'s requirement that well permits issuance be "consistent with" this approved groundwater management plan will authorize, rather than prevent, harm to the Russian River system's public trust resources and uses. The County should revise this element of its ordinance to ensure public trust resources are protected consistent with the recommendations provided above.

E. Exemptions to the "Public Trust Resources Limitation" Violate the County's Fiduciary Duties to Consider and Prevent Harm Where Feasible to the Public Trust

The proposed amendment provides current and future exceptions to the public trust analysis and mitigation First the "public trust resources limitation" would not apply to any "proposed replacement water supply well" (sec. 25B-5(e)(1)). The proposed amendment and staff report provides no facts or analysis supporting the implicit assertion that replacement wells—either individually or cumulatively—have no impact on public trust resources.

Second, public trust analysis and mitigation will be applied on an expedited basis to wells "where the proposed well drilling is immediately necessary to protect human life, health, and safety or property due to a sudden, unforeseen impairment in the quantity or quality of water available" (sec. 25B-5(d)). Obviously protection of human health is good public policy, and Coastkeeper supports accelerated permitting where appropriate. However, "emergency" wells are not exempt from the County's public trust duty. At a minimum, the impacts of these "emergency" wells must be evaluated and offset or otherwise mitigated elsewhere in the groundwater basin. We are concerned that by expediting review, necessary consideration of public trust impacts will be insufficient. We therefore recommend imposition of mandatory mitigation measures and continuing oversight of these wells to adjust mitigation as necessary to protect public trust resources (as described in our recommendations provided above).

Third, the proposed amendment allows the Board of Supervisors to "establish screening criteria to identify categories of water supply well permit applications which do not substantially impair public trust resources, and which shall be approved pursuant to a ministerial permit" (sec. 25B-4(d)(7)). As with the other provisions of the proposed amendment, 25B-4(d)(7) provides no

definition, guidance, or limitation on the future "categorical" exemptions—exemptions which can easily swallow the rule.

Finally, the proposed amendment includes an exemption from protection of public trust resources where the Supervisors find:

> "…overriding considerations that balance protection of public trust resources with the health, safety, and welfare needs of the community, including the need for drinking water…" (sec.25B-4(d)(5)

Thus, where the supervisors determine that the need for drinking water outweighs impacts to public trust resources, public trust resources are sacrificed. As climate change and over-appropriation continues to impact water supplies, political pressure to issue well permits at the cost of river ecosystems is likely to increase. However, the California Supreme Court has specifically rejected this sort of discretionary trade off. Instead, the Supreme Court stated:

> Thus, the public trust is more than an affirmation of state power to use public property for public purposes. It is an affirmation of the duty of the state to protect the people's common heritage of streams, lakes, marshlands and tidelands, surrendering that right of protection only in rare cases when the abandonment of that right is consistent with the purposes of the trust. *Nat'l Audubon Soc'y v. Superior Court*, 33 Cal. 3d 419; 441.

Section 25B-4(d)(5)'s authorization of destruction of aquatic public trust resources is clearly inconsistent with the purposes of the trust. Section 25B-4(d)(5) discretionary exception renders the proposed amendment's prohibition on harming public trust resources meaningless, and therefore illegal. To remedy this flaw, we propose the ordinance be revised to comport with the Supreme Court's conclusion that impacts to the public trust be mitigated as required.

IV. CEQA

A. Class 7 and 8 Categorical Exemptions to CEQA Do Not Apply to the Amendment

Staff asserts that the amendment is exempt from CEQA under California Code of Regulations § 15307 and § 15308 (Class 7 and 8 exemptions). The board states the basis of their determination is that the ordinance "does not in itself approve any construction activities, but instead imposes a requirement to consider and address impacts to public trust resources when permitting new water supply wells." (Ordinance at p. 2.)

Both categorical exemptions explicitly do not apply to construction activities. And while staff asserts that "the ordinance itself does not approve any construction activities," the ordinance being amended is titled "Chapter 25B Water Well Construction Standards." As the title states, Chapter 25B sets standards for obtaining permits and *constructing* water wells. The amended ordinance chapter uses the word "construction" 62 times. Staff's argument that its amendment to the well construction standards ordinance does not directly involve approval of well construction is specious at best. As such, exemptions 7 and 8 do not apply.

Staff further asserts that Class 7 and 8 exemptions apply to their ordinance because they are imposing a requirement to consider and address impacts to public trust resources to "assure the maintenance, restoration, enhancement, and protection of natural resources and the environment." The amendment as proposed instead at a minimum guarantees continued, unsustainable levels of pumping—and thus severe impacts to salmon. The proposed amendment also exempts broad categories of wells from any public trust review, further impacting instream resources.

In addition, the amendment provides that "the requirement for the issuance of well permits and any limitations imposed on well permits shall be consistent with any regulations adopted by the board of supervisors to implement the adopted groundwater management plan." (Ordinance, Ex. A, at p. 5.) As noted above, the SRPGSP admits it fails to protect salmon, and only promises progress towards reducing the impacts at some future, undetermined date. Allowing pumping "consistent with" the SRPGSP is "relaxation of standards allowing environmental degradation" again rendering the exception to CEQA inapplicable.

B. The Cumulative Impact Exceptions to the Exemptions Apply

CEQA guidelines state that even if a project is categorically exempt from CEQA, the exemption does not apply if, over time, the cumulative impact of successive projects of the same type have a significant impact; or, if there is a reasonable possibility that the activity will have a significant effect of the environment due to unusual circumstances. (CEQA Guidelines, § 15300.2) Thus, even if the Class 7 and 8 categorical exemptions applied to the board's ordinance, the cumulative impacts exception would preclude reliance on the exemptions. An agency may not rely on a categorical exemption where "the cumulative impact of successive projects of the same type in the same place, over time is significant." (CEQA Guidelines § 15300.2 (b).) The cumulative impacts of groundwater pumping wells on Sonoma County's already over-subscribed groundwater resources, and the interconnected surface waters, cannot be reasonably disputed. See Section II above.

C. The "Common Sense" Exemption Does Not Apply

Staff further asserts that the amendment is exempt from CEQA under the "common sense" exemption, claiming "it can be seen with certainty that there is no possibility that this ordinance may have a significant effect on the environment." (Ordinance, at p. 2) Staff states the basis for this determination is that the ordinance makes "miscellaneous technical, clarifying, or conforming changes to permit requirements and facilitates data collection related to public trust resources through metering and eliminates emergency well drilling without prior review or approval." (Ordinance, at p. 2) Further, staff claims that adoption of the ordinance "will not result in any direct or indirect physical change to the environment and will instead assure the maintenance, restoration, enhancement, and protection of natural and public trust resources and the environment by providing a framework for discretionary review of applications requiring a public trust analysis."

CEQA's "common sense" exemption can be relied on only if a factual evaluation of the agency's proposed activity reveals that it applies. (*Muzzy Ranch Co. v. Solano County Airport Land Use Com.* (2007) 41 Cal.4th 372, *as modified* Sept. 12, 2007.) Whether a particular activity qualifies for the "common sense" exemption presents an issue of fact, and the agency invoking the exemption has the burden of demonstrating it applies. (CEQA Guidelines, § 15061(b)(3). Before determining that an activity is exempt from CEQA under the "common sense" exemption, the agency must examine the evidence presented in the administrative record. (CEQA Guidelines, § 15061(b)(3).) This exemption applies only where "it can be seen with certainty that there is no possibility that the activity in question may have a significant effect on the environment." (CEQA Guidelines, § 15061(b)(3).) "[It] is reserved for those obviously exempt projects where its absolute and precise language clearly applies." (*Cal. Farm Bureau Fed.* (2006) 143 Cal.App.4th 173, 194 (internal quotations omitted); *see also Davidson Homes v. City of San Jose* (1997) 54 Cal.App.4th 106, 117 ("If legitimate questions can be raised about whether the project might have a significant impact . . . the agency cannot find with certainty that a project is exempt.").)

Again, there is no reasonable dispute additional groundwater wells in aquifers connected to surface waters—the majority of aquifers in Sonoma County—will further impact public trust resources. Staff provides no basis for its bald assertion otherwise, failing to meet the burden required to apply the exemption.

In sum, the proposed amendment to the Sonoma County Code Chapter 25B (Well Ordinance) fails to satisfy the County's fiduciary duties, as clarified by the *Environmental Law Foundation v. State Water Resources Control Board* decision, to consider adverse effects to the Russian River system's public trust resources and uses when issuing water well permits and to prevent harm to public trust resources and uses where feasible. Moreover, despite the Notice of Categorical Exemption filed by Permit Sonoma, the proposed amendment is subject to CEQA review prior to adoption.

For all the foregoing reasons, Coastkeeper requests that the Board of Supervisors reject the Amendment to the Sonoma County Code Chapter 25B (Well Ordinance) as submitted, and direct Permit Sonoma to develop well permitting criteria that protect the Russian River system's public trust resources and comply with law.

Sincerely yours

Drevet Hunt
Legal Director
California Coastkeeper Alliance

cc: Don McEnhill, Russian Riverkeeper
Jaime Neary, Russian Riverkeeper

Attachment C

September 30, 2022

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Subject: CALIFORNIA COASTKEEPER ALLIANCE COMMENTS ON

(A) THE PROPOSED AMENDMENT TO THE SONOMA COUNTY CODE CHAPTER 25B (WELL ORDINANCE) AND

(B) ORDINANCE ESTABLISHING A TEMPRORARY MORATORIUM ON PROCESSING AND APPROVAL OF APPLICATIONS FOR WATER SUPPLY WELL PERMITS

To Sonoma County Board of Supervisors:

California Coastkeeper Alliance (CCKA) thanks you for the opportunity to comment on the proposed amendment to the Sonoma County Code Chapter 25B (Proposed Amendments) and the urgency ordinance establishing a temporary moratorium on processing and approval of applications for water supply well permits (Temporary Moratorium). We submitted written comments on a previous draft of the proposed amendment on August 4, 2022, and oral comments on that draft at the hearing held August 9, 2022. To the extent the text of that proposed draft remains unchanged, we incorporate those comments here by reference, and have attached a copy of those comments here for convenience.[1]

First, we are pleased that the County is considering the Temporary Moratorium on processing permit applications. The moratorium will, hopefully, prevent a rush of permit applications prior to the effective date of the Proposed Amendments. However, the moratorium does not serve the more important purpose – and the reason a moratorium is necessary here - of allowing County staff to undertake the

[1] Key comments related to unchanged elements of the Proposed Amendments include: (1) the absence of standards or criteria that Permit Sonoma will be called on to apply when making a determination on a well permit application, and the specific request to include reference to and application of instream flow standards, groundwater level-based criteria (beyond those in the adopted GSPs), etc..; (2) the need to squarely and comprehensively address the ongoing and cumulative impacts of proposed and existing permitted wells in permitting decisions and permit conditions, including by ensuring offsets in oversubscribed areas prior to permit issuance and developing a program to ensure all users do their share to mitigate impacts; (3) and the failure to perform CEQA as required.

necessary analysis and develop the modeling, mitigation measures, and other elements of a fully supported groundwater well permitting program that ensures the County meets its duty under the public trust doctrine. We therefore urge the County to revise the Temporary Moratorium to be long enough for the County to develop a complete set of proposed amendments that ensures the County meets its public trust duties with respect to permitting groundwater extraction in Sonoma County.

