Response to Written Comments

Updates to The Action Plan
for
The Russian River Watershed Pathogen Total Maximum Daily Load (TMDL)
as an
Amendment to The Water Quality Control Plan For The North Coast Region

Regional Water Quality Control Board, North Coast Region
December 2, 2021
Public Comment Opportunity and Comments Received

On August 6, 2021, the Regional Water Board provided notice of public review and comment opportunity related to the updated[1] Action Plan for the Russian River Watershed Pathogen TMDL[2], updated Staff Report for the Action Plan for the Russian River Watershed Pathogen TMDL, and the Reassessment of Fecal Indicator Bacteria and Microbial Source Tracking Data for the Russian River Watershed Pathogen Total Maximum Daily Load (2020 Technical Report). The deadline for submittal of public comments regarding these documents was September 22, 2021. Regional Water Board staff received five submittals containing written comments.

A. Steve Trippe and Dan Fein, Co-Chairs on behalf of Lower Russian River Wastewater Citizens Advisory Group (CAG), August 16, 2021
B. Dan Fein, Private Citizen and Member of the Monte Rio/Villa Grande Citizens Advisory Group and a resident of Monte Rio (Fein), September 22, 2021
C. Brenda Adelman, Russian River Watershed Protection Committee (RRWPC), September 22, 2021
D. Kevin Booker, P.E., W.A. Principal Engineer, Sonoma Water (SW), September 22, 2021
E. Onsite Waste Treatment System (OWTS) Residents of the Russian River (OWTS-RRR), September 22, 2021[3][4]

[1] Updated documents reflect revisions proposed after Regional Water Board adoption of the TMDL Action Plan in August 2019,
[2] Within this Response to Comment document, references to TMDL and TMDL Action Plan are used interchangeably.
[3] Mr. Bart Deamer of OWTS-RRR provided a written copy of his testimony from the August 19, 2021 Public Workshop for the Russian River Watershed Pathogen TMDL Russian River Watershed Pathogen TMDL Update. Response to those oral comments are contained herein.
[4]Regional Water Board staff met with OWTS-RRR representatives on September 8, 2021 and again on September 20, 2021. During the interim, on September 14, 2021, OWTS-RRR submitted a written list of

This Response to Comments document summarizes comments received from each of the five comment letters, followed by the Staff response. A single editorial change to the Proposed Action Plan initiated by staff has been made to indicate impairment or pollution rather than impairment and pollution. This change is made to reflect consistency with the 2021 updated Staff Report for the Action Plan for the Russian River Watershed Pathogen TMDL wherein staff describe impairment or pollution. No other changes have been made to the public review draft Action Plan for the Russian River Watershed Pathogen TMDL. Two changes have been made to the public review draft updated Staff Report for the Action Plan for the Russian River Watershed Pathogen TMDL; the bold formatting has been removed from the year-round Porter Creek-Russian River 6-week Rolling Geometric Mean data points in Table 4.2 and in Table 4.3. There have been no changes made to the 2020 Technical Report as a result of public comment or initiated by staff.

Supporting documents, including all comments and responses to comments received on the 2019 Action Plan adopted by the Regional Water Board in August 2019 are all part of the record, posted on the Regional Water Board's website, and provide additional rationale and support for the proposed updated 2021 TMDL Action Plan.

A. Lower Russian River Wastewater Citizens Advisory Group (CAG)

Comment CAG-1: Postpone *TMDL adoption and implementation for the following reasons: (1) A state and local inter-agency team has formed to improve wastewater treatment in unsewered areas of the lower Russian River. The TMDL is projected to be approved and enforced before the study is completed. Postpone the action to coordinate timelines so that TMDL implementation aligns with the advice and support of the inter-agency team; (2) the statewide Onsite Wastewater Treatment System Policy, Local Agency Management Program (LAMP), and the TMDL all address OWTS and have seemingly disconnected timelines. This creates confusion for the affected parties. Coordinate timelines of similar programs so affected parties may anticipate requirements; (3) the county is addressing environmental disasters and the pandemic, which has led to the postponement of county wastewater support infrastructure. Time the TMDL to align with a county program to assign communities with implementation; and (4) communities affected by the TMDL have been impacted by natural disasters and the pandemic, which has led to economic struggles. Postpone the TMDL until there is economic recovery.*

Response: The effective date of the TMDL Action Plan is projected to occur in the summer of 2022, upon approval of the Basin Plan amendment by the state's Office of Administrative Law. By this time, the Sonoma County LAMP, which is expected to include requirements consistent with the Advanced Protection Management Program (APMP), will have been finalized by the County and submitted to the Regional Water Board for approval. It is expected that the OWTS Assessment Program, which will

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discussion topics entitled OWTS-RRR compromise proposal (proposal). The contents of the proposal were also embodied without editing in the OWTS-RRR September 22, 2021 written comments and therefore Regional Water Board staff provides written response to the September 14th proposal in conjunction with OWTS-RRR September 22nd responses to comment contained in this document.

inventory all OWTS within the APMP and identify OWTS needing corrective action, will be completed within 2-3 years after the effective date of the TMDL Action Plan, at which time owners of OWTS requiring repair or replacement will be provided a time schedule by the Regional Water Board or the local agency to complete corrective action. There are no constraints in the APMP for when OWTS repairs or replacements must be completed, other than the final TMDL compliance deadlines of 15 years after the effective date of the TMDL Action Plan for individual systems' corrective actions or 20 years for OWTS owners participating in the planning and construction of community-based wastewater treatment and disposal systems. These compliance deadlines are triggered upon the effective date for the TMDL Action Plan, or approximately 2037 or 2042, respectively for individual or community-based systems. Even given the unsynchronized agency timelines and the real struggles that the local community has faced over the last few years, Staff believes that 15 and 20 years is sufficient time for correcting all failing, substandard, and overloaded OWTS in the APMP.

B. Dan Fein, Private Citizen and Member of the Monte Rio/Villa Grande Citizens Advisory, Group and a resident of Monte Rio (Fein)

Comment Fein-1: *General support for the process that the Water Board is proposing, but with the urging that we consider the larger picture as it relates to water, water conservation, protection against waste, and consideration of water needs of human, animals and plants into the future. Specifically notes that in the next 50 years 1) most septic systems will likely fail and 2) the geography and finances associated with many properties in the lower Russian River may not support upgraded septic systems. These two realities demand creative approaches to the use and re-use of water and how to transform communities that rely on 19th century wastewater technology to ones that address 21st century realities and use 21st century capabilities.*

Response: Thank you for your general support for the process we are undertaking to address the difficult issues associated with wastewater treatment in the lower Russian River. Your participation in the Community Advisory Group (CAG) is well appreciated. We agree with your big picture thinking that the water concerns of today are growing and our planning for the future should be in consideration of water as a valuable and limited resource. We agree with your specific thought that solutions in the lower Russian River should aim towards the highest value for the most people using the most innovative and reliable technologies available and/or under development. We further agree it should be an explicit goal to conserve high quality water and re-use wastewater as possible. We encourage you to bring these ideas to the CAG, where community solutions for your area are being developed. We will look for ways within the body of this project to make more explicit our support for this goal, as well.

Comment Fein-2: *Can a modern OWTS provide sufficient treatment onsite that the effluent could be re-used and redistributed? What is possible given enough time and resources?*

Response: A modern OWTS with supplemental treatment components to improve effluent quality followed by a disinfection process can produce treated effluent of

suitable quality for reuse, both onsite and for conveyance to other suitable recycled water reuse sites. Reuse on the same residential parcel from which the recycled water is produced would present permitting and permit compliance challenges that would be difficult for individual homeowners to overcome. Those challenges could be better managed where there is an OWTS Management Entity to oversee OWTS operation and maintenance, performance assurance, and compliance with local and state regulations for recycled water production and reuse. Conveyance of recycled water offsite would necessarily require easements and user agreements that are best facilitated by a public agency.

Comment Fein-3: *What technology is available to provide solutions to problems of water availability and use? What do we know about future technology that is in the pipeline and could become available during the lifetime of the project?*

Response: Waterless toilet technologies, such as composting toilets and incinerating toilets, are constantly evolving methods of personal waste disposal. They are considered to be well suited as a solution to sanitation and environmental problems in unsewered, rural areas, as they require little to no water, and when combined with graywater systems for reuse of domestic graywater, can dramatically reduce the potable water demand of a household or community if use of the waterless systems is widespread. Although lower in cost than most water based OWTS, the cost of purchasing and installing a waterless technology may be an impediment to upgrading to newer, more modern technologies when the newer technologies become available. An OWTS Management Entity[5] may be in a better position to disseminate information to OWTS owners about new technologies and, through bulk purchases, make upgrading to new technologies that are more cost effective to the OWTS owner.

Comment Fein-4: *What sources of funding are available to make this project financially feasible and not simply a heavy liability on individual property owners?*

Response: Chapter 12 of the TMDL Staff Report describes the potential sources of funding for wastewater infrastructure projects. The state's Clean Water State Revolving Fund is the primary source for grants and low interest loans for water and wastewater infrastructure projects and has been generously funded in recent years by voter-approved general obligation bonds, like Proposition 1. In the final weeks of its 2021 session, the California State Legislature's set aside over $15 billion over the next three years to fund wildfire prevention, water resiliency, climate resilience, sustainable agriculture, and what the legislature calls the "circular economy," which promotes organic waste recycling such as composting. The budget includes $5.2 billion for projects to support drought response, drinking water, wastewater, and water supply reliability, and water recycling. As of yet, it is unclear how the Monte Rio & Villa Grande Wastewater Project and other similar projects in the Russian River Watershed may take advantage of these funds. In addition to state funding opportunities, there are many

[5] An OWTS management entity may include federal, state, and tribal agencies; local government agencies; special-purpose districts and public utilities; or privately owned and operated management entities which can provide administrative, managerial, and technological assistance to OWTS owners.

federal funding sources that are described in the TMDL Staff Report. Staff will continue to work with the State Water Board's Division of Financial Assistance (DFA) and serve as an advocate for funding opportunities to assist Russian River Watershed property owners in obtaining financial support to improve wastewater infrastructure where needed.