Second, we appreciate and support the County's efforts to improve the Proposed Amendments since the draft considered on August 9, 2022. These improvements include:

- Accounting for the cumulative impact of proposed and existing wells on public trust resources by requiring Permit Sonoma to determine whether the issuance of a well permit "will or will not cause or exacerbate" an adverse impact on public trust resources;
- Identification of feasible "Water Conservation and Best Management Practices" that if implemented would help mitigate adverse impacts to public trust resources;
- The effort to define the "Public Trust Review Area" to provide clarity to the public and permit applicants regarding whether the Public Trust Review would be required for a specific water well permit.

While certain aspects of these improvements still fall short, we support their inclusion in the Proposed Amendments provided they are modified and supported with facts, data, and evidence in the record, as explained in our comments below.

Third, despite these improvements, we have significant concerns with the Proposed Amendments and their failure to ensure the County both considers the public trust and protects the public trust when regulating the extraction of groundwater in Sonoma County. As discussed in detail below, the Proposed Amendments should not be adopted because:

- They represent a significant step back from the previous draft because they only require Permit Sonoma to "consider" the impact on public trust resources, while completely failing to ensure that the identified impacts to public trust resources are mitigated as required.
- They establish an inadequately supported and too narrow, "Public Trust Review Area" that excludes wells in areas of the County where groundwater extraction impacts public trust resources.
- They exempt wells from public trust review and mitigation without any analysis, facts or evidence to support the necessary conclusion that the exempted wells will not cause or contribute to adverse impacts on public trust resources or uses.
- They establish water conservation and best management practices that if implemented will qualify wells for exemption from public trust review without any analysis, facts, or evidence to demonstrate that these measures will ensure the exempted wells will not cause or contribute to adverse impacts on public trust resources or uses.

We want to work with the County to get this right, and where possible we have provided revised language that would help ensure the County satisfies its public trust duties.

However, the County can only address many of the shortcomings we identify here (and in our August 4 comment letter) by taking the time necessary to develop the record and analysis to support an effective well ordinance. As currently proposed, the amendments will expose the County to lawsuits from all sides on grounds that (1) the ordinance focuses solely on the County's duty to consider the public trust, and does not ensure the County satisfies its duty to mitigate harm to the public trust where feasible; (2) the exemptions to public trust review established in Sec. 25B-4(e) – including the exemptions based on implementation of the water conservation and best management practices in Sec. 25B-13 – are arbitrary and capricious and not support by facts, data, or other evidence as required; and (3) given these failures, the proposed ordinance will result in significant harm to the environment, triggering CEQA review.

The solution is for the County to slow down and put a pause on the processing of water well permits that is long enough for it to develop and support - with facts, evidence, and analysis – a comprehensive ordinance that ensures it meets its duty to both consider and protect the public trust resources and uses of Sonoma County's waters.

Specific Comments and Concerns

I. The Proposed Ordinance Does Not Satisfy the County's Duty to Both Consider and Protect the Public Trust.

Under the public trust doctrine, the County has "an affirmative duty to take the public trust into account in the planning and allocation of water resources, and to protect public trust uses whenever feasible." *National Audubon Society v. Superior Court*, 33 Cal.3d 419, 446 (Cal. 1983). This is more than an obligation to merely consider the public trust, it is a directive to protect it.

In Sec. 25B-4(d) of the proposed amendments, the County attempts to address the first half of it public trust obligation. As the prefatory text of 25B-4(d) explains, the section addresses "how the County of Sonoma fulfills its obligation *to consider the public trust*." (Emphasis added). It does not claim to establish how the County will satisfy its duty to protect the public trust, public trust resources, or public trust uses whenever feasible, as required. The County may believe that the Sec. 25B-4(d)(3) requirement that project features or mitigation measures "necessary to the Enforcing Agency's written findings for approval" become conditions in the new well permit satisfies its duty to protect resources whenever feasible. However, there is no indication of what mitigation measures are "necessary" for approval and nothing makes approval contingent upon a finding that the public trust will be protected. Because the Proposed Amendments only require consideration of the public trust, and does not mandate its protection,

the Well Ordinance fails to fulfill the County's public trust obligations. Therefore, we recommend the ordinance be edited:

Section 25B-4. Prohibitions and limitations should be amended to read:

(d) Public trust resources limitation. This section addresses how the County of Sonoma fulfills its obligation to consider and protect the public trust for* the extraction of groundwater that ~~adversely~~ affects a navigable waterway.

(d)(3) Findings and Determinations:

i. As part of the issuance, issuance with conditions, or denial of any water well permit ~~within the Public Trust Review Area~~, the Enforcing Agency shall consider best available information and make written findings as to whether the issuance of the requested permit will or will not cause or exacerbate a substantial adverse impact on public trust resources and public trust uses ~~in navigable waters~~ after the imposition of feasible mitigation measures to protect those public trust resources. Any project features or mitigation measures that are necessary to the Enforcing Agency's written findings for approval of any new water well permit shall become conditions on the new water well permit.

ii. The Enforcing Agency shall not issue a permit for the construction or installation of a new water well within the contributing watershed of navigable waters, if in the determination of the Enforcing Agency it will have or exacerbate an adverse impact on public trust resources or their public trust uses after the imposition of mitigation measures that protect those public trust resources and public trust uses.

*The "for" in the sentence above appears to be grammatically incorrect but we are not sure the County's intent, so it is difficult to propose alternative language to address the issue. What does the County mean "to consider [and protect] the public trust **for** the extraction of groundwater"?

II. The Ordinance Must, but as Drafted Does Not, Protect Public Trust Resources and Public Trust Uses of Those Resources.

The public trust doctrine requires the state to protect both public trust resources and public trust uses of those resources for the benefit of the people. *National Audubon Society v. Superior Court*, 33 Cal.3d 419, 435, 446 (Cal. 1983). There is no question that fishing and wildlife habitat, among others, are public trust uses that the County has a duty to consider and protect. *Id*. at 434-435; *Center for Biological Diversity, Inc. v. FPL Group, Inc.*, 166 Cal.App.4th 1349, 1361 (Cal. Ct. App. 2008). For public trust uses to be protected, the attributes of public trust resources (like water and fish) necessary to support these uses must also be protected. Even when harm to these attributes occurs in a non-navigable tributary, it can impact public trust resources. Harming the fish that form the fishery of the navigable waterways, regardless of where that harm occurs, injures the public trust resource and diminishes its uses. *National Audubon Society v. Superior Court*, 33 Cal.3d 419, 437 (Cal. 1983). Despite these clear and logical directives, the Proposed Amendments fail to ensure that the impacts of groundwater extraction on public trust resources (e.g. the fishery) and public trust uses (fishing) are evaluated and protected against, wherever they occur, as required.

First, while the Ordinance acknowledges that there are multiple elements of navigable waterways protected by the public trust doctrine, it does not specify the public trust resources of navigable waterways that must be protected to ensure the identified public trust uses are maintained. Within the Well Ordinance, public trust resources are defined as "waterways" held "for the benefit of the public for the purpose of commerce, navigation, recreation, fishing, and preservation of wildlife habitat and natural resources." By not recognizing the indivisible attributes of these waterways, such as the recreational uses, the fish, or the wildlife habitat of the waters, the definition is subject to interpretation that could lead to unnecessary disputes over the scope of the County's public trust obligations. To ensure the Ordinance clearly informs the public regarding the scope of the County's obligations, the Ordinance should describe the public trust resources of navigable waterways, such as the water, the fish, and the wildlife, that support the public trust uses, such as commerce, fishing, and recreation. Providing this additional clarity to the definition will ensure that water users and the general public fully understand that the County has a duty to protect public trust resources (such as salmon that form the fishery in navigable waters), even if the impacts to the resources occur in non-navigable tributaries.

Second, Sec. 25B-4(d)(1)(i) directs Permit Sonoma to analyze how a groundwater well will impact "public trust resources of navigable waterways," but it is not similarly clear that Permit Sonoma must also consider impacts of the well on the uses of those resources and preserve those uses. As noted in *Audubon*¸ the public trust doctrine imposes an obligation to "to preserve, so far as consistent with the public interest, the uses protected by the trust." *National Audubon Society v. Superior Court*, 33 Cal.3d 419, 447 (Cal. 1983). We provide edits to the draft ordinance below that would ensure Permit Sonoma makes necessary findings regarding the impacts to public trust uses as well as public trust resources. At its core, the Proposed Amendments must be revised to ensure there is no confusion that protecting the public trust requires evaluating impacts to public trust resources and uses, including if the direct impacts occur in non-navigable tributaries.

Third, perhaps in part due to the too-narrow definition of public trust resources, the Proposed Amendments improperly limit the scope of where the impacts to public trust resources are to be evaluated. For example, Sec. 25B-4(d)(1)(i) and (d)(3) directs Permit Sonoma to analyze impacts to "public trust resources *of* navigable waters" and "public trust resources *in* navigable waters." (Emphasis added). It is unclear whether the Ordinance requires consideration of impacts to public trust resources *only* in navigable waters, or whether it requires consideration of impacts to public trust resources (e.g., fish) of navigable waters wherever they are found. Relevant here, the proposed amendments as drafted could exclude evaluation of the impact of groundwater pumping on non-navigable tributaries to Sonoma County rivers—tributaries essential to coho and steelhead for spawning. The law requires consideration of impacts to public trust resources and public trust uses, wherever those impacts occur, not just in navigable waters.