In August of 2021, the State Water Board also approved an initial allocation of $100 million in grant funds from the Budget Act of 2021. The Act contains a total of $650 million in grant funds for wastewater projects in California, with a funding priority placed on septic-to-sewer projects. The Division of Financial Assurance (DFA) is planning to hold a public workshop in December 2021 to accept public input on how this this money should be allocated. Regional Water Board staff is actively providing feedback to DFA to ensure that final funding guidelines will support funding for the broad range of wastewater infrastructure projects in the North Coast Region, including projects like the Monte Rio and Villa Grande Wastewater Project, which may require support for both individual OWTS replacements and for community solutions like septic-to-sewer projects. State Water Board approval of the remaining funds from the Budget Act of 2021 is expected in early 2022.

C. Brenda Adelman, Russian River Watershed Protection Committee (RRWPC)

Comment RRWPC-1: *Give program priority to properties that are 200' from an impaired creek or the Russian River and secondary priority to those within 600' (concurrence with the APMP distances)*

Response: The OWTS Policy identifies setback requirements. For Tier 1 low risk new or replacement OWTS the minimum setback is 100 feet from rivers and 200 feet from lakes or high tide lines. For Tier 3 OWTS within an advanced protection management program for impaired areas, the minimum setback is 600 feet when there is no TMDL or special provision for the impaired area. The TMDL Action Plan specifies an area of implementation, which includes an Advanced Protection Management Program (APMP) for OWTS in designated HUC-12 subwatershed areas. All OWTS in the APMP are prioritized as being at high risk for contributing human fecal bacteria to Waters of the State, whether the Russian River mainstem or its tributaries, and so the Action Plan requirements apply to each of those OWTS equally. As explained in chapter 9, section 9.2.7.3 (page 9-11) of the Staff Report, the APMP treats all OWTS within the geographic area of the APMP as heightened threats to degrade bacterial water quality due to general areal site conditions such as soil type, topography, elevated groundwater, density of OWTS, and overall age and type of existing OWTS. The Staff Report also explains that the 600-foot zone of influence for OWTS is consistent with the minimum distance recommended by the California Department of Public Health for protection of water supply wells from microbial contaminants. In the APMP, Regional Water Board staff established a smaller zone of influence (200-feet) for intermittent and ephemeral streams because contributions of wastewater from OWTS to these nonperennial streams are less likely to impair REC-1 beneficial uses in downstream waterbodies. This approach effectively "prioritizes" OWTS in each APMP subwatershed based on the distance of the OWTS to the nearest waterbody.

Comment RRWPC-2: *Have a reasonable (to be determined?) range of expertise and affordable options for inspections as a limited number of experts increases costs.*

Response: The Action Plan does allow flexibility in the range of expertise for OWTS inspections. Specifically, a qualified professional is defined as an individual licensed or certified by a State of California agency to design OWTS and practice as professionals for other associated reports, as allowed under their license or registration. Depending on the work to be performed and various licensing and registration requirements, this may include an individual who possesses a registered environmental health specialist certificate or is currently licensed as a professional engineer or professional geologist. For the purposes of performing site evaluations, soil scientists certified by the Soil Science Society of America are considered qualified professionals. A local agency may modify this definition as part of its Local Agency Management Program. If greater flexibility were afforded under this requirement, approval would necessarily be under the County's authorities.

Comment RRWPC-3: *Allow older systems that are not failing to continue if inspections are held every two years and replacement occurs promptly if a professional inspection says it's needed.*

Response: The Action Plan requires routine OWTS inspections within the Advanced Protection Management Program area boundaries to be conducted on a 5-year recurring basis. This frequency, although lengthier than the frequency you suggest, has been proposed by staff and previously adopted by the Regional Water Board in 2019 as a balance between the need for water quality protection, cost, and burden upon individual OWTS owners as well as the strain upon the pool of qualified professionals available in the watershed and local area that could perform the inspections. Other than cess pools, older systems may continue in operation without any corrective action, provided these systems are not failing. It is important to note that cess pools are not authorized under the statewide OWTS policy or County regulations.

Comment RRWPC-4: *The staff report introduction is confusing. Clarify the sequence, relationship, and timing of public processes and approval actions related to 303(d) listings, Staff Reports, Basin Plan Amendments, TMDL, Action Plans. In particular, highlight public engagement and potentially increase it during the implementation phases.*

Response: In response to this comment, TMDL staff offer the following clarity about the remaining steps in the TMDL approval process: Questions relative to the State Board's process associated with the 303(d) listing should be directed to the State Water Resources Control Board, Division of Water Quality. The State Board's webpage includes contact information and links to their email listserv at http://www.waterboards.gov/water_issues/programs/water_quality_assessment/#impaired.

With respect to the Russian River Watershed Pathogen TMDL, the TMDL was initially adopted by the Regional Water Board in August 2019. Subsequent to Regional Water

Board adoption in 2019, a reanalysis of the data led to production of a Technical Report to describe the reanalysis, clarifying changes to the staff report supporting the TMDL, and targeted changes to the TMDL Action Plan. The following list describes the steps that apply towards final approval of the Russian River Watershed Pathogen TMDL as an amendment to the Basin Plan: 1) 8/06/21 release for public review of the updated staff report and TMDL Action Plan, 2) 8/19/21 public workshop, 3) 9/08/21 stakeholder meeting with OWTS Residents, 4) 9/20/21 second stakeholder meeting with OWTS Residents, 5) 9/22/21 close of public comment period on updated Russian River Watershed Pathogen TMDL documents, 6) by 11/22/21 public release of agenda package for December 2021 Board meeting including response to comments on Russian River Watershed Pathogen TMDL, 7) 12/02/21 or 12/03/21 public hearing on Regional Water Board adoption of updated Russian River Watershed Pathogen TMDL Action Plan, 8) Spring 2022 public hearing on State Water Board approval of the Russian River Watershed Pathogen TMDL Action Plan as a Basin Plan Amendment with opportunity for written public comment and oral testimony, 9) Summer 2022 submission of Basin Plan Amendment to Office of Administrative Law for approval of the Russian River Watershed Pathogen TMDL, and 10) Fall 2022 approval by U.S. Environmental Protection Agency Region 9 of the Russian River Watershed Pathogen TMDL.

Comment RRWPC-5: *Please clarify why a strict regulation is being imposed where E. coli is not the foundational piece of evidence. The use of other indicators calls into question the validity of the conclusions.*

Response: With regard to “strict regulation” the commenter appears to be referring specifically to the Advanced Protection Management Program (APMP) described in the TMDL Action Plan as it applies to OWTS. The APMP establishes a reasonable approach to identifying failing, substandard, or overloaded OWTS located within a distance of potential discharge to surface waters of concern. Staff do not believe that it is overly strict. The boundary within which the APMP applies was defined by evaluating *E. coli* and enterococci data, public health advisories, human-sourced *Bacteroides* data, and Phylochip™ data, where that data existed. Water quality data did not exist for all locations in the watershed where the TMDL studies otherwise indicated the potential for fecal waste discharge. In summary, where such data did exist, it was evaluated against objectives and thresholds to determine 1) if there were exceedances of state or federal REC-1 objectives/criteria and 2) if those exceedances could be associated with discharge of human fecal waste. Please see Section 1.2.2 of the 2020 Technical Report for a full discussion of the analytical approach. Worthy of note, the 2020 Technical Report specifically found that *E. coli* objectives are exceeded in each of the HUC-12 subwatersheds where the APMP applies. In addition, each of the HUC-12 subwatersheds included in the APMP also show evidence of human fecal waste, derived from Phylochip™ data or human-sourced *Bacteroides* bacteria data using HuBAC. Phylochip™ results indicating the presence of human-sourced bacteria were identified as moderately good evidence if the percentage of human-sourced bacteria in the sample was 10-19% and very good evidence if 20% or greater. HuBAC results were identified as strong evidence of the presence of human-sourced fecal waste if measured at 3 orders of magnitude or greater above the detection limit. 10,000 gene copies/100

mL of sample was chosen to instill confidence that measurements exceeding the threshold are not false positives but represent true detections of human-sourced bacteria. The use of indicators in addition to *E.coli* does not bring the data into question as the comment suggests, but rather further supports TMDL conclusions and is used to narrow the focus of the APMP to those HUC-12s in the watershed where identification of failing, substandard, or overloaded OWTS is a priority.

Comment RRWPC-6: *Why haven't other FIBs been selected to be the standard rather than E. coli?*

Response: The State Water Resources Control Board (State Board) adopted water quality objectives to protect the REC-1 beneficial use statewide. Their rationale for adopting *E. coli* as the indicator of public health risk in freshwaters is included in the staff report accompanying the State Board's planning action. Nothing in the State Board's action prevents a Regional Board from using multiple other indicators of public health risk and REC-1 protection in establishing a TMDL and implementation plan; indeed, the use of multiple fecal indicator bacteria and microbial source tracking techniques is well established and accepted in the scientific and regulatory community. Surrogate methods like fecal indicator bacteria detection and enumeration are used because it is difficult and expensive to detect all possible pathogens in a given sample, though it is a wide range of bacteria, viruses and amoeba that are of concern. The EPA has determined through scientific and epidemiological studies that enterococci and *E. coli* are better indicators of fecal contamination than total and fecal coliforms and thus are reasonably used to assess the presence of fecal waste. And, the Russian River TMDL studies demonstrate that neither *E. coli* nor enterococci are well-corelated with genetic evidence of human-sourced bacteria as measured by PhylochipTM, further supporting the appropriate use of multiple lines of evidence to establish public health protections.

D. Kevin Booker, P.E., W.A. Principal Engineer, Sonoma Water (SW)

Comment SW-1: *Add footnote 18 from the TMDL Staff Report to Table 4 in the TMDL Action Plan, which clarifies Sonoma Water's unique role as a permittee, not a regulator or land use authority.*

Response: The language requested mimics language already in place within Sonoma Water's current municipal separate storm sewer system (MS4) Phase I permit[6]. Discussion regarding the manner and method of Sonoma Water's MS4 compliance is already underway with Regional Board permitting staff to support the forthcoming permit renewal. Compliance with the fecal waste discharge prohibition is therefore most appropriately managed through that process. No changes will be made to the Action Plan in response to this comment.

[6] Page 12 section V Standard Provision B General Provisions of National Pollutant Discharge Elimination System (NPDES) Permit And Waste Discharge Requirements For Discharges From The Municipal Separate Storm Sewer Systems Order No. R1-2015-0030, NPDES No. CA0025054

Comment SW-2: *Wastewater holding ponds discharge to surface waters as a fecal waste source. Many municipalities, including RRCSD, store tertiary treated water, including water that has been through a disinfection process, before being sent to a holding pond. Bacteria stored in these ponds would come from a natural background. Sonoma Water realizes additional data is needed to understand these relationships and they look forward to working with the Regional Board on this analysis.*

Response: The Regional Board likewise looks forward to working with Sonoma Water on this matter. At issue is the potential for discharges from holding ponds to exceed the statewide objective for *E. coli*. As a matter of due diligence, staff would like to ensure that any exceedances of the statewide objective as measured in holding pond discharges do not pose a threat to beneficial uses, particularly public health. We look forward to working with Sonoma Water and others on the design and implementation of such a confirmatory study.

E. Onsite Waste Treatment System (OWTS) Residents of the Russian River (OWTS-RRR)

Comment OWTS-RRR-01: *OWTS-RRR are homeowners who represent non-sewered communities along the Russian River from Fitch Mountain to Villa Grande and have followed the North Coast Region's proposal for a Russian River bacteria TMDL and participated in the related 303(d) and TMDL processes for years. We have always been in favor of reasonable, science-based, financially fair TMDLs for impaired waters. The overwhelming majority of recreational use and residences along the Russian River are in Fitch Mountain to Villa Grande stretch of the Russian River and OWTS-RRR comments focus on this area.*

Response: Noted and thank you for your continued participation.

Comment OWTS-RRR-02: *Data analyzed during TMDL development suggests only that OWTS are a potential source of pollution in the Russian River. Tests with data parameters specific to household sources of fecal waste have not been performed. Simple, affordable, and reliable tests are available to test for household sources, including chemical tests for the presence of NSAIDs like aspirin, caffeine, fecal sterols, prescription drugs, optical brighteners and other tell-tales of domestic source have been used for years. For example, the State Water Board has issued SWAMP Standard Operating Procedure 3.4.1.4, Measuring Optic Brighteners in Ambient Water Samples Using a Fluorometer (updated March 2, 2011). Sampling and testing for such indicators have not been performed. Data does not show that domestic septage is infiltrating the Russian River and endangering swimmers' health, and yet the TMDL is being generally applied to 3,500 OWTS rather than being limited to surfacing or failing septic systems. The TMDL has not established the risk by OWTS to the extent to justify costing residents $80-120 million for OWTS replacements (Sonoma County comment letter June 23, 2019). We strongly urge the Board to require the OWTS sourcing data to be evaluated before $80-$112 million of OWTS change costs are imposed on Russian River residents through the obligation to remove, replace and add advanced processing*

to thousands of existing OWTS irrespective of whether they are failing or contributing to swimmer health risk.

Response: The TMDL identifies many different potential sources of pathogen pollution in the Russian River, not just OWTS (see Section II of the TMDL Action Plan). The TMDL applies a consistent strategy across all potential sources. Specifically, 1) TMDL studies were implemented to determine which of the common sources of pathogen pollution are associated in the Russian River with exceedances of standards and/or other public health thresholds. 2) The results of those studies determined that developed sewered lands, developed unsewered lands, agricultural lands, shrubland, locations with a high density of OWTS, and locations/times with a high density of recreational water users (and near shore encampments) are associated with exceedances of fecal indicator bacteria standards and thresholds. 3) A fecal waste discharge prohibition is defined in Section V.A. of the TMDL Action to apply across the whole watershed, with a means of complying with the prohibition identified for each of the potential sources defined in Section II. Chapter 12 of the TMDL Staff Report describes the economic considerations associated with implementation of the TMDL Action Plan. The text and tables in Chapter 12 present a wide variety of costs for various control measures aimed at improving water quality, including those specific to individual OWTS owners. Staff included this broad evaluation to account for the variety of costs that may arise depending upon site specific conditions and potential solutions that may be selected by different property owners seeking corrective action for substandard, failing, and overloaded OWTS.

Specific to OWTS, an Advanced Protection Management Program (APMP) is established that applies to OWTS located within a defined distance from surface waters within 10 of the 43 HUC-12 subwatersheds of the Russian River. The 10 HUC-12 subwatersheds contained within the APMP boundary are identified based on exceedances of fecal indicator bacteria objectives and thresholds and evidence of the presence of human fecal waste (see response to RRWPC-5). OWTS outside the boundaries of the APMP are not prioritized by the TMDL Action Plan and will continue to be regulated by their applicable county. As per the TMDL Action Plan, all OWTS within the APMP boundary are required to be inspected every 5 years. OWTS owners need only conduct corrective action if the inspected OWTS is determined to a) be surfacing effluent, leaching or discharging runoff to a surface water, b) not include a septic tank and an effluent dispersal system that complies with the statewide OWTS Policy, c) have a projected wastewater flow exceeding the capacity of one or more components of the treatment and disposal system, or 4) otherwise meet the corrective action criteria of Section 11.0 of the statewide OWTS Policy. As such, with respect to OWTS, the conclusions of the TMDL studies that OWTS are a potential source of pathogen pollution, the use of fecal indicator bacteria and microbial source tracking data to narrow the geographic area of concern (i.e., APMP area), and the reasonable requirement that OWTS owners within a given distance of surface waters of concern inspect their OWTS once every 5 years, adequately narrows the requirements for corrective action to those OWTS with specific evidence of discharge or a high risk of discharge as defined in Section V.C. and V.D. of the TMDL Action Plan. No further water quality investigation is necessary to support the requirement that owners inspect their OWTS and correct those

found to be substandard. Staff make note, however, that the monitoring techniques described by the commenter could be useful for TMDL implementation monitoring and adaptive management.

Comment OWTS-RRR-03: *TMDLs presented to the Board since the 2015 draft have concealed the River's excellent REC-1 scores. The mixture of observations in the TMDL does not contradict the River's excellent REC-1 scores, has no scientific basis, and each element of the mixture is flawed. The August 2015 draft showed E. coli at each location did not cause an impairment and no targeted E. coli reductions were proposed. In 2018, the State Water Board adopted E. coli as the statewide, exclusive numerical objective for REC-1 water quality in fresh waters. In doing so, it expressly rejected other fecal indicator bacteria, such as fecal coliform and enterococci. Regional Board staff had become aware that the State Water Board was considering adopting E. coli as the official measure of REC-1 water quality in fresh water. This presented a major challenge to the pursuit of a TMDL, given the River's excellent E. coli scores. Location-specific data, location-specific E. coli scores, and any information on necessary E. coli reductions were removed from the next draft in 2017. These elements remained unaddressed in the 2019 and 2021 drafts.*

Response The scientific evidence supports establishment of the TMDL Action Plan. The revisions made to the TMDL across iterations in 2015, 2017, and 2019 are well-documented in "Response to Public Comments on the 2015, 2017, and 2019 Drafts of the Acton Plan for the Russian River Watershed Pathogen Total Maximum Daily Load (TMDL) and Staff Report" produced in August 2019 and posted on the Russian River Watershed Pathogen TMDL webpage. The 2020 Technical Report clearly describes and explains additional refinements. The 2020 Technical Report and Revised Staff Report that explain the reassessment and analysis were provided for public comment and review providing the public a full opportunity to review the rationale behind the reanalysis that supports the 2021 TMDL Action Plan. The commenter further suggests that only exceedances of the statewide objective for *E. coli* should be of concern to this TMDL. It is simply a misunderstanding that *E. coli* is the only indicator of pathogen pollution that can be used in a TMDL. The commenter fails to recognize the several other scientifically well-established indicators and techniques for assessing fecal waste discharge and pathogen pollution. The lack of correlation between Phylochip™ results and *E. coli* exceedance, in this and other studies, illuminates the fact that *E. coli* alone is inadequate to assess fecal waste discharge, pathogen pollution, and actual public health risk. This TMDL uses multiple lines of evidence to assess the risk of fecal waste discharge and pathogen pollution, as is commonly accepted in the scientific and regulatory communities. The purpose of a TMDL and its implementation plan is not just to address current threats but also to prevent future ones. The application of multiple lines of evidence, such as human markers, is not only relevant, but important in identifying threats to water quality and public health. The 2020 Technical Report identified exceedance of statewide objectives (*E. coli* for fresh water and enterococci for saline waters) in every HUC-12 considered for inclusion in the APMP as well as evidence of human fecal waste discharge in the water column for each of those same subwatersheds. Please also see response to Comment RRWPC-6.