To remedy these issues, we recommend the Ordinance be edited:

Sec. 25B-2 Purpose should be amended to read:

(e) Improperly regulated groundwater extraction can harm public trust resources of navigable waters.

Sec. 25B-3. Definitions should be amended to read:

"Public trust resources" means the waters, fish, wildlife habitat, and other natural resources of navigable waters ~~waterways~~ the government is obligated to hold in trust pursuant to the public trust doctrine for the benefit of the public for purposes of commerce, navigation, recreation, fishing, and preservation of wildlife habitat and natural resources.

Sec. 25B-4. Prohibitions and Limitations should be amended to read:

(d)(1)(i) The Enforcing Agency shall consider whether a proposed well within a Public Trust Review Area, as described in subsection (d)(1)(ii), will cause or exacerbate a substantial adverse impact on public trust resources and public trust uses of those resources ~~of navigable waters~~ after the imposition of mitigation measures to protect public trust resources and their public trust uses.*

*This, or similar language, should also be used throughout the Ordinance, including specifically in sections: (d)(2) and (d)(3).

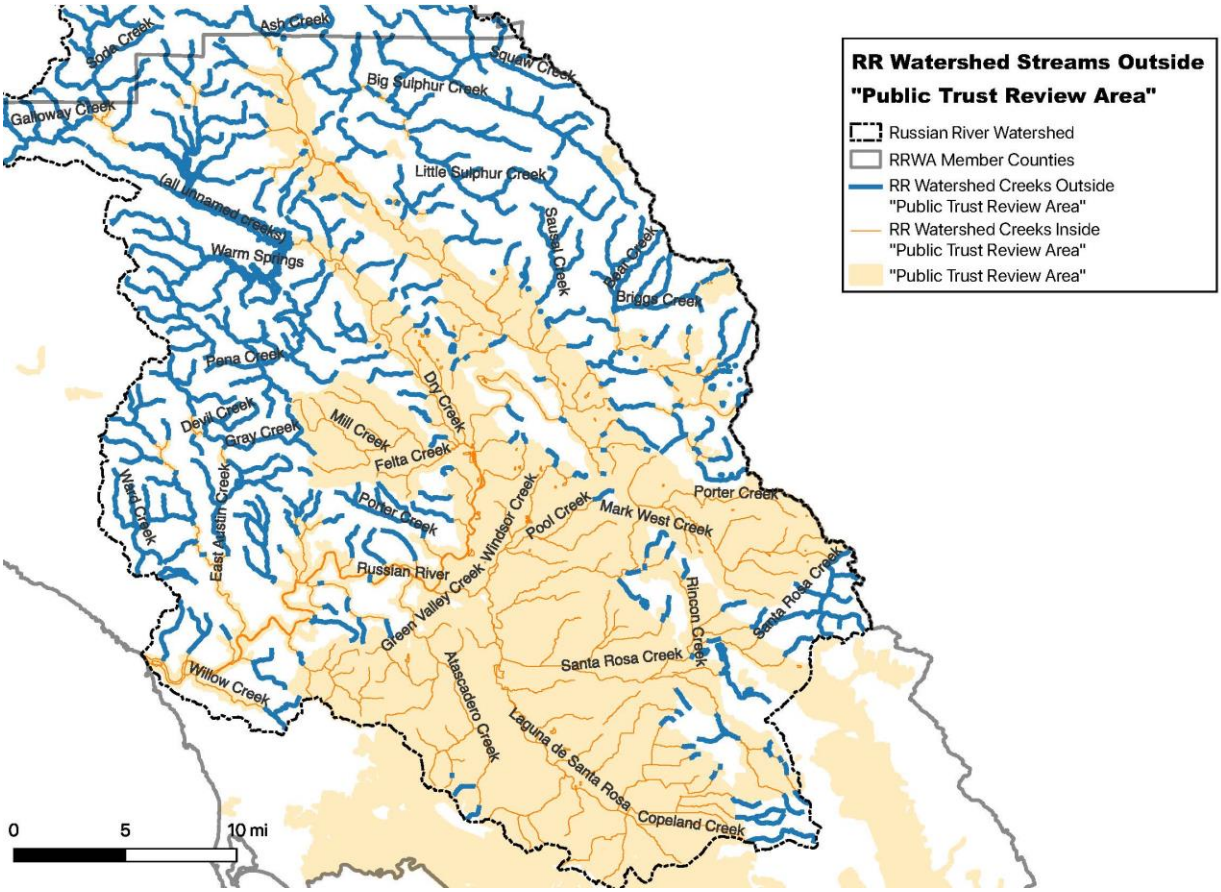
III. The "Public Trust Review Area" as Defined in the Proposed Amendments Does Not Include All Areas where a Public Trust Review and Limitation Is Necessary and Is Not Supported by Evidence Sufficient to Ensure that the County Meets Its Public Trust Duties as Required

We appreciate the County's effort to clearly define the areas within the County where public trust review will be required during the well permit application and issuance process. However, the area defined by the Proposed Amendments and depicted in the map provided for public review on the County's website does not include all areas where groundwater extraction may adversely impact public trust resources. In addition, the County as failed to identify evidence or provide an adequate analysis based on evidence to support any finding or conclusion that the Public Trust Review Area represents the entirety of the area where a public trust review is required; and thus fails to support any finding or conclusion that any well permit issued outside that area is properly exempted from public trust review. As a result, the County's adoption of the Proposed Amendments is unlawful and arbitrary and capricious. Likewise, any issuance of a well permit outside the Public Trust Review Area would similarly expose the County to allegations that it has failed to satisfy its public trust duties with respect to that permit.

As an initial matter, we agree with and support the County's determination that the areas it identifies as within the Public Trust Review Area belong there. These areas are all within portions of the watersheds of

"navigable waters" where groundwater extractions are likely to cause or contribute to adverse impacts on public trust resources and uses.

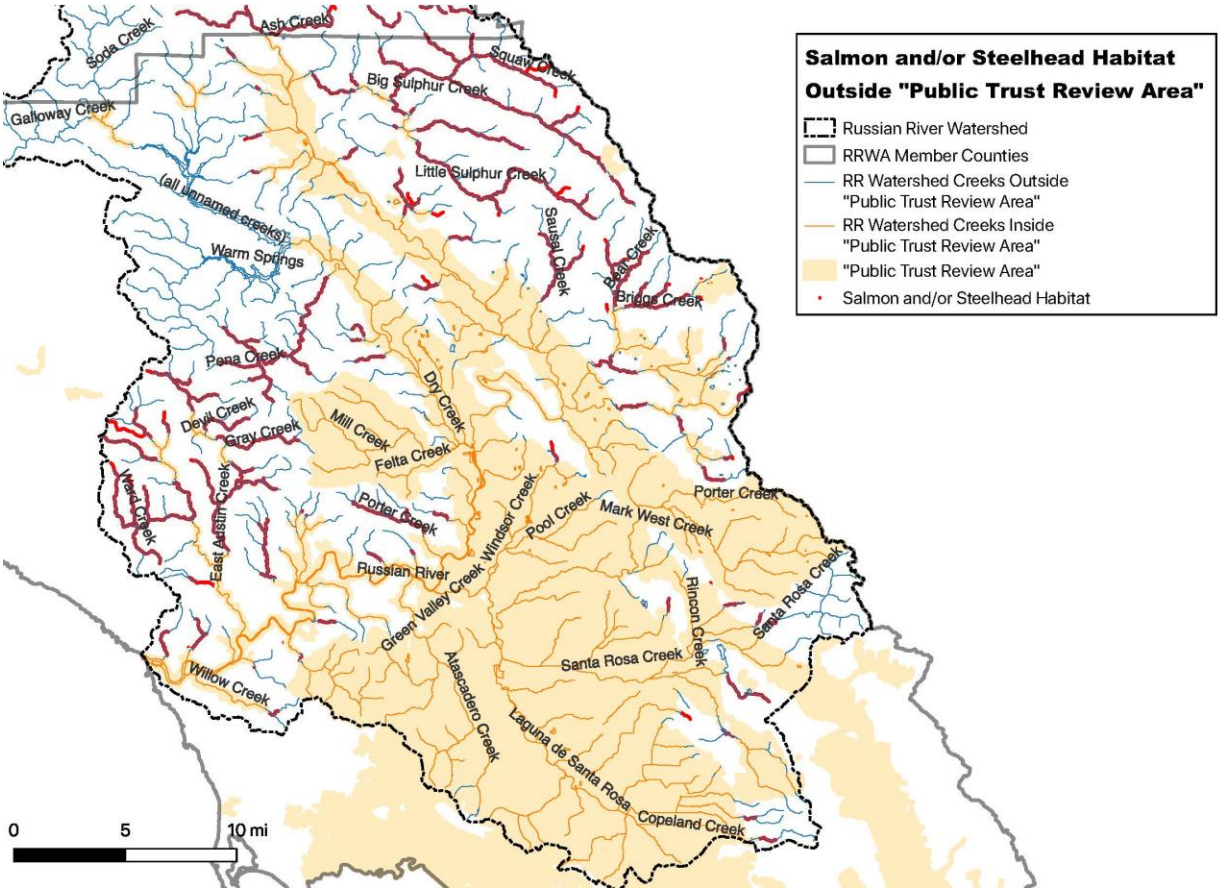
However, taking the Russian River watershed as an example, as depicted on the map below, the Public Trust Review Area defined by the County excludes dozens of creeks and streams in the County without providing any evidence or analysis to support their exclusion.



In addition, available evidence indicates that groundwater extraction in additional areas must also be included in the Public Trust Review Area. This includes, but is not limited to, areas further upstream from the mapped boundaries of the proposed Public Trust Review Areas characterized by fractured bedrock, and areas in proximity to numerous known and expected salmonid-bearing streams and creeks. Upstream areas in fractured bedrock have greater porosity, permeability, and hydraulic conductivity than bedrock and these characteristics are "the reason why springs are common and wells can provide adequate yield for domestic and agricultural uses in Franciscan geology."[2]

[2] Center for Ecosystem Management and Restoration (CEMAR). 2015. Report on the Hydrologic Characteristics of Mark West Creek. Nov 14, 2014 (Updated Jan 28, 2015) at page 31. Available at: http://www.cemar.org/pdf/Report_on_the_Hydrologic_Characteristics_of_Mark_West_Creek.pdf; Phillips, J.T. 2012. Testimony of John T. Phillips, regarding a hearing of the North Gualala Water Company, to the State Water Resources Control Board, Sacramento, CA at pages 7, 11-12, 14-15. Available at:

The map below identifies known and expected salmonid-bearing streams and creeks in the Russian River watershed outside the defined Public Trust Review Area.



The solution here is for the County to take a precautionary approach and either conduct the public trust review for all wells in Sonoma County, or pause or condition issuance of well permits until such time as the County develops the factual record and associated analysis to support any limitation on the scope of the Public Trust Review Area. Once that analysis is complete, the County could potentially reopen the Well Ordinance to define the Public Trust Review Area based on available information and ensure it is exempting well permit applications from public trust review on the basis of sound factual evidence and supporting analysis.

IV. The Proposed Exemptions Are Not Supported by Facts, Evidence or Analysis to Demonstrate the County Has Met Its Public Trust Obligations with Respect to Permitting of these Wells.

The County of Sonoma has failed to articulate or provide sufficient evidentiary support for the proposed exemption of wells identified in Sec. 25B-4(e) from public trust review and protection. Instead, the

https://www.waterboards.ca.gov/waterrights/water_issues/programs/hearings/ngwc_groundwater/docs/gualala_exhibits.pdf.

County merely assumes that either the public trust doctrine does not apply to these classes of wells, or that the County's public trust obligations have been satisfied for those wells. However, without any indication that the public trust was considered when establishing these exemptions, and without referring to any evidence that these classes of wells will not cause or contribute to adverse impacts to public trust resources, approval of the proposed exceptions both violates the County's public trust duty and is arbitrary and capricious.

a. Exemptions for Wells Limited to the Amount Used for Legally Established Land Uses that Existed as of October 4, 2022 (Exemption (e)(5)), Wells for Which Applications Were Submitted Prior to the Ordinance Effective Date (Exemption (e)(2)), and Exemptions for Replacement Wells (Exemptions (e)(3) and (e)(4)) Are Not Supported by the Law or Evidence.

The County has provided no factual support, analysis based on evidence, or otherwise explained how its proposal to exempt "existing" and replacement wells (Exemptions (e)(2), (e)(3), (e)(4) and (e)(5)) from public trust review is consistent with or otherwise ensures it has or will meet its public trust obligations when issuing permits for these wells. To do so the County would need to conduct an analysis, supported by evidence, that demonstrates that these exempted wells do not cause or contribute to adverse impacts on public trust resources and that any such impacts have been mitigated when feasible. Not only is adoption of the Proposed Amendments without this required analysis unlawful and an abuse of discretion, the County's approval of each and every well permit that is exempted from the public trust review under these exemptions will be unlawful and an abuse of discretion because no such analysis will be done on a case by case basis.

Furthermore, existing information – including the substantial evidence CCKA provided with its comments on August 4, 2022 – demonstrates that in many areas throughout Sonoma County existing groundwater use is already causing significant adverse impacts to public trust resources. As NOAA-Fisheries explains in its comments regarding Exemption (e)(5) of the proposed amendments (submitted September 28, 2022)

> "allowing a new water well supplying a parcel to avoid public trust analysis 'as long as the proposed groundwater usage does not exceed the use established prior to October 4, 2022', (i.e., "grandfathering" past groundwater usage) is not consistent with protecting public trust uses and will not consider potential impacts to ESA-listed species and their habitat. […] Grandfathering past groundwater use will likely seriously compromise the County's ability to manage groundwater resources in a way that avoids impacting public trust resources or adequately minimizes impacts to ESA-listed salmonids and their habitat."

The issues identified by NMFS are relevant not only to Exemption (e)(5), but apply equally to replacement or new wells on parcels that use less than 2.0 acre-feet per year because grandfathering in the cumulative impact of dozens of small wells in already oversubscribed areas will prevent the County from ensuring that it mitigates impacts to public trust resources where feasible. Absent an analysis based on evidence of the impacts of issuing well permits that grandfather in existing extraction rates and uses, the County's adoption of the Proposed Amendments will be arbitrary and capricious and unlawful. So too will any issuance of a well permit that relies on any of these exemptions and proceeds ministerially without public trust review and mitigation.

As a legal matter, as trustee over public trust resources, the County has a "duty of continuing supervision" over actions which implicate the public trust. Included in this duty is the "the power to reconsider allocation decisions even though those decisions were made after due consideration of their effect on the public trust. The case for reconsidering a particular decision, however, is even stronger when that decision failed to weigh and consider public trust uses." *National Audubon Society v. Superior Court*, 33 Cal.3d 419, 447 (Cal. 1983).

Despite this duty to consider the public trust, especially when an original allocation decision failed to make such a consideration, Sec. 25B-4(e)(2) exempts wells with applications completed before the effective date of the amended Ordinance, and Sec. 25B-4(e)(3) (and arguably Exemptions (e)(4) and (e)(5)) exempts replacement wells. However, the mere fact that a well's application is complete before the Proposed Amendments are adopted does not excuse the County from its duties. Likewise, replacement wells must be subject to the same scrutiny as new wells, not exempted from this process.

In addition, simply because water is being used for a legally established use does not mean that the public trust doctrine is satisfied. Indeed, the court in *Audubon* acknowledged that the State Water Board granted Los Angeles Department of Water and Power water rights from Mono Lake's tributaries to use that water for domestic purposes because California law dictated that "the use of water for domestic purposes is the highest use of water." *National Audubon Society v. Superior Court*, 33 Cal.3d 419, 427 (Cal. 1983). Even though the water was being used legally and in a manner California law favors above all else, the court found that "some responsible body ought to reconsider the allocation of the waters of the Mono Basin," and held that the state had a duty to make such a consideration under the public trust doctrine *National Audubon Society v. Superior Court*, 33 Cal.3d 419, 447 (Cal. 1983). The fact that the water was being used for a legally established use did not shield the County from its public trust obligations.

However, contrary to the Supreme Court's conclusion in *Audubon*, exemption (e)(5) specifically exempts wells which are limited to using an amount of groundwater used "for legally established land uses that existed as of October 4, 2022." Putting aside whether Exemption (e)(5) applies to new wells or replacement wells, or both, the fact that the proposed well's water is used for legally established land uses does not mean the well will have no impact on the public trust.

b. Exemption for Public Water Wells for which CEQA Is Complete (Exemption (e)(7)) Is Not Supported by the Law or Evidence.

While compliance with environmental statues, like CEQA, may incidentally satisfy the County's public trust obligations, it does not do so automatically. *San Francisco Baykeeper, Inc. v. Cal. State Lands Comm'n*, 242 Cal.App.4th 202, 243 (Cal. Ct. App. 2015) ["on this record we cannot find that the [State Lands Commission] fulfilled its obligation to conduct a public trust analysis in the CEQA process."]. Instead, the County may only use CEQA as a vehicle for completing its public trust analysis, and compliance with CEQA is not a replacement for compliance with the public trust doctrine. For this reason, exemption seven, for wells in which CEQA review is complete, is improper.

Furthermore, the County has done no analysis, based on evidence, to demonstrate that the wells that would fit into Exemption (e)(7) will not cause or contribute to adverse impacts on public trust resources and that any such impacts have been mitigated when feasible. Absent this evidence and analysis, the County's adoption of Exemption (e)(7) is unlawful and an abuse of discretion.

c. Exemptions for Low Volume Wells (Exemption (e)(3) and (e)(4)) Are Not Supported by the Law or Evidence.

The County of Sonoma has failed to articulate how wells with low annual volume will, in all circumstances, not adversely impact the public trust. Exemption 25B-4(e)(3) and (4) would allow the County to approve any number of low volume wells without considering whether they will cause or exacerbate a substantial adverse impact to the public trust. Two acre-feet per year per parcel is not an insignificant amount of water.

As an initial matter, even assuming 2.0 acre-feet per year is insignificant on a per parcel basis, the County has provided no analysis of the potential cumulative impact of dozens or even hundreds of low volume extractions in a particular area, or in close proximity to larger volume annual extraction in a particular area. Absent this analysis, based on evidence, the County has failed to satisfy its obligations to ensure it considers and protects the public trust when issuing permits exempted by (e)(3) and (e)(4). These failures make the County's action unlawful and an abuse of discretion.

Specifically regarding Exemption (e)(3), the County has provided no analysis or evidence to demonstrate that cumulative extraction of less than 2.0 acre-feet per year, per parcel, that serves a parcel used solely for domestic purposes is per se not going to cause or exacerbate adverse impacts to public trust resources or public trust uses of the public trust. That is especially true considering there is no requirement that the owner or user of the replacement will implement conservation measures that appear to be required by Exemption (e)(4) for new wells.

Regarding Exemption (e)(4), the County has provided no analysis or evidence to demonstrate that cumulative extraction of less than 2.0 acre-feet per year, per parcel, for parcels serving any purpose is per se not going to cause or exacerbate adverse impacts to public trust resources or public trust uses of the public trust. And while we appreciate reference to specific water conservation and monitoring requirements that the County believes will ensure adverse impacts will not be caused, the County has failed to conduct the required analysis, based on evidence, to meet its public trust obligations (as described in Section V below).

V. The Water Conservation and Best Management Practices that Are Relied Upon to Exempt Wells from Public Trust Review Are Not Supported by Facts, Evidence or Analysis to Demonstrate the County Has Met Its Public Trust Obligations to Mitigate the Impacts of these Wells.

The County's duty to mitigate impacts of groundwater wells is grounded in its duty to "protect public trust uses whenever feasible." *See National Audubon Society v. Superior Court*, 33 Cal.3d 419, 446 (Cal. 1983). While we acknowledge the County's apparent effort to address this obligation by including the Water Conservation and Best Management Practices found in Sec. 25B-13, the County has failed to demonstrate with evidence and analysis that the identified measures will in fact mitigate the harm that may be caused or contributed to by the permitted well (or that this is the extent of feasible mitigation to protect public trust resources and uses). Absent this evidence and analysis, the County's adoption of these Proposed Amendments is unlawful and arbitrary and capricious. In addition, any issuance of a well permit that relies on any of these mitigation measures and proceeds ministerially without public trust review and mitigation will also be subject to challenge as unlawful and arbitrary and capricious in its consideration and protection of public trust resources.