Comment OWTS-RRR-04: *Data was misused. The 2019 draft proposed an important shift from analyzing waterbodies to analyzing subwatershed land areas. This allowed the staff to repurpose the winter samples taken in seasonal, unnamed side creeks for Bacteroides and PhyloChip analysis as samples of the Russian River itself. All of these samples were taken following storm events. (Butkus, Onsite Wastewater Treatment System Impact Study Report, July 2013, tables 3 and 4.) Before the 2019 draft, the TMDL gave no thought to these samples as REC-1 indicators; their purpose was to explore variability of rain-caused surface run-off in catchment basins adjacent to the River according to land use, topography, OWTS concentration and development density. No material REC-1 use of these side creeks has ever been established. In any case they are different waterbodies than the Russian River.*

Response: Data were collected to support four specific TMDL studies with documented monitoring plans and quality assurance/quality control plans. These four studies are: Land Cover Study, OWTS Study, Recreation Study, and Phylochip™ Study. These data were assessed appropriately and in keeping with the monitoring plans under which they were collected. The conclusions of these studies form the basis for the TMDL Action Plan, including a watershed-wide prohibition against the discharge of fecal waste (see response to Comment OWTS-RRR-02). The OWTS Study establishes a relationship between areas with a high density of OWTS and exceedances of objectives. In addition, the Land Cover study demonstrates a relationship between developed unsewered areas and exceedances of objectives and thresholds. The results of these two studies indicate a very broad area of concern related to OWTS; an area that covers most of the watershed. To narrow and prioritize OWTS areas of concern, water quality data were then also assessed on a subwatershed scale, so as to focus APMP requirements only in those geographic areas where water quality evidence indicates exceedance of objectives/thresholds and human fecal waste as the potential source. Rather than a misuse of data, this secondary analysis supports the reasonable policy decision to narrow the applicability of the APMP to only 10 of the 43 HUC-12 subwatersheds, a significant reduction from the version proposed in 2015.

Comment OWTS-RRR -05: *It is incorrect to combine tributary and mainstem data for assessments or measuring water quality by assessing land area rather than waterbodies. In April 2020, staff attempted to list the River under 303(d) as impaired for E. coli, by combining winter E. coli readings in the side creeks to those in the River itself. In its presentation to the State Water Board, there was no indication whether a reading came from the River or a side creek. After we pointed out to the State Water Board staff which was which, it rejected this dubious method of creating impairment. In September 2020, the North Coast staff re-submitted its listing application on the current basis of the substitute mixture rather than E. coli. No action has been taken on this resubmission, and its fate is unknown. The 2021 draft TMDL still combines readings from seasonal side creeks with those from the Russian River itself without identifying the excellent E. coli scores from the river -- your only source of knowing which is which has been the public comments. This is inexcusable. We hope you give your full attention to these public comments and ask the staff why rain-caused side creek waterbody readings should change the copious and excellent readings of the River itself.*

Response: The action before the Regional Board is consideration of targeted revisions to the Russian River Watershed Pathogen TMDL Action Plan, an Action Plan previously adopted in August 2019. The Regional Board is not considering the issue of 303(d) listing at this time, nor should the two processes be confused. The 303(d) listing process is a screening tool for the purpose of characterizing the condition of surface waters using readily available information. Waters to be considered for listing on the 303(d) list must be evaluated using a very specific process (a process set forth in the Statewide Listing Policy). Development of the Russian River Watershed Pathogen TMDL was triggered based upon a 303(d) listing process. In October 2020 the State Water Board chose to postpone consideration of the Russian River pathogen related 303(d) listing considerations as part of the 2018 303(d) list update until a time after it conducts a hearing on approval of the Regional Water Board's adoption of this Russian River Watershed Pathogen TMDL and Action Plan. The next 303(d) listing cycle for waters of the North Coast Region, including the Russian River, will occur in 2026.

Once triggered by a 303(d) listing, TMDLs are developed based upon monitoring information together with scientific modeling, collectively known as TMDL studies, that lead to a pollutant budget and describe how pollutant loads coming from various sources must be reduced in order to meet, maintain, and protect water quality in order to support all beneficial uses. Because of the diverse nature of each waterbody and pollutant combination addressed by TMDLs and the sheer breadth of watershed analysis, TMDL studies cannot and should not be constrained by a narrow set of protocols, such as those used for 303(d) listing. Investigation of the varied approaches used in TMDLs within the state of California and nationally, bears out the variability of scientific studies appropriately used to support TMDL conclusions.

As applied in this TMDL, four TMDL studies have together formed the basis of impairment or pollution for the entire Russian River Watershed. These TMDL studies have been peer reviewed, found scientifically sound, and form the basis of the Action Plan requirements. The use of water quality data wherein staff specifically combines results from tributaries and the mainstem by HUC-12 subwatershed was for the sole purpose of narrowing the APMP boundaries within the Action Plan to areas of highest risk for discharge of human fecal waste that may be associated with substandard, overloaded and failing OWTS. This scientifically-based policy decision was made as a mechanism to limit focused implementation actions to the areas of highest risk and prioritize use of limited resources. Please also see response to Comment OWTS-RRR-02 and OWTS-RRR-04 for a summary of the TMDL studies conducted and their findings, as well as additional explanation of the specific purpose to which the HUC-12 subwatershed-based secondary analyses are applied.

Comment OWTS-RRR -06: *The TMDL lacks any definable objective or endpoint. Four different observations were used to determine the APMP boundary (E. coli, Enterococci, Bacteroides, and PhyloChip DNA). How will TMDL attainment be determined? Will winter catchment-basin readings in unnamed side creeks have to clear up for some period? Will enterococcus readings—already under the impairment threshold except for one borderline case—have to go down further? Will fragments of human-source*

Bacteroides DNA have to disappear from winter readings? Will Bacteroides analysis have to further confirm that high-density OWTS areas do not test differently from other areas? Will 6 more years have to pass without a single beach advisory? Will all of these have to happen before the objective of the TMDL is considered accomplished? The staff's report offers no guidance on these questions. It does list a numeric target of achieving non-impairment of E. coli. Since the staff's Russian River data already show E. coli readings far below the threshold of impairment, this target appears to rely on treating winter catchment basin readings as though they were taken from the Russian River. The role, if any, of winter catchment basin readings in the TMDL's objective is simply left open. It is completely unclear whether this numeric target is just one of the objectives of the TMDL or whether its achievement will cause the TMDL to be wound down as a program that has succeeded. Before imposing $80-$112 million of mandatory OWTS costs on residents, the Board should insist that the staff revise the TMDL to clearly state it objectives.

Response: The action before the Regional Board is consideration of revisions to the Russian River Watershed Pathogen TMDL Action Plan, which it previously adopted in August 2019. Please see Section IV (TMDL, Allocations, Margin of Safety, and Seasonal Variation) of the TMDL Action Plan for clarity on the TMDL endpoint and wasteload and load allocations. The TMDL Action Plan anticipates failing, substandard and overloaded OWTS will be corrected in a 15 or 20 year timeframe. Please also see Section V.A. (Fecal Waste Discharge Prohibition) of the TMDL Action Plan for a discussion of the fecal waste discharge prohibition and the means by which compliance with the prohibition is achieved. Finally, see Sections V.C (Implementation Actions for Onsite Wastewater Treatment Systems) and V.D (Advanced Protection Management Program for OWTS) for requirements and schedules specific to OWTS inspection and corrective action. Staff anticipate that multiple monitoring tools, indicators, and thresholds will be used to assess progress with the TMDL Action Plan, including compliance with sections IV (TMDL, Allocations, Margin of Safety, and Seasonal Variation) and V (Program of Implementation). (Please see response to Comment OWTS-RRR-02). Similarly, multiple monitoring tools, indicators, and thresholds will be used to assess improving water quality conditions and a reduction in incidences of fecal waste discharge. The Regional Board is not considering the issue of 303(d) listing or delisting, as part of this hearing on the TMDL Action Plan. See response to Comment OWTS-RRR-05. Questions related to the delisting of waters as impaired by pathogens should be brought before the State Board when it next considers 303(d) listing in the Russian River watershed.

Comment OWTS-RRR-07: *The TMDL contains no off-ramps—provisions for re-evaluating the condemnation of nonfailing OWTS as water quality readings improve. The TMDL is currently drafted as a fixed set of implementation measures, covering many areas beyond condemning non-failing OWTS. These include prompt response to failing OWTS, wastewater treatment plant restrictions, homeless encampment measures, beach sanitation measures, etc., etc. It is inevitable that this wide-ranging program, which we applaud, will result in improved water quality readings. Yet the TMDL has no requirement for re-evaluation of its requirements as water quality readings change. For example, the coverage of the APMP Area could be reduced as local*

readings improve. Or the condemnation of non-failing OWTS could be made dependent on septage source testing. Or required upgrades could be made less onerous. The TMDL must require at least annual review of water quality readings and provide an off-ramp for areas that have shown improvement.

Response: As stated in the comment, the TMDL Action Plan is currently written as a defined set of implementation measures, covering many pathogenic sources throughout the Russian River Watershed. These measures are designed to implement, on a programmatic basis, the watershed wide Fecal Waste Discharge Prohibition. Your support for this wide-ranging source control program is noted.