Not only has the County failed to supply evidence and analysis necessary to support any finding that these mitigation measures will ensure it meets its public trust duties, on their face several of the mitigation measures do not appear sufficient to mitigate impacts to public trust resources as required. For example, as NOAA-Fisheries comments regarding Sec. 25B-13(a)(2)

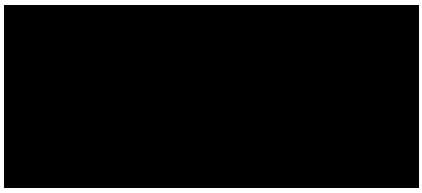
> "the approach to calculate the amount of historic groundwater uses as an "average over the three-to-five -year period immediately prior" to October 2, 2022, is fundamentally flawed. The three-year period prior to this date was historically dry in Sonoma County, and groundwater use was likely historically high as a result. Grandfathering in this level of anomalous groundwater use will likely significantly constrain the County's attempt to protect public trust resources, and is unlikely to avoid impacting ESA-listed salmonids and their habitat."

In addition, the County's distinction between limiting use to 0.4 acre-feet per acre per year in critical watershed areas and 0.6 acre-feet per acre per year in priority basins does not make sense in light of information that indicates impacts to salmonids from groundwater pumping is not limited to critical watershed areas. *See* NOAA-Fisheries comments submitted September 28, 2022.

VI. Conclusion

We again thank you for the opportunity to provide comments on the Proposed Amendments. The County is taking a much needed, and legally required, step toward ensuring protection of public trust resources and the sustainable use of its water resources. However, the rush to adopt amendments to its ordinance is unnecessary and unwise. There is no question that groundwater resources throughout the County are oversubscribed, and that the rivers, streams, fish, and overall reliability of water supply throughout the County is at risk as a result. In light of the current situation, and predictions that it is only going to get worse, we strongly urge the County to place a temporary moratorium on the processing and issuance of groundwater well permits for the time it takes to develop a comprehensive and effective ordinance that addresses deficiencies raised in comments raised here and by other members of the public.

Sincerely yours,



Drevet Hunt
Legal Director
California Coastkeeper Alliance

cc: Don McEnhill, Russian Riverkeeper
Jaime Neary, Russian Riverkeeper

Attachment D

ROHDE Environmental Consulting, LLC

A proposal for assessing well impacts to public trust resources:
Methodological Outline

Melissa M. Rohde
Principal

Here, I propose a data-driven and science-based approach for assessing well impacts to public trust resources that can be applied throughout Sonoma County. This proposed methodology is based on analytical streamflow depletion functions that are implementable using python or other data processing software by appropriate County staff or automated through the development of a simple webapp. The main goal of this proposed methodology is to minimize impacts to public trust resources in a fair and equitable manner that is not overly burdensome for Sonoma County staff and well applicants.

The proposed method would account for existing and cumulative streamflow depletions within the public trust review area by evaluating all existing and proposed wells within navigable and non-navigable waterways. This methodology would conduct well impact analyses on individual stream reaches (as defined by the National Hydrography Dataset version 2.1), so that well permits could be assessed based science-based thresholds at each stream reach and account for aggregated streamflow depletions from nearby wells associated with the reach. Prior to evaluating whether new wells can be installed without causing adverse impacts to public trust resources, we first need to account for existing cumulative depletions and quantify streamflow and groundwater level targets that are protective of public trust resources. To practically achieve this, the proposed method relies on establishing streamflow criteria as a key proxy for quantifying public trust resource needs. The method is broken into five steps and designed to be simple, systematic, and scalable:

Simple. By accounting for streamflow depletion along all stream reaches, we simplify the impact analysis because we can assume that if impacts are occurring at a nearby stream reach that those impacts will propagate downstream. In contrast, if well impact analyses are only occurring in only navigable reaches, it is more difficult to prevent impacts to public trust in an equitable manner. For example, a well applicant located along a navigable reach may not be able to get their well permitted if the cumulative streamflow depletion occurring upstream has resulted in harm to the public trust resources in the applicant's stream reach (not to mention other harm upstream in more vulnerable tributary stream reaches).

Systematic. The burden should not be on the well applicant to conduct an analysis of impacts to public trust resources. Requiring well applicants to do so, creates inequity issues because not all applicants have the financial or technical means to conduct or hire consultants to conduct the analysis. Thus, the well permitting process needs to be systematic by utilizing the same methodology and data for all well applicants.

Scalable. Including both navigable and non-navigable waters in this proposed methodology is necessary. This methodology should be adaptive and iterative, such that impacts can be prevented, and that sufficient mechanisms are in place to monitor and mitigate unforeseen impacts resulting from the permitting process (e.g., significant streamflow depletion or rapid groundwater level changes for riparian vegetation that triggers an adverse impact to public trust resources).

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Proposed Methodology (an Outline)

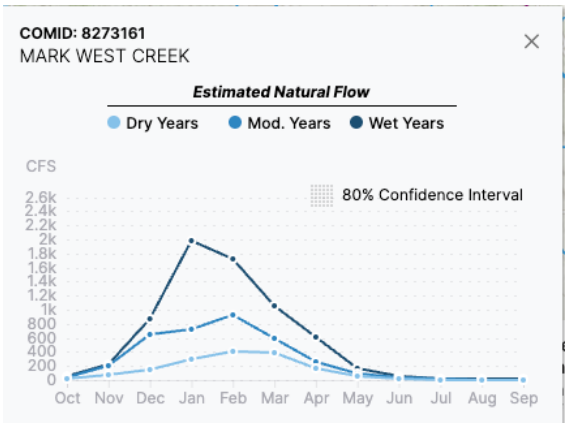
Step 1. Account for all existing depletions of surface water by stream reach

1. For each well in the county, gather the following info:
    a. Well Name / ID
    b. Latitude
    c. Longitude
    d. Well purpose
    e. Year that well was installed
    f. Length of screen in well
    g. Determine which stream reach (National Hydrography Database version 2.1 Common identifier "ComID") that each well location is linked to (this should be the first stream reach that stream depletion would intercept) ← requires spatial analysis (e.g., spatial join using HUC boundaries)
    h. Distance between well and stream ← requires spatial analysis
    i. Pumping Rate (if metered data aren't available, make assumption based on well purpose and best available info. For example, for domestic wells assume annual pumping not to exceed 2 AF/year. If well pumping varies throughout the year, then create a separate field for each month (e.g., Jan_pump, Feb_pump, etc)).
    j. Specific Yield (Aquifer parameter). Based on well log and/or geologic maps. Take the weighted average across the well-stream continuum (e.g., if well is in fractured rock, but stream is in alluvium)
    k. Horizontal Hydrologic Conductivity (Aquifer parameter). Based on well log and/or geologic maps. Take the weighted average across the well-stream continuum (e.g., if well is in fractured rock, but stream is in alluvium)

2. Use analytical streamflow depletion functions to estimate streamflow depletion from each well. Outputs should include total streamflow depletion (since well installation) and monthly averaged streamflow depletion.

3. Aggregate the total streamflow depletion occurring from all existing wells associated with each stream reach (NHD v.2.1 "ComID") to create a monthly average. This is the sum of estimated streamflow (from above) for all wells within each ComID.

4. For each stream reach in Sonoma County, gather estimated natural flow data from The Nature Conservancy's Natural Flows Database (https://rivers.codefornature.org/#/map). Create a database containing the natural flows (in cfs) for each month and water year type (e.g., Jan_wet, Jan_moderate, Jan_dry, Feb_wet, Feb _moderate, Feb _dry, etc.; see figure below)



5. For each stream reach, month, and water year type:
    a. estimate the volume of water remaining instream by subtracting the aggregate total streamflow depletion estimated above in Step 1.3 from the estimated natural flow in Step 1.4. The flow rate in the natural flows database will have to be converted to flow volume, so that it can be compared with the aggregate streamflow depletion (or vice versa). Create a new column that calculates the percentage of depletion, and
    b. estimate the change in groundwater levels (water table depth) at each stream reach due to groundwater pumping.

OUTPUT: Visualize the results, by creating three separate maps (one for each water year type). Each stream reach should be color coded by the depletion percentage.

Step 2. Set Streamflow triggers and targets for each stream reach

Streamflow triggers and targets need to be established for each stream reach in collaboration with subject matter expertise from NOAA, California Department of Fish and Wildlife, State Water Resources Control Board, etc. The following topics should be determined:

- In the absence of flow criteria for each stream reach (which would ideally be set by the California Environmental Flows Framework), science experts should temporarily establish flow thresholds.
- Determine which stream reaches have the greatest public trust value (e.g., critical species habitat).
- Absolute and relative (rate) of groundwater level change acceptable based on rooting depth information for mapped phreatophytes.

OUTPUT: Update the maps developed in Step 1 to quantify and map which stream reaches have allowable streamflow depletion remaining.

Step 3. Evaluate well impacts to public trust resources for all proposed wells

1. Gather the following info during the well application process:
    a. Applicant ID / name
    b. Latitude
    c. Longitude
    d. Proposed well purpose
    e. Length of screen in well (use information from industry standards or summary statistics from existing wells in similar geology, etc).
    f. Determine which stream reach (ComID) the well location is linked to (this should be the first stream reach that stream depletion would intercept) ← requires spatial analysis (e.g., spatial join using HUC boundaries)
    g. Distance between proposed well location and stream ← requires spatial analysis
    h. Pumping Rate (make assumption based on well purpose and best available info from industry standards or summary statistics from existing wells in similar geology, etc). For example, for domestic wells assume annual pumping not to exceed 2 AF/year. If well pumping will vary throughout the year, then create a separate field for each month (e.g., Jan_pump, Feb_pump, etc)).
    i. Specific Yield (Aquifer parameter). Based on well log and/or geologic maps. Take the weighted average across the well-stream continuum (e.g., if well is in fractured rock, but stream is in alluvium)
    j. Horizontal Hydrologic Conductivity (Aquifer parameter). Based on well log and/or geologic maps. Take the weighted average across the well-stream continuum (e.g., if well is in fractured rock, but stream is in alluvium)

2. Use analytical streamflow depletion equation to estimate streamflow depletion from the proposed well. Outputs should include total streamflow depletion for a 50-year lifespan and monthly averaged streamflow depletion.

3. Determine whether the estimated streamflow depletion is within or exceeds the streamflow depletion target for the associated stream reach. If the pumping at the well would exceed the streamflow depletion target in the associated stream reach, then the well application would not be permitted.

Step 4. Monitor for Impacts to public trust resources

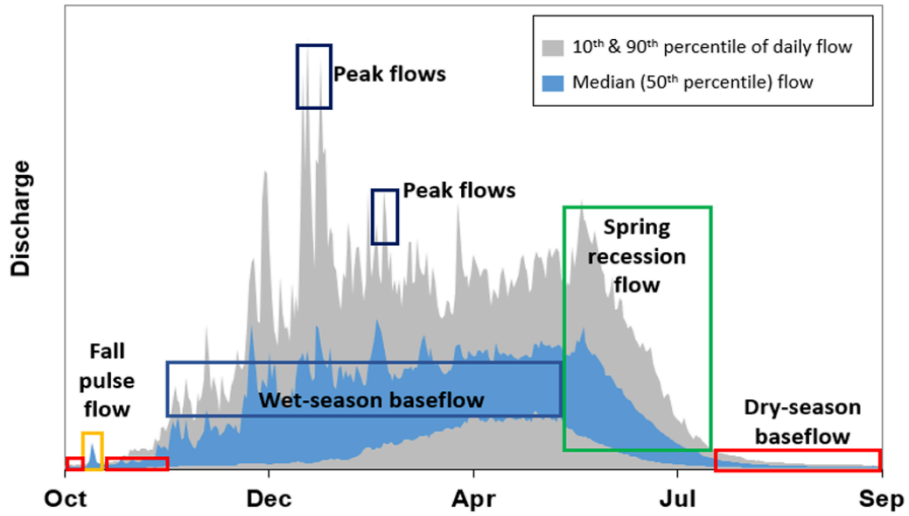
Hydrologic and environmental indicators need to be monitored to ensure impacts to public trust resources are not occurring and that the well impact assessment methodology can be refined and improved over time. In general, monitoring should be prioritized for the most sensitive public trust resources, such as summer rearing habitat or critical habitat for species). Impacts during July-September should be prioritized since that is when we would expect most adverse impacts to public trust resources to occur.

Hydrologic indicators:

- Shallow monitoring wells along waterways some of which are nested to measure vertical groundwater gradients between aquifer formations.
- Stream gauges
- Seepage meter measurements
- Well metering (flow rate, pumping volume and monthly schedule)

Ecologic Indicators:

- **Phreatophytes** – rooting depth information for different vegetation provides a good indication of what groundwater levels should be throughout the riparian corridor. Existing vegetation maps can be used to monitor vegetation greenness (Normalize Difference Vegetation Index) using satellite imagery.
- **Salmonids** – Salmonids are a good indicator species for aquatic environments because they rely on groundwater both indirectly and directly depending on life-stage and habitat requirements (e.g., juvenile rearing, migration). These life processes are in sync with seasonal flows that are supported by groundwater – surface water interactions.



The five functional flow components for California depicted on a representative hydrograph.

Step 5. Develop mitigative efforts to prevent harm to public trust resources

If public trust resources are being impacted by existing pumping, then the following actions could be employed:

- Water conservation rules and technologies
- Restricted pumping during certain times of the year
- Restricted pumping at certain depths
- Well density rules, including preclusion of new wells
- Offset requirements for impacts
- Specified minimum distance for pumping along sensitive public trust resources.

From:	Jaime Neary
To:	BOS; Chris Coursey; Susan Gorin; David Rabbitt; James Gore; district4; Lynda Hopkins
Cc:	PermitSonoma-Wells-PublicInput; Nathan Quarles; Tennis Wick; Christina Rivera; Robert Pennington; Jennifer Klein
Subject:	Community Comment Letter Re: Amendment to Sonoma County Well Ordinance
Date:	Friday, March 31, 2023 11:36:49 AM
Attachments:	image001.png SoCo Well Ordinance_Community Letter (3.31.23).pdf

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EXTERNAL

Good morning,

Please find attached a comment letter regarding the proposed amendment for the Sonoma County Well Ordinance as it relates to the Public Trust Doctrine. This letter is signed by multiple organizations and members of the community—representing thousands of interested individuals—that are interested in protecting our public trust resources and will be impacted by the County's decision in this process. Please let us know if you have any questions.

Best,
Jaime

Jaime Neary || Staff Attorney
Russian Riverkeeper
707-723-7781

It's your River—we protect it!

RUSSIAN RIVERKEEPER

March 31, 2023

Board of Supervisors
Sonoma County

Christina Rivera
Chief Administrative Officer
County of Sonoma

Jennifer Klein
Chief Deputy Counsel
Sonoma County

Tennis Wick
Director
Permit Sonoma

Nathan Quarles
Deputy Director, Engineering & Construction
Permit Sonoma

Robert Pennington
Professional Geologist, Natural Resources
Permit Sonoma

Sent via e-mail to: Jennifer.Klein@sonoma-county.org; PermitSonoma-Wells-PublicInput@sonoma-county.org; Nathan.Quarles@sonoma-county.org; Tennis.Wick@sonoma-county.org; Christina.Rivera@sonoma-county.org; Robert.Pennington@sonoma-county.org; bos@sonoma-county.org; chris.coursey@sonoma-county.org; susan.gorin@sonoma-county.org; david.rabbitt@sonoma-county.org; james.gore@sonoma-county.org; District4@sonoma-county.org; lynda.hopkins@sonoma-county.org

SUBJECT: Comments on the Ongoing Process to Amend Sonoma County Code Chapter 25B (the Well Ordinance)

To Sonoma County Board of Supervisors and County Staff:

The above-listed organizations represent thousands of citizens in Sonoma County and statewide with a keen interest in ensuring groundwater is sustainably and equitably managed for the benefit of all Californians and the ecosystems we all depend on for our health and welfare. We thank you for the opportunity to comment on the proposed amendment to the Sonoma County Groundwater Well Ordinance (Well Ordinance).[1]

Groundwater is not limitless. Nor are the fish, wildlife, and recreational opportunities provided by our rivers, streams, and interconnected groundwaters. This Well Ordinance update has the potential to help ensure long-term water security for all County residents and help make us more resilient to a changing climate and increased drought conditions.

An effective Well Ordinance will establish a program ensuring we live within our water means. The proposed ordinance allows for a continued increase in groundwater extraction without requiring reductions in the actual amount extracted (individually or from the whole) or collecting the information necessary to demonstrate if water is available for use—or an area needs recharge.

We certainly appreciate the time and effort spent developing another draft of the proposed Well Ordinance[2] intended to fulfill the County's legal public trust duties and to address the problems caused by unsustainable groundwater extraction. These devastating losses have, and will continue to have, resounding impacts everywhere in our County including: the loss of tourism and our robust recreation economy, loss of our local salmon fishery, loss of habitats of cultural and historical importance, reduced groundwater quality, and more dry wells.

The proposed Well Ordinance does not (1) effectively reckon with the ongoing and future cumulative impacts of groundwater pumping on public trust resources, or (2) contain provisions that will ensure the County meets its legal duty to protect public trust resources and mitigate harms. We recognize the extremely tight timeline to develop these amendments, but we do not believe that must (or should) lead to an ineffectual program. We urge the County to take an interim step now and commit to return, in two years or less after filling acknowledged data gaps and completing essential analysis, with a program that is founded on empirical data and the robust analysis necessary to ensure long-term sustainability and protection of public trust resources.

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[1] Many of us provided a letter on March 15, 2023 describing the impacts facing public trust resources from unsustainable groundwater extraction, and offering a list of items that we believe need to be addressed and included before the Well Ordinance ensures the County adequately and effectively meets its Public Trust obligations. That letter is attached here, for reference as Exhibit A.

[2] We have also been following the County-convened technical and policy working groups' efforts—via limited publicly accessible meetings—and appreciate the hard work and long hours members of these groups have contributed.

Imagine the County developing a program for preventing overdraft of its bank account. As proposed, the Well Ordinance sets up the procedures for withdrawals, but does not define the current balance, a minimum balance, or an effective mechanism for accounting for deposits or withdrawals that ensures overdrafts do not occur.

To mitigate short term harms, and achieve lasting sustainable results, including protection of public trust resources, the County must:

(1) Adopt an ordinance that limits ministerial approvals to truly low volume, non-commercial uses that are based on verifiable criteria for approval;

(2) Strengthen basic accounting requirements as identified below; and

(3) Commit to developing an ordinance that addresses the cumulative impacts of all withdrawals on public trust resources within two years.

Below we offer some examples of how the County may improve the ordinance to address these issues and will set the County on track to balancing the Public Trust "checkbook".

<u>Recommended Modifications to the Well Ordinance</u>

1. To ensure the Well Ordinance is timely updated, we recommend the County expand the Purpose Statement to include language specifying a program that includes adaptive management and refinement of this Ordinance within two years, and at defined intervals thereafter. Staff and Working Groups agreed adaptive management is critical to meeting the County's ongoing duty to protect public trust resources and mitigate adverse impacts caused by groundwater extraction.

To address and minimize cumulative impacts and protect public trust resources over the first two implementation years, and while the County is working to account for insights from collected data, we recommend the following:

2. Define a "Well for Low Water Use" as 0.5 AFY and limit it to new wells for residential use. The current exception to discretionary public trust review for "Low Water Use," defined as less than 2.0 AFY, is not supported by empirical information regarding actual low water use or by findings that it will protect public trust resources. By setting a standard for "Low Water Use" at 2.0 AFY, the County is authorizing *new* groundwater extractions that will further contribute to the cumulative amount of water extracted and the adverse impacts caused by this extraction.

3. Modify "Well for Existing Use" to allow ministerial permits for replacement of 0.5 AFY residential wells, and up to 2.0 AFY for legally established existing uses, not including commercial "agricultural operations." Existing, legally established uses have created the depleted streams and adverse impacts to public trust resources the Well Ordinance is attempting to address. Unquantified "conservation measures," while desirable, have not been assessed for effectiveness, and cannot be credited without some numeric value. Existing uses greater than 2.0 AFY must be subject to discretionary review until objective and quantifiable mitigation measures are developed.