One of the measures designed to meet the Fecal Waste Discharge Prohibition prioritizes OWTS inspections within an APMP. Please see response to Comment OWTS-RRR-02 for a summary of the APMP area of concern and required actions. While the Fecal Waste Discharge Prohibition applies watershed wide, the APMP boundary serves to focus OWTS investigations in order to identify systems in need of corrective action within areas of known concern. The TMDL Action Plan does not 'condemn', nor subject to corrective actions, 'non-failing' OWTS which meet the minimum system standards already established by regulation or policy.

The condition of public waters, protection of recreational use, and protection of public health are generally all well-served by correcting individual failing, substandard, and overloaded OWTS within discharge range of surface waters. To be clear, the requirements of OWTS owners (see sections V.C and V.D of the TMDL Acton Plan) for corrective action apply only to failing, substandard, and overloaded systems.

While staff do not believe that an APMP boundary which fluctuates based on annual assessment of data represents sound regulation, staff agree that establishing a monitoring program to assess status and trends in pathogen pollution is appropriate. As existing data gaps are filled, staff anticipate future revisions to the APMP boundary would result in additions, rather than subtractions where failing, substandard, and overloaded OWTS remain in the watershed. Both additions or subtractions of HUC-12's from the APMP would require the change be brought before the Regional Water Board for review and approval. Future monitoring and programmatic implementation tracking should be viewed collectively to assess progress toward compliance with the watershed wide Fecal Waste Discharge Prohibition. Given that the TMDL Action Plan identifies compliance deadlines of 15-20 years for correction of failing, substandard, and overloaded OWTS, suggesting an off-ramp prior to the compliance deadline would be premature.

Comment OWTS-RRR -08: *PhyloChip Linkage analysis does not demonstrate OWTS sources of bacteria. A way to detect household septage is by bacterial community analysis using the PhyloChip probe array. This array looks for matches between the communities of a known target sample and the samples under analysis, and the bacterial community of septage is distinct from that of sewage and feces. PhyloChip analysis can distinguish between sewage, septage, and fecal target samples. Regional Board staff did contract a PhyloChip study, but it used a mixture of septage, sewage,*

and feces as the target sample to be matched. The staff's report noted this and suggested a future PhyloChip study using separate target samples for septage, sewage and feces. Differentiation of human fecal microbial communities to separate septic vs urban sewer treatment vs feces sources was not possible within the scope of the sampling study design. A more extensive study of various human sources under different kinds and stages of wastewater treatment is needed to determine if they result in unique sets of genes that can distinguish between these different human sources. Although this follow-on study as recognized as necessary more than 7 years ago, it has not yet been done. The staff's report for the current draft TMDL is frank in admitting that no linkage to OWTS has been established. The report for the tests which do indicate a human source states: "The Bacteroides analyses do not directly associate any of the known sources of fecal waste with evidence of discharge, except to the degree that it distinguishes between human sources and bovine sources. … The PhyloChip study does not directly associate any of the known sources of fecal waste with evidence of discharge, except to the degree that it distinguishes between human sources and grazer sources." But, Chapter 4 provides clear evidence that further investigation of the potential for discharge from the identified sources is warranted. Regional Board staff admit that testing for domestic sourcing is required, implying that it will be conducted after the TMDL is adopted and the fate of 3,500 systems is sealed. This is the reverse of any rational public policy and carries an $80-$112 million penalty for Russian River residents.

Response: Please see response to Comment OWTS-RRR-02. In summary, the TMDL studies are an adequate basis for establishing the TMDL Action Plan, including the watershed-wide fecal waste discharge prohibition. No further Phylochip™ or other analysis is necessary to support re-adoption of the TMDL Action Plan. The commenter misconstrues staffs comment on the need for additional assessment as part of the Program of Implementation. Sections V.C. (Implementation Actions for Onsite Wastewater Treatment Systems) and V.D (Advanced Protection Management Program for OWTS) of the TMDL Action Plan speak directly to the need for further assessment of OWTS within the APMP boundary and within a defined distance from a surface water. The required assessment is in the form of an inspection and is the obligation of the owner. The inspection is an OWTS owners' due diligence, required under statewide OWTS policy section 2.5, and a reasonable requirement of individuals within range of public waters of concern. The required inspection ensures both OWTS owners and the public that onsite wastewater treatment and disposal systems within range of public waters of concern (i.e., within the APMP boundary) are functional and well-maintained, eliminating risk to the public of exposure to untreated or poorly treated sewage and thereby complying with the Fecal Waste Discharge Prohibition. The commenter refers to a figure of $80-112 million dollars as a penalty for Russian River residents. To be clear, the expense of upgrading or replacing an OWTS is only required of an OWTS owner where that owner is currently operating a substandard, failing, or overloaded system-- a system they have failed to make adequate and reasonable improvements on to date. Further, the Regional Board has provided, and will continue to provide, support in identifying public resources to help finance such expenditures.

Comment OWTS-RRR - 09: *The basis for the TMDL is flawed. Two sections of the Russian River, a 2,900-foot section around Healdsburg Veterans Memorial Beach and a 4.5-mile section from lower Guerneville to Monte Rio, were listed in 2001 for exceeding the fecal coliform objective. Fecal coliform was a traditional measure used starting in the 50's — at the 200 cfu/100mL level, four times higher than the North Coast 50 cfu/100mL standard — without the benefit of any epidemiological study. The EPA finally conducted the necessary study in the 1980's, which conclusively showed that fecal coliform has no statistically significant correlation with swimmer health risk. Recently, the State Water Board staff characterized the 50cfu/100mL fecal coliform standard as: " …indicative of what should be found in high quality coastal and mountain waters and is not related to a specific risk of illness from REC-1 uses." In other words, the fecal coliform objective is not related to a specific risk of illness associated with primary contact recreation. Recognizing the need to find a scientifically-defensible basis for listing, the North Coast staff last year made two attempts to get the State Water Board to approve a replacement. In April, they proposed a listing based on numerical exceedances of E. coli, the official freshwater FIB in California. After we pointed out that E. coli exceedances had been created only by adding readings from unnamed side creeks for which no REC-1 use had been established, and that the E. coli readings of the Russian River itself clearly called for delisting, the SWB staff rejected this basis for listing. In September and October, the North Coast staff sought approval of listing based on the same mixture of observations that the TMDL uses as a substitute for any numerical exceedance. In October, the State Water Board declined to adopt this basis for listing, referring it back to the North Coast staff for further work. At present, it is therefore unknown whether the State Water Board will accept a reworked version of the substitute mixture, some other basis for continued listing or simply delist the Russian River. In taking action on a TMDL before the basis for listing is known — or indeed whether the River will be delisted — the North Coast region would be taking a shot in the dark, with fateful consequences for Russian River residents. This is the reverse of any rational public policy.*

Response: The action before the Regional Board is consideration of revisions to the Russian River Watershed Pathogen TMDL Action Plan, which was originally adopted in August 2019. The Regional Board is not considering the listing or delisting of the Russian River under section 303(d) of the Clean Water Act, therefore comments related to 303(d) listing status will not be addressed in these responses. Regarding the TMDL, a draft TMDL was submitted for scientific peer review in early 2015 followed by the first public review draft document in late 2015. Following public comment, the 2015 draft was updated and revised with release as a second public review draft in 2017. Following additional public comment, the 2017 draft was updated and revised with release as a third public review draft in 2019. The Regional Board adopted the TMDL Action Plan in August 2019. Though it is true that the North Coast Region's Basin Plan contained bacteria objectives based on fecal coliform as the basis for REC-1 protection up until 2019, the TMDL studies designed, implemented, and reported beginning in 2015 have been based on multiple indicators, including *E. coli*, enterococci, public health advisories, *Bacteroides*, and Phylochip™. These indicators were chosen as state of art and represent solid science upon which to base the TMDL Action Plan. There are

no findings or provisions contained in the TMDL Action Plan (either as adopted in 2019 or as proposed for re-adoption in 2021) that are dependent on analysis of fecal coliform data. All the findings and provisions are based on updated state and federal standards and augmented by other state of the art analyses.

Comment OWTS-RRR-10: *Water quality assessments are based on old data, too little data, and data that does not represent REC-1 use conditions. Winter-time sampling has been very infrequent, making geomeans impossible to calculate. Single STV values therefore need to be examined. Winter E. coli was sampled in the River only on 5 days over the 11 years of sampling data: January 20 and 23, 2012 and March 1, 2 and 15, 2012. In the upper beaches (Camp Rose and Healdsburg), all exceedances occurred on one day, March 15, 2012, with readings many times higher than 14 days before. A look at the rainfall and River conditions on that date gives the answer: it was the day after intense rain, causing the River at Healdsburg to rise 6½ feet. The readings that day therefore represented the instantaneous surface water runoff triggered by an intense storm. In the other beaches, the situation was identical: January 23, 2012 immediately followed two days of intense rain, the first rain of that season, causing the River at Guerneville to rise 10½ feet. Again, the readings on that day represented the instantaneous surface water runoff triggered by an intense storm. Instantaneous basin flush surface water runoff is not a valid measure of the River's safety for REC-1 users. Hence, the isolated STV readings available for the Russian River in no way contradict its excellent geomean record.*

Response: Much of comment OWTS-RRR-09 is described from the narrow viewpoint of a specific process that may be used to assess water sample data for 303(d) listing, a process which then triggers consideration for development of a TMDL. The Russian River Watershed Pathogen TMDL studies that were initiated based upon previous 303(d) listings combine collection of water data, state of the art analysis techniques, and watershed assessment to identify pollutant sources and devise a control program for those sources that will restore, maintain, and protect beneficial uses in the watershed. The TMDL Action Plan is based on sound science, including the results of these four TMDL studies using state of the art indicators and analyses at the time of study design, and that remain scientifically defensible. The TMDL Action Plan is not reliant on individual sampling results or individual monitoring locations, nor do instantaneous runoff event results alter the conclusions. Also, as stated in previous responses, there were exceedances of statewide objectives (*E. coli* for fresh water and enterococci for saline waters) in every HUC-12 considered for inclusion in the APMP coupled with evidence of human fecal waste discharge in the water column for each of those same subwatersheds. See also responses to comments OWTS-RRR-4, 5, and 9.

Comment OWTS-RRR - 11: *The new proposed approach requires peer review. The mixture of observations in the TDML contradicts the River's excellent REC-1 scores, has no scientific basis, and each element in the mixture is flawed. There is no impairment based on the statewide water quality objective and binominal table in the 303(d) Listing Policy, so the draft TMDL seeks to use a substitute mixture of four disparate elements as a substitute: enterococci, Bacteroides DNA fragments, PhyloChip bacterial communities and transitory Sonoma County beach alerts. There is no*

precedent for this substitute mixture in any TMDL anywhere in the United States. It is novel, and truly ad hoc. More importantly, Regional Board staff has not submitted its mixture for any scientific peer review. A novel, ad hoc mixture of elements cries out for scientific validation, particularly when it results in the condemnation and required replacement and/or adding advanced treatment to 3,500 systems, with a cost between $80 to $112 million. In 2015, the proposal based on Bacteroides DNA fragments in the Russian River was peer reviewed by two outside scientists. That draft did not rely on a mixture of enterococci, Bacteroides, PhyloChip and transitory beach alerts. The draft did not rely on treating readings in seasonal side creeks for which no REC-1 use has been established as fungible with readings in the River itself. It is highly unlikely that the staff's novel mixture, or the use of side creek readings as though they were River readings, would pass even the initial stages of scientific peer review.

Response: The commenter confuses 303(d) listing with TMDL development. The 303(d) listing process is a screening process to determine whether further analysis of a given watershed is warranted. The Russian River Watershed Pathogen TMDL was initiated based on 303(d) listing for pathogen impairment. But, the screening process of 303(d) listing is inadequate as the basis for establishing needed corrective action; it is the more thorough analysis of a TMDL that provides the basis for implementation. The requirements of the Russian River Watershed Pathogen TMDL Action Plan are based on the results of four TMDL studies. See also responses to comments OWTS-RRR-02, -04, and -05. The commenter is incorrect in their claims regarding scientific peer review. The results of the TMDL studies were reported in the 2015 peer review draft TMDL staff report, which was submitted to a panel of scientific peer reviewers as required by law. The peer review draft TMDL staff report was revised and updated to address peer review comments and submitted as a public review draft, later that year in 2015. Additional analyses of fecal indicator bacteria, public health advisory, and microbial source data were conducted in 2019 (and reassessed in 2020) to inform a policy decision on the appropriate boundaries of the APMP, which applies to OWTS. These additional analyses were conducted solely to inform a narrowing of the geographic scope of the APMP, because the results of the TMDL studies defined a much larger area of application, which the public, staff, and Regional Board found unworkable. As a reminder, the primary action required of OWTS owners within the APMP boundary and within a defined range of public waters is an inspection of the OWTS. See response to Comment OWTS-RRR-07.

Comment OWTS-RRR - 12: *Enterococci tests do not distinguish between human and non-human sources. The use of enterococci in nature-heavy, non-point-source areas without molecular source testing has therefore been rejected again and again. First and foremost, the State Water Board's 2018 bacteria decision expressly rejected enterococci as a freshwater REC-1 objective in California. Their staff report stated that "…studies have found that in some cases enterococci will multiply in some freshwaters and create false positives in samples while E. coli does not have this drawback" (Cohen et al. 2001, Wade et al. 2003). Using enterococci bacteria could lead to false positives, would be ineffective, and could result in needless work investigating violations of standards when no real violation has occurred. The North Coast staff's own evaluation of enterococci at the outset of the current TMDL process was more discursive about*

their faults. Three long paragraphs, attached as Appendix B, discussed its problems, summarized in its finding that "Enterococcus bacteria are not appropriate indicators of sewage and pathogens in fresh water because they can come from non-fecal sources, can regrow in the stream environment, and because there is a likelihood of false positive results in fresh water using current analytical methods." The scientific literature is replete with warnings against using enterococci in fresh water unless it is traced to humans by molecular source tracking or otherwise. For example, Weigand, Ashbolt et al., Genome Sequencing Reveals the Environmental Origin of Enterococci and Potential Biomarkers for Water Quality Management, Environ. Sci. Technol. 2014, 48, 3707-14, warns against using enterococci for water quality monitoring unless they are genetically traced to enteric sources.

Response: This comment conjoins multiple issues related to enterococcus and surface water assessment in a way that confuses the facts. First, the comment highlights the uncertainties associated with enterococcus, but ignores its strengths, such as adoption of REC-1 enterococcus criterion by US EPA based upon epidemiolocal studies and affirmation by the EPA and this TMDL's peer reviewer that enterococcus performs well as an indicator in the presence of sewage. Secondly, the comment seems to indicate that the TMDL relies upon enterococcus bacterium alone, while the fact is that this TMDL looked at enterococcus in combination with many additional factors. As has been stated many times, the TMDL relies upon multiple lines of evidence including not only enterococcus, but also watershed land use studies and modeling, beach postings, Bacteroides, PhyloChip™ and *E. coli* results. When the 2019 TMDL Action Plan was adopted by the Regional Water Board, no HUC-12s were included in the APMP based upon enterococcus alone; rather, where exceedances of enterococcus occurred, this information was paired with beach postings and evidence of human fecal waste in the water column based upon either Bacteroides or PhyloChip data as well. This use of enterococcus, beach postings, and evidence of human fecal waste has been retained in the 2021 TMDL. Further, the 2020 Technical Report found that all HUC-12s proposed for inclusion in the APMP show exceedance of *E. coli* objectives, even in those HUC-12s included for exceedance of enterococcus plus the other thresholds. Nothing in the State Board's action to adopt statewide *E. coli* objectives for freshwater prevents a Regional Board from using multiple other indicators of public health risk and REC-1 protection in establishing a TMDL and implementation plan; indeed, the use of multiple fecal indicator bacteria and microbial source tracking techniques is well established and accepted in the scientific and regulatory community. See also response to Comment RRWPC-6

Comment OWTS-RRR - 13: *It is inappropriate to apply the USEPA enterococci standard to the Russian River. The current draft defends its use of enterococci by citing its use in the 2012 EPA bacteria standards. The state rejected enterococci because the epidemiological studies underlying the EPA standard were, by design, conducted at beaches near a point source of human fecal material: partially-treated outfall of a nearby wastewater treatment plant. In this setting, enterococci were shown to be reliable FIBs, indeed somewhat better than E. coli. The repeated rejection of enterococci in freshwater doesn't question the correctness of the EPA's enterococci standard in the setting in which it was established. Instead, the EPA standard is rejected when applied to nature-*

dominated, non-point-source settings where human sources have not been shown to dominate in the way they do in sewage treatment plant outfalls. Further, sampling shows that enterococci levels in the River do not exceed the EPA standard, with one close call exception at Camp Rose Beach. As in the case of E. coli readings, the staff's presentation masks these good scores by combining them with readings from seasonal unnamed side creeks for which no REC-1 use has been established. And as in the case of E. coli readings, the winter enterococcus STV readings were high only on the same two basin surface flush days.

Response: Please see responses to comments RRWPC-5, RRWPC-6, OWTS-RRR-03, and OWTS-RRR-09.

Comment OWTS-RRR - 14: *Bacteroides data do not establish linkage to OWTS. Bacteroides DNA fragment samples were taken in the 2012-13 winter season from seven beaches in the three reaches using the HuBac marker to test for human-fecal sources. Detectable amounts of apparently human-source fragments were found. The HuBac test does not distinguish between possible human sources (septage, sewage and feces), so this finding does not indicate that OWTS are the source. And no association between concentrations of human-source Bacteroides DNA fragments and levels of risk to swimmer health has ever been established. In addition to these general limitations on the significance of the Bacteroides readings, there are specific factors that undercut any scientific significance: First, the HuBac marker is a marker developed early in the evolution of water-safety DNA analysis that is well-known for its lack of specificity. The published literature reports that this marker has a specificity of only 61-68% and was detected in 77% of non-human animal fecal samples. The HuBac qPCR method is among the least specific of the human-associated Bacteroides methods. Much more specific markers have been developed and are in current use, particularly the HF183 marker. The State Water Board itself sponsored a comprehensive multi-laboratory performance evaluation of different markers in 2012, which validated the HF183 marker. The nonspecificity of the HuBac marker was so well known that it was not even evaluated. Perhaps the staff will use a scientifically-validated marker in the studies they plan to conduct after the TMDL has been adopted and the fate of 3,500 OWTS has been sealed. Second, during the winter season when the samples were taken, massive quantities of human-source fecal DNA fragments are pumped into the River by the Healdsburg and Guerneville wastewater treatment plants. Wastewater treatment plants kill fecal organisms, of course, but their DNA fragments flow out with the outfall. (They are not themselves hazardous for swimmers.) Regional Board staff acknowledge the limited relevance of Bacteroides DNA fragments and initially used the data for "informational purposes, only."*

Response: Please see responses to comments RRWPC-5, RRWPC-6, OWTS-RRR-03, and OWTS-RRR-09. As is typical in a fast-moving scientific field such as epidemiology and environmental health screening, *Bacteroides* analytical options have grown over time. The TMDL studies relied on the best science available at the time. Development of future monitoring plans that incorporate *Bacteroides* analyses will consider the state of art at the time of development.