4. Eliminate the "Net Zero Increase" exception until clear terms, analysis, and quantification is available. Without quantification or assessment of the benefits or mitigation factors of "Net Zero Increase," there can be no determination of what level of measures are necessary to mitigate existing adverse impacts, and prevent future adverse impacts. There are no clear standards or criteria regarding timing, rate of withdrawal, or other variables that will ensure the authorized increased withdrawals will not continue or worsen already existing impacts.
5. Expand the Public Trust Review Area (PTRA) to be more inclusive by:
    - Eliminating the "stream buffer" concept and treating all impacted public trust resources equally. The Public Trust Doctrine does not differentiate between types of resources, nor does it utilize an abstract value ranking system. The buffers proposed are not based on empirical data, facts, or analysis, and taking a precautionary approach that allows for development of facts and data ensures future sustainability.
    - Include all areas within Sustainable Groundwater Management Act (SGMA) high and medium priority basins within the PTRA. These areas have already been defined by the State of California as severely depleted. There is no rational justification for excluding wells in these areas from implementing basic conservation measures intended to increase the overall sustainability of groundwater and public trust resources.
    - Include Russian River and Dry Creek mainstem valleys in the PTRA. The Public Trust is applicable to all navigable waterways. Omitting the mainstem means adverse impacts caused by groundwater pumping will continue.

To ensure the County meets its ongoing obligation to protect public trust resources and facilitate adaptation of the ordinance after collection of additional data, we recommend the following:

6. Expand "Well Metering, Monitoring, and Reporting" to all well types and uses. The County acknowledges that there are significant data gaps regarding how much groundwater is available, how much is used, and how and when groundwater extraction depletes flows in nearby streams and rivers. This lack of information makes developing a program that effectively protects public trust resources challenging. Necessary measures must be implemented to close these data gaps. Collecting this information ensures: (1) the County will have a more complete accounting of groundwater resources and uses needed to fully understand impacts to public trust resources; and (2) the County will be able to refine mitigation measures that maximize the benefits of groundwater use and provide for reliable water supply, while avoiding and minimizing harm to public trust resources to the extent feasible.
7. Define standards and criteria for when permits subject to discretionary review will (or will not) be granted. As drafted, the Well Ordinance does not specify the conditions under which the County will, or will not, issue a requested permit that is subject to discretionary review. Sec. 25B-4(d)(4) identifies findings and determinations the County will make when issuing, issuing with conditions, or denying a permit, but does not provide a standard or criteria that will be used to determine whether a permit will be issued or not. This leaves permit applicants without guidance or certainty when seeking a permit, and it provides no standards to equitably apply when evaluating a permit application. (including review by the Board of Supervisors)

Finally, in conjunction with adopting the Well Ordinance with the revisions and modifications identified above, as explained in Item # 1, we urge the Board of Supervisors to direct County staff to thoroughly and expeditiously work to fill data gaps, including information collected through implementation of the Well Ordinance, and complete necessary studies and modeling to further develop and refine the Well Ordinance to achieve the fundamental purpose ensuring we live within our water means.

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The County has an opportunity to once again be a leader in California when managing water resources, creating livable communities, and supporting a robust economy and healthy ecosystems. We urge the Board to provide Staff the necessary direction to further amend the proposed Well Ordinance to address our above points, and ensure that Sonoma County is setting the gold standard for protection of our public trust resources.

Sincerely,

Arthur Dawson, Chair
Sonoma Mountain Preservation

Brenda Adelman
Russian River Watershed Protection Committee

Brock Dolman, Co-Director
The Water Institute

Caroline Banuelos, President
Latino Democratic Club of Sonoma County

Cea Higgins, Co-founder
Save the Sonoma Coast

Dave Henson, Executive Director
Occidental Arts & Ecology Center

David Keller, Director
Petaluma River Council

Dennis Pocekay, MD, MPH
Occupational & Environmental Medicine
Petaluma City Councilman

Don McEnhill, Executive Director
Russian Riverkeeper

Donna Roper, President
League of Women Voters of Sonoma County

Gail Seymour, Board Member
Turtle Island Restoration Network (TIRN)

Harriet Buckwalter, Co-Chair
Friends of the Mark West Watershed

Janus Matthes
Winewaterwatch.org

Jean Tillinghast, President
Belmont Terrace Mutual Water Company

Jennifer Clary, California Director
Clean Water Action

Joan Cooper, President
O.W.L. Foundation

Laura Morgan, MD
Save Our Sonoma Coast

Michelle K. Irwin
Jenner Resident & Chair of,
Friends of the Jenner Creek Committee

Padi Selwyn, Co-chair
Preserve Rural Sonoma County

Reuben Weinzveg, Treasurer
Sonoma County Tomorrow

Richard Dale, Executive Director
Sonoma Ecology Center

Sarah Davis
Sebastopol Resident & President of,
Fircrest Mutual Water Company

Sean Bothwell
Executive Director
California Coastkeeper Alliance

Yael Bernier, Chair
Dry Creek Valley Association

****

Atascadero/Green Valley Watershed Council (AGVWC)

California Native Plant Society, Milo Baker Chapter

Chiatri de Laguna Farm

Coalition for a Better Sonoma County (CBSC)

Community Alliance with Family Farmers

Community Clean Water Institute

Forest Unlimited

Friends of Atascadero Wetlands

Friends of Graton (FOG)

Friends of Gualala River (FoGR)

Mobilize Sonoma

Neighborhood Coalition, Sonoma County

Neighbors of West County (NOW)

North Bay Jobs with Justice

River Watch

Rural Alliance

Sebastopol Water Information Group (S.W.I.G.)

Sierra Club, Sonoma Group

Sonoma County Climate Activist Network! (SoCoCAN!)

Sonoma County Conservation Action (SCCA)

Sonoma County Latino Democratic Club

Sonoma County Water Coalition (SCWC)

We Advocate Through Environmental Review (W.A.T.E.R.)

****

Individuals:

Carol Sklenicka
Jenner Resident

Diane Hichwa
The Sea Ranch Resident

Fred Allebach
Unincorporated Sonoma Valley Resident

Robert Kourik
Author: *Drip Irrigation, for every landscape and all climates*

Rue Furch
Sonoma County Resident

Sonia Taylor
Santa Rosa Resident

Susan Shaw
Sebastopol Resident

Wendy Krupnick
Sonoma County Farmer

From:	Monty Schmitt
To:	Susan Gorin; David Rabbitt; district3; district4; district5; Tennis Wick; PermitSonoma-Wells-PublicInput
Cc:	Monty Schmitt; Matt Clifford; Charlie Schneider; Walter Redgie Collins
Subject:	S&S Coalition Comments on Revised Well Ordinance Proposal
Date:	Friday, March 31, 2023 12:04:53 PM
Attachments:	image001.png image002.png image003.png image004.png image005.png image007.png image008.png 2023_03_29 S&S Coaliton comments re Sonoma Co. Well Ordinance.pdf

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EXTERNAL

Dear Supervisors and Mr. Wick,

Please find the attached comments on proposed revisions to the Sonoma County well ordinance on behalf of the Salmon and Steelhead Coalition which is comprised of California Trout, Trout Unlimited and The Nature Conservancy. We appreciate the chance to provide these comments and look forward to working with the Sonoma County Supervisors and Permit Sonoma staff on this effort to protect the health of our public trust resources and meet the needs for long-term sustainability and reliability of water resources for our rural residents and farms.

Sincerely,

[redacted]

Monty Schmitt
Senior Project Director
Water Program
Monty.schmitt@tnc.org
c: (510) 325.3594

The Nature Conservancy in California
Mailing Address
830 S St.
Sacramento, CA 95811

CALIFORNIA
Salmon & Steelhead Coalition

March 29, 2023

Sonoma County Supervisors
Susan.Gorin@sonoma-county.org, David.Rabbitt@sonoma-county.org, district3@sonoma-county.org, district4@sonoma-county.org, district5@sonoma-county.org

Tennis Wick, Director
Permit Sonoma
2550 Ventura Avenue
Santa Rosa, CA 95403
Tennis.Wick@sonoma-county.org

Permit Sonoma Wells Public Input: PermitSonoma-Wells-PublicInput@sonoma-county.org

Re: Comments on Revised Well Ordinance Proposal, Sonoma County Code Chapter 25B

Dear Supervisors and Mr. Wick,

This letter provides comments on the revised well ordinance to be brought to the Sonoma County Board of Supervisors for consideration on April 4, 2023. We appreciate the chance to comment on this proposal.

At the outset of this effort, we provided recommendations and principles to help guide the Technical and Policy working groups to ensure the creation of a well ordinance that adequately considers and mitigates potential impacts to public trust resources from the permitting of new or replacement water supply wells. These principles come from our experience and expertise in working to improve streamflow conditions for fish, wildlife, and people across the North Coast and by the scientific understanding that groundwater is a finite resource, and its use can directly impact streamflow. Depleted streamflow from diversions and well extraction has resulted in severely degraded habitat conditions in many waterways within Sonoma County and is the largest limiting factor in the survival of salmonids.

An effective well ordinance has the potential to improve the health of our public trust resources and waters, but also the long-term sustainability and reliability of water resources for our rural residents and farms. The proposed update to the well ordinance, however, does not effectively assess the current and future cumulative impacts of groundwater pumping on public trust resources nor does it adequately provide a plan to mitigate these impacts. We find that the proposed update to the well ordinance fails to preserve public trust uses as much as possible and does not adequately serve the public's interests.

Fundamentally, we are concerned by the reliance on "the overriding public interest in favor of ensuring adequate water supply for . . . domestic use" as an express justification for allowing new wells of less than 2 AFY to cause harm to public trust resources (see Section 25B-4(e)). While it is true that the public trust doctrine allows the County to approve activities that knows will cause foreseeable harm to public trust uses, courts have made clear it may only do so after fully considering the extent of those harms and ensuring it is protecting public trust resources to the greatest extent feasible. We applaud the County for putting together the advisory committee process on a tight timeline to help inform the drafting of the ordinance, and we believe that process has provided a useful forum for discussing different ideas and approaches. But the process simply did not have nor produce the in-depth analysis of harms to aquatic species, or feasible measures for mitigating the effects of new wells necessary to support a conclusion that the harms being allowed are truly unavoidable and will be mitigated to the full extent feasible. We are concerned this leaves the ordinance vulnerable to future challenge.