Comment OWTS-RRR - 15: *PhyloChip data does not establish linkage to OWTS. The same winter samples used for Bacteroides DNA testing were also tested using an innovative probe array, the PhyloChip, that uses thousands of short nuclear probes to test for the presence of thousands of different bacteria types. The composition of the detected bacteria communities is then compared to the community composition of base samples of known origin, using sophisticated mathematical algorithms. The catchment basin samples were categorized according to land use, sanitation method (OWTS vs sewers), concentration of OWTS and risk of septic flow (steep vs flatter terrain). For purposes of the TMDL, the most important purpose of the PhyloChip study was to answer the question "Do catchments with high density of on-site wastewater treatment (OSWT) systems contribute pathogenic indicator bacteria from human sources?" The staff has suggested that the PhyloChip study points a finger at OWTS as a potential source of fecal bacteria, but the PhyloChip report itself is clear. Its conclusions on the above question are quoted in full below: "There were no significant differences in bacterial communities associated with parcel density or septic risk; there were no trends in bacterial communities associated with samples that exceeded concentration limits of Enterococcus fecal indicators but had low concentration E. coli fecal indicators; no sites with both high parcel density and high septic risk contained evidence of human fecal signal; in areas with high parcel density and low septic risk, one site (Site 5) was found to have probable human fecal signal on two sampling dates; no human fecal signal was detected at low parcel density sites with both low and high septic risk. In the three additional catchment basins of interest that were analyzed, site 14 had a strong human fecal signal." The PhyloChip analysis offers no support for OWTS as a source of fecal bacteria in the River. If anything, they show the opposite. Regional Board staff openly acknowledges the limited relevance of the PhyloChip analysis, initially stating that "These data were used for informational purposes, only."*

Response: As with comment OWTS-RRR-14 above, please see responses to comments RRWPC-5, RRWPC-6, OWTS-RRR-03, and OWTS-RRR-09. As is typical in a fast-moving scientific field, Phylochip™ analytical options have grown over time. The TMDL studies relied on the best science available at the time. Development of future monitoring plans that incorporate Phylochip™ analyses will consider the state of art at the time of development.

Comment OWTS-RRR - 16: *The Sonoma County Department of Environmental Health and Safety samples the beaches along the River, generally weekly and generally from late May through late September. They sample total coliform and E. coli. If a single reading is over 10,000 total coliform or 235 E. coli, they generally post an advisory alert at the beach informing recreators of the high reading. Of the 656 weekly samples taken at River beaches over the six years presented in the staff's report, a total of 9 advisory alerts were posted because of transitory spikes. The text of these alerts is "Beach is open with caution. Health risk is high for water contact. Bacterial levels are above State standards." In an extreme case, they may close a beach for a few days. This happened once in the 656 weekly samples over six years. For the remaining 646 weekly samples, the Department advised bathers "Beach is open. Health risk is low for water contact. Bacterial levels are within State standards." It is difficult, to say the least, to square the steadily recurring advice from the public health agency that "Health risk is low for water*

contact" with the staff's portrayal of the Russian River as dangerous enough for swimmers to justify requiring $80-$112 million of septic changes.

Response: The REC-1 beneficial use is designated in the Russian River and its tributaries as a year-round use. The Sonoma County Department of Environmental Health and Safety monitors public swimming beaches during summer months only, when recreational use is at its height. Because the inadequate control and management of fecal waste sources is most clearly recognizable as a result of stormwater runoff, the Sonoma County monitoring approach is inadequate to assess the primary discharges of concern. The effects of broken sewer lines, overflowing dairy ponds, and failing OWTS, as examples, require both dry and wet season monitoring, as was conducted to support the TMDL studies. Exposure to pathogens associated with fecal waste discharge represent a risk to public health no matter what season the exposure occurs.

Comment OWTS-RRR - 17: *Transitory spikes do not establish linkage to OWTS. Each of the 9 advisories, and the one closure, were removed in a matter of days as readings returned to their normal range. These readings are transitory spikes, lasting no more than a few days. They are relevant to swimmers at the beach that day, but are irrelevant to REC-1 water quality, which is measured not by single spikes but by data collected over a defined period, 6 weeks for geomeans and one month for STV's. Single spike readings are doubly irrelevant when applied to impose septic reform, because OWTS operate steadily month-in and month-out, year-in and year-out.*

Response: Sections V.C and V.D of the TMDL Action Plan are based on the results of well-designed and implemented TMDL studies, not transitory spikes in pathogens as measured at public beaches. The TMDL Staff Report Section 4.8 summarizes and Table 4.12 displays the results from six different water column data sets in addition to the public health posting data that was used in combination towards development of the TMDL. Based upon this information and the source studies described in Chapter 6 of the staff report, the TMDL concludes that all sources of pathogenic pollution in the watershed require control. Implementation of the Statewide OWTS Policy has been delayed for the Russian River watershed in anticipation of this TMDL since the statewide OWTS Policy was adopted by the State Water Board in 2012. The TMDL, now proposed for re-adoption, does not impose new OWTS reform, nor add to the requirements of the statewide policy, but rather implements OWTS Policy requirements and simply narrows investigation for compliance to 10 out of 43 HUC-12 subwatersheds as a scientifically based policy which effectively focuses limited resources available to achieve OWTS compliance and pathogenic source control for that program.

Comment OWTS-RRR - 18: *Enterococcus data do not establish linkage to OWTS. UESEPA established using both E. coli and Enterococcus to assess human health risk in fresh water. The criteria are based on epidemiological studies that found association between illness and Enterococcus bacteria concentrations in surface waters with known sources of human fecal waste, specifically Enterococcus faecalis and Enterococcus faecium. However, other Enterococcus bacteria species may or may not come from other warm-blooded animals. However, sources of Enterococcus bacteria in many surface waters may also be from non-fecal, natural sources. For example, Enterococcus*

mundtii and Enterococcus casseliflavus are associated with plant sources. Furthermore, additional epidemiological studies were conducted in waters impacted by urban runoff sources, but no domestic wastewater sources found low illness rates after exposure. In addition, Enterococcus bacteria persist and regrow in the environment. Studies have shown that these bacteria persist in benthic sediment and can regrow when re-suspended into the water column. Hartel et al. (2005) found that Enterococcus bacteria survived desiccation and regrew in rewetted sediment. Sediment collected in the riparian habitat and from naturally occurring drain surface biofilms in fresh water urban streams were found to be significant reservoirs of Enterococcus bacteria (Roberts 2012). Anderson et al. (1997) found that a large portion of Enterococcus bacteria load in urban and rural waterways came from non-human sources, including large loads from senescing algae. Urban runoff samples have been found to contain relatively higher proportions of Enterococcus mundtii and Enterococcus casseliflavus suggesting runoff sources are associated with plant species (Ferguson et al. 2013). Bacterial growth of Enterococcus casseliflavus on drain surfaces have been found to serve as a chronic low-level source of Enterococcus bacteria measurements collected in urban runoff (Ferguson et al. 2013). These studies indicate that elevated Enterococcus bacteria concentrations in water samples might be due to in-stream conditions absent of fecal contamination that lead to regrowth and not due to contributions from fecal matter. Finally, there are numerous reports concerning the high rates of false positive results from measurements in freshwater samples using the IDEXX Enterolert® method. Several factors can cause interference with the test methods resulting in the over-quantification of Enterococcus bacteria concentrations, including suspended sediment in the water (Hartel et al. 2006). Other bacteria types (Vibrio, Shewanella, Bacteroides and Clostridium) have also been found to be enumerated as Enterococcus bacteria with the method (Sercu et al. 2010). Analytical tests for Enterococcus bacteria concentrations measure all species of the genus Enterococcus (i.e., cultural incubation methods, like the IDEXX Enterolert® or membrane filter methods). The composition of Enterococcus species show much more diversity than fecal wastes from human sources (Ahmed et al. 2005). It remains unknown how environmentally adapted strains relate to enteric enterococci targeted by current fecal indicator monitoring strategies. Therefore, characterization of enterococci from such extra-enteric habitats is needed to assess their genomic distinctiveness and potential for confounding the interpretation of microbial water quality assessments.

Response: This comment again confuses the issue at hand, which is that the purpose of a TMDL is to develop a pollutant budget and describe how pollutant loads coming from various sources must be reduced in order to meet and ultimately maintain water quality standards. This TMDL applies multiple lines of evidence to make sound scientific conclusions regarding the sources of pathogenic pollution in the Russian River Watershed and the controls necessary to comply with the fecal waste discharge prohibition, which is necessary to restore, maintain, and protect beneficial uses of water and public health. This TMDL does not rely solely upon enterococcus to reach any of these conclusions. The further refined characterization of enterococci may be considered during development of future monitoring plans but will not change the need for timely control of pathogenic pollutant sources already identified within the Russian

River Watershed. Please see also response to Comment RRWPC-6 and OWTS-RRR-12.

Comment OWTS-RRR - 19: *Our compromise proposal supports the TMDL's plan of inventorying, inspecting, monitoring OWTS along REC-1 waters, requiring replacement or upgrades of failing OWTS and testing for septic contribution to swimmer health risk, and has a clear endpoint. As we stated at the outset, we object only to one portion of the TMDL: the imposition on River residents of the obligation to spend $80-$112 million on OWTS changes whether or not a system is failing and whether or not OWTS are shown to be contributing to dangerous REC-1 conditions. We support the other OWTS-related provisions, such as mandatory inventorying, mandatory periodic inspections and mandatory OWTS changes for a system which is failing or a subarea which is shown to be contributing to dangerous REC-1 conditions. We have therefore proposed a compromise plan which carries out these requirements in perpetuity, irrespective of 303(d) listing status—and gives the staff an additional five years to finally conduct the tests for OWTS sourcing that should precede any mandatory changes. Our proposal was presented to the staff on September 14, 2021. Regional Board staff has refused to consider any changes based on our compromise proposal, on the ground that it would delay adoption at the Board's December 2021 meeting. There is no looming deadline or processing requirement that requires the Board to take final action at that meeting. We urge the Board to direct the staff to reschedule final action to allow development of a compromise proposal. The proposal is as follows:*

OWTS-RRR compromise proposal

Note: this proposal relates only to the OWTS portion of the TMDL. All non-OWTS provisions proceed as drafted.

Topic	***Proposal***
APMP Area	*Same as the existing TMDL draft. Subdivide the APMP Area into (i) locations within the defined distance of a REC-1 waterbody which is impaired for E. coli under the SWB listing policy (Area A) and (ii) locations within the defined distance of a REC-1 waterbody which is not so impaired (Area B). In the case of the Russian River, the waterbody is measured reach by reach. In saline waters, substitute enterococci for E. coli.* *Note: REC-1 waterbodies are waterbodies for which material REC-1 beneficial use has been established, and do not include tributaries or other waterbodies for which such use has not been established. STV measurements on basin-flush days are disregarded for impairment purposes.*

Topic	***Proposal***
Basis of 303(d) listing	*Area A: E. coli exceedances above the listing criteria under the SWB listing policy.* *Area B: special-purpose 5-year extension of 2002 fecal coliform listing to enable inventorying of OWTS and sampling and analysis of Area B REC-1 waterbodies, including the Russian River.*
Inventory	*Existing OWTS in the entire APMP Area are inventoried.*
Inspection	*OWTS in the APMP Area are inspected for evidence of surfacing by a licensed professional every 5 years. Licensed professionals include registered civil engineers, registered environmental health specialists, licensed septic system contractors and certified septic pumpers. If OWTS is in a septic management district, inspection is as determined by the district.* *The inspection provisions are built into the Sonoma County LAMP/OWTS Manual, as approved by the NCRWQCB, so they apply permanently to the entire APMP Area.*
Remediation triggers	*Area A:* • *OWTS discharging to the surface* • *OWTS doesn't have a septic tank and dispersal system complying with LAMP* • *OWTS projected flow exceeds system capacity* *(as in existing draft TMDL)* *Area B:* • *OWTS discharging to the surface*
Required action if remediation is triggered	*OWTS in Area A meets an Area A remediation trigger: a replacement system compliant with LAMP within 15 years (20 if a community solution being pursued).* *Surface discharge, Area A or B: prompt steps to stop surface discharge. Solutions allowed on a flexible basis.*
Water quality monitoring	*REC-1 waterbodies in the APMP Area are monitored for E. coli (enterococci in saline waters). If a reach of an Area B REC-1 waterbody exceeds geomean impairment thresholds for two consecutive years, it automatically moves to Area A.* *In addition, if tests for household-source OWTS effluent show that OWTS septage in a sub-area of Area B is causing health-endangering pollution of a REC-1 waterbody for two consecutive years and the source cannot be traced to one or more individual failing system, that sub-area moves from Area B to Area A.*

Topic	***Proposal***
Objective of TMDL, Delisting	*Area A: delisting when E. coli exceedances are reduced to or below de-listing criteria under the SWB listing policy.* *Area B: inventory, sampling and analysis over the 5-year special-purpose extension of the 2002 fecal coliform listing. If a sub-area has not been transferred to Area A within this period, it is delisted.*

Response: Regional Board staff met with the commenters to discuss their proposed changes to the OWTS requirements of the TMDL Action Plan on September 8 and September 20, 2021, and staff have considered carefully the commenter's proposed changes. Contrary to the commenter's assertion, the grounds upon which staff reject the proposed changes to the TMDL are not in any way based upon theoretic delays to the process. Staff do not, however, recommend any changes to the proposed OWTS requirements in the TMDL Action Plan because staff do not concur with either the commenter's definitions or interpretation of existing and proposed regulation or policy, nor does staff believe that the proposed relaxation of requirements leads to adequate protection of water quality.

The commenter continues to confuse the 303(d) process and Listing Policy with development of a TMDL and Action Plan and seems also to confound within the statements made, the requirements under the statewide OWTS Policy as well as those under the Basin Plan. To be clear, the statewide Listing Policy has no direct legal or regulatory bearing on the extent of the APMP. The statewide OWTS Policy specifically carves out its application for the Russian River Watershed in anticipation of this TMDL. So, while the OWTS Policy speaks to APMP criterion in general, the basis for the geographic extent of the APMP for the Russian River Watershed is established under this TMDL. Conversely the TMDL does not establish the extent of REC-1 use in the Russian River Watershed. The definition of REC-1 waterbodies is already firmly established in Basin Plan regulations and includes the whole of the Russian River Watershed, both mainstem and tributary reaches. Therefore, the TMDL applies to both mainstem and tributary reaches. Also established in the Basin Plan, since 1974, is the prohibition against the use of cesspools for onsite waste treatment and disposal across the North Coast Region, including the Russian River Watershed. Any suggestion that cesspools would now be authorized is untenable.

The APMP boundary defined within this TMDL is a scientifically-based policy decision to limit implementation actions to the areas that are at highest risk for fecal waste discharge from OWTS. The proposed APMP boundary for the Russian River Watershed consists of parcels that are at least partially within 600 linear feet from the centerline in the horizontal (map) direction on either side of blueline steams depicted on the USGS 1:100,000 scale topographic map and parcels that are at least partially within 200 linear feet of the centerline of waterways derived using LIDAR datasets in 10 of the 43 HUC-12 subwatersheds in the larger Russian River Watershed.. The 2020 Technical Report identifies exceedances of *E. coli* in all of the 10 HUC-12 subwatersheds proposed for inclusion in the APMP boundary. The TMDL Action Plan calls for inspections every five

years for those OWTS on parcels within the APMP boundary. The Action Plan does not require an inspection of all OWTS within the entirety of the HUC-12 identified under APMP area. The 600 foot and 200 foot distances from streams under which APMP requirements apply, segregate and prioritize OWTS in the APMP by use of defined distances from surface waters to areas of intermittent vs. consistent flow regimes, which also aligns with higher and lower frequency REC-1 use. The provisions within the APMP allow OWTS owners ample time for inspection (five years) and, if needed, allows 15-20 years for corrective action.

Though staff do not intend to disregard the areas of disagreement with regard to corrective actions, staff do appreciate the commenters support for “prompt steps to stop surface discharge”, which staff also support. Costs associated with OWTS upgrades will not necessarily be borne by every OWTS owner in the APMP as the commenter’s estimate suggests. Rather, owners of well maintained, compliant OWTS will be subject only to costs associated with inspection once every five years. Owners of OWTS who have deferred maintenance and/or operate systems which are substandard, failing, or overloaded will have time and options under which to affect compliance. The Regional Water Board staff continues to work hard to identify grants and other funding sources that will alleviate some of the cost burdens. These efforts will continue as TMDL implementation progresses.

Staff rejects the following assumptions incorporated within the commenter’s comment: that 1) the technical basis and process for establishing the geographic area of the APMP are seriously flawed and that 2) the minimum requirements in the APMP for replacing failing, substandard, and overloaded OWTS should be relaxed because the commenter does not agree that these OWTS pose a threat to water quality. The rationale for the boundaries of the APMP and why minimum requirements for replacement OWTS apply to all OWTS within the APMP based on their distance from the nearest waterbody that could carry human pathogens to the Russian River mainstem are thoroughly described in section 9.2.7 of the Staff Report. These APMP requirements were developed by Staff to ensure that all OWTS in the APMP area are properly designed, operated, and maintained to provide adequate removal of pathogenic organisms from domestic wastewater discharged to OWTS. The same rationale for designating the boundaries of the APMP, as well as the OWTS requirements that apply, were considered by the Regional Water Board when it approved the TMDL Action Plan in August 2019. Staff believes the requirements established for the APMP will appropriately and effectively assess and prioritize repairs and replacement of OWTS that pose a threat to water quality. Further, as stated previously, it is important to recognize that implementation of the Statewide OWTS Policy has been delayed for the Russian River watershed in anticipation of this TMDL since the statewide OWTS Policy was adopted by the State Water Board in 2012. This TMDL, now proposed for re-adoption, does not impose new OWTS reform, nor add to the requirements of the statewide policy, but rather implements OWTS Policy requirements and simply narrows investigation for compliance to 10 out of 43 HUC-12 subwatersheds as a scientifically based policy, which effectively focuses limited resources available to achieve OWTS compliance and pathogenic source control for that program.

Staff also appreciate the commenters suggestions regarding water quality monitoring during implementation of the TMDL. These suggestions will be considered as future monitoring programs are planned and established in the Russian River Watershed.

Ultimately, it seems that the commenter seeks relief from APMP requirements for inspection and corrective action and wrongly assumes that a path to that end would be delisting. Please be clear that delisting is a 303(d) process. The 303(d) process has already triggered development of this TMDL, a TMDL which relies upon scientifically defensible watershed studies. Compliance with the TMDL Action Plan requires implementation of the actions deemed necessary and appropriate to control all controllable pathogenic sources including OWTS, not just attainment of standards. Both progress towards properly designed, operated, and maintained OWTS and attainment of standards are important and must be achieved before reconsideration of an adopted TMDL would be appropriate.

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