We recognize the timeline associated with the revised ordinance was compressed and the process struggled given limitations of existing models, information, and data. Additional information is needed to close data gaps and develop a more robust methodology for assessing impacts and mitigations to develop a clear and workable permitting program in Sonoma County that achieves protection of public trust resources and meets the needs of Sonoma County farms and communities. In the interest of fulfilling the County's long-term duty to consider and mitigate impacts to public trust resources, we are providing the attached comments and recommendations for further model development and data collection.

In closing we want to again acknowledge and commend the hard work and constructive engagement of the other working group members, consultants, and especially Permit Sonoma staff that supported the working groups in this effort. Sonoma County has an opportunity to continue its position as a water management leader to ensure a resilient future for our farms, fish and wildlife, and communities.

Sincerely,

Matt Clifford
Staff Attorney
California Water Project
Trout Unlimited
Matt.Clifford@tu.org

Monty Schmitt
Sr. Project Director
Water Program
The Nature Conservancy
Monty.Schmitt@tnc.org

Charlie Schneider
Lost Coast Project Manager
California Trout
cschneider@caltrout.org

RECOMMENDATIONS

1. **Take a precautionary approach to permitting new and replacement wells in the Public Trust Review Area (PTRA).** The PTRA methodology contains significant limitations and assumptions that prevent the adequate assessment of streamflow depletion impacts due to groundwater pumping. However, we understand the desire and necessity to prioritize areas of greatest concern given time constraints and the limitations with existing data. Given the high degree of uncertainty in the current proposal and significant impacts already occurring to public trust resources, the County should adopt an ordinance in the short term that will reduce harms to public trust resources by offering ministerial permits only to the most necessary new and existing uses of water in areas where surface streamflow is already being depleted by groundwater use to levels that threaten public trust resources. More specifically, we recommend the following:

    - **A "Low Water Use Well" should be limited to no more than 0.5 AFY in areas already shown to have impacts to public trust resources (within the public trust review area).** The current exception to discretionary public trust review for "Low Water Use," is defined as less than 2.0 AFY. This standard is not supported by empirical information suggesting it will be protective nor is it consistent with regional water conservation standards. By allowing *any* additional uses in areas shown to already have adverse impacts and not ensuring those uses are judicious, the County is not feasibly protecting the public trust. In addition, the County must assess impacts *and* feasibly mitigate them.

    - **Modify "Well for Existing Use" to allow ministerial permits for replacement of 0.5 AFY residential wells, and up to 2.0 AFY for legally established existing uses, not including commercial "agricultural operations."** In many areas of Sonoma County, existing, legally established uses have already created the depleted streams and adverse impacts to public trust resource the Well Ordinance is attempting to address. Unquantified "conservation measures," while desirable, have not yet been assessed for effectiveness, and cannot be credited without some numeric value, as adequate mitigations. Existing uses greater than 2.0 AFY must be subject to discretionary review until objective and quantifiable mitigation measures are developed.

    - **Require meter installation as a best practice for all new and replacement wells and implement a voluntary metering program for wells outside the public trust review area.** Meters are a relatively low-cost item that can encourage conservation, provide essential data needed to improve existing hydrogeologic models, and enable better water management throughout Sonoma County.

    - **The use of "stream buffers" is inadequate to protect public trust resource areas.** The Public Trust Doctrine does not differentiate between types of resources, nor does it utilize an abstract value ranking system. The PTRA cannot currently quantify estimated streamflow depletion as a function of individual well impacts, and the stream buffers are not an adequate substitution for that technical capability.

2. **Commit to developing an updated ordinance and methodology that addresses the cumulative impacts of all withdrawals on public trust resources within two years.** Direct staff to seek funding to close data gaps and develop robust methods to quantify impacts to public trust, as well as mitigation strategies that are effective and feasible in preventing adverse impacts to public trust resources within a permitting regime.

    - **To estimate streamflow depletion, explore how analytical modelling tools can be integrated with existing numerical models to reduce uncertainty and fill data gaps.** Current methodologies for evaluating streamflow depletion lack the ability to quantitatively assess public trust impacts as a function of the specific location, timing, and magnitude of groundwater pumping by a proposed well. The lack of acute impact analysis capabilities in the permit review process result in uncertainty regarding point-source impacts on streamflow depletion.

- **Incorporate uncertainty analyses where reasonable across the PTRA methodology.** This includes uncertainty in the developed 'groundwater pumping ratio' metric, uncertainty in the model validation proposed between numerical modeling and pumping ratio methodologies, and uncertainty in hydrogeologic parameters used to develop stream buffer distances. Time and resource limitations did not allow for the incorporation of uncertainty analyses in any of the modeling work or the development of the PTRA methodology. Uncertainty in predicted streamflow depletion impacts exist across many aspects of this technical work and should be considered.

- **Evaluate streamflow depletion risk under varying climate change and development scenarios.** Use the results of these analyses to inform future risk mitigation management strategies. The proposed well ordinance methodology lacks the ability to protect public trust resources from future cumulative impacts in 'moderate' and 'low' risk areas, and there is no quantification or risk assessment of future cumulative impacts.

- **Evaluate the streamflow depletion factor (SDF) under a variety of scenarios, representative of typical pumping rates and schedules. Use this analysis to update stream buffer distance requirements.** Stream buffer distances were established based on a theoretical well which pumped at a rate of 28-31 gallons per minute, for a single 24-hour period each month, for an SDF of 30 days. This is not a sufficient representation of the variability in pumping rates and schedules found in the real world. Additionally, the suitability of longer-term SDF values (>180 days) should be evaluated.

- **Develop clear technical guidance documents outlining how the discretionary permit review process will adequately consider public trust impacts.** The proposed well ordinance recommendations do not contain any guidance for the discretionary permit evaluation process. Sec. 25B-4(d)(4) identifies findings and determinations the County will make when issuing, issuing with conditions, or denying a permit, but does not provide a standard or criteria that will be used to determine whether a permit will be issued or not. This leaves permit applicants without important information as to how standards will be applied when evaluating a permit application.

- **Develop clear, easily reportable mitigation measures that are meaningful, economically, and technically practical, and commensurate with a well's potential to cause substantial adverse impacts on public trust resources**. To the extent mitigation measures are proposed as a tool for offsetting the impacts of proposed wells, the County should ensure both that those measures are meaningful – that is, they will produce benefits that are proportional in magnitude and timing to the potential effects of the proposed well – and that they are practical for applicants to implement and for the County to enforce. To the extent onsite mitigation measures may be infeasible or ineffective (e.g., measures to increase infiltration and groundwater recharge), the County should recommend off-site mitigation opportunities.

From:	Kathy Pons
To:	Nathan Quarles; Christina Rivera; Robert Pennington; Jennifer Klein; BOS; PermitSonoma-Wells-PublicInput; Tennis Wick
Subject:	Comments on the process to amend the Well Ordinance (Chapter 25B)
Date:	Saturday, April 1, 2023 11:39:13 AM
Attachments:	Well Ordinance comments to bos 4 4 23.docx

EXTERNAL

Below please find comments from VOTMA regarding the amending of the Well Ordinance which is before the Board of Supervisors on April 4th..
Thank you.
Kathy Pons

Valley of the Moon Alliance

Board of Supervisors, Sonoma County March 31, 2023

Jennifer Klein, Chief Deputy Counsel, Sonoma County

Christina Rivera, CAO, Sonoma County

Tennis Wick, Director, Permit Sonoma

Nathan Quarles, Deputy Director, Engineering and Construction, Permit Sonoma

Robert Pennington, Professional Geologist, Natural Resources, Permit Sonoma

Submitted via Email: PermitSonoma-Wells-PublicInput@sonoma-county.org; Nathan.Quarles@sonoma-county.org; Tennis.Wick@sonomacounty.org; Christina.Rivera@sonoma-county.org; Robert.Pennington@sonoma-county.org;Jennifer.Klein@sonoma-county.org;bos@sonoma-county.org

Subject: Comments on the process to amend the Well Ordinance (Chapter 25B)

Valley of the Moon Alliance is an organization in Sonoma County that has a keen interest in ensuring that groundwater is sustainable and equitably managed for the benefit of all humans and the ecosystems we all depend on for our health and welfare. Groundwater is a limited resource. This ordinance update has the potential to help ensure long-term water security for all County residents and help make us more resilient to a changing climate and increased drought conditions.

The proposed Well Ordinance does not (1) effectively reckon with the ongoing and future cumulative impacts of groundwater pumping on public trust resources, or (2) contain provisions for adaptive management to ensure the County protects public trust resources and mitigates adverse impacts caused by groundwater extraction. We urge the County to take an interim step now and commit to return, in two years or less after filling acknowledged data gaps and completing essential analysis, with a program that is founded on empirical data and the robust analysis necessary to ensure long-term sustainability and protection of public trust resources.

To ensure the County is able to fill the acknowledged data gaps needed to meet its ongoing obligation to protect public trust resources, we suggest that "well metering, monitoring and reporting" be implemented for all new well applications within the Public Trust Resources Areas (PTRA). Collecting this information would ensure: (1) the County will have a more complete accounting of groundwater resources and uses needed to fully understand impacts to public trust resources; and (2) the County will be able to refine mitigation measures that maximize the benefits of groundwater use and reliable water

supply while avoiding and minimizing harm to public trust resources to the extent feasible. With more data gathering and analysis the County will be able to be more specific when considering discretionary well applications. Standards and criteria for evaluating these discretionary well applications need to be defined and utilized by the County Staff and other decision-makers.

Within an interim of two years following the approval of this Well Ordinance update, we recommend that County review the Public Trust Review Areas. New well applications received from areas within the Sustainable Groundwater Management Act (SGMA) basins and are also within a PTRA should not be excluded from implementing conservation measures intended to increase overall sustainability of groundwater and public trust resources.

We urge the Board to provide Staff the necessary direction to further amend the proposed Well Ordinance to address the above points and ensure that Sonoma County establishes an improved two-year interim regime during which further data can be obtained to inform what most observers recognize will be needed, i.e., subsequent modifications of the ordinance.

Thank you,

Kathy Pons

Valley of The Moon Alliance