SAWPA

Santa Ana Watershed Project Authority

Over 50 Years of Innovation, Vision, and Watershed Leadership

February 6, 2024

Dr. Stephen Weisberg
Executive Director
Southern California Coastal Water Research Project
3535 Harbor Blvd., Suite 110
Costa Mesa, California 92626
stevew@sccwrp.org

SUBJECT: Evaluation of Manuscript: *Assessing the Influence of Salinization on Aquatic Life in Santa Ana Region Wadeable Streams*

Dear Dr. Weisberg:

The following comments are submitted on behalf of the Basin Monitoring Program Task Force (BMPTF). The Santa Ana Watershed Project Authority (SAWPA), the Santa Ana Regional Water Quality Control Board (Santa Ana Water Board) and various water and wastewater agencies formed the BMPTF in 2005. The BMPTF is now composed of 20 water agencies (see list in Table 1 below) located within the Santa Ana River Watershed (Santa Ana Region). The BMPTF, and its member agencies, implements the Santa Ana Region's Total Dissolved Solids and Nitrogen Management Program – including a regional water quality monitoring program that has been approved by the Santa Ana Water Board. The BMPTF is responsible for preparing and submitting the Annual Report of Santa Ana River Water Quality and the Triennial Ambient Water Quality Update (for groundwater) to the Santa Ana Water Board. Moreover, the BMPTF conducts special studies and evaluates the impact of salinity throughout the Santa Ana Region. As such, the BMPTF has a deep understanding of salinity, its sources, and its impacts, on key surface waters located within the Santa Ana Region. Accordingly, we submit the following comments on Southern California Coastal Water Research Project's (SCCWRP) draft manuscript, *Assessing the Influence of Salinization on Aquatic Life in Santa Ana Region Wadeable Streams* (Draft Manuscript).

As a preliminary matter, we appreciate SCCWRP's efforts to engage with the BMPTF regarding the Draft Manuscript and the additional time provided to the BMPTF to share our comments. However, as conveyed previously, the BMPTF and its member agencies have significant concerns with the Draft Manuscript on a policy level as well as on a technical level. Because of these concerns, and concerns expressed by others, the BMPTF recommends that SCCWRP refrain from publishing the Draft Manuscript. In the alternative, SSCRWP should engage with local experts that understand the importance of salinity issues throughout the Santa Ana Region and work with them to identify a proper scope and review for evaluating ionic concentrations associated with protecting aquatic life beneficial uses. Or, at the very least, the Draft Manuscript must be substantially revised to remove all references related to policy implications and address the technical deficiencies identified below and in the attached Technical Memorandum from WSP. Further, the Draft Manuscript, if published, needs to be revised to clarify that it

puts forward a novel approach for deriving numeric thresholds for salinization based on biological response but that the approach contained in the Draft Manuscript is not appropriate for identifying regulatory endpoints. This is particularly important so that the numeric thresholds identified in the Draft Manuscript are not used inappropriately and out of context by others.

Table 1: BMPTF Water Agency Members

Beaumont Cherry Valley Water District	Elsinore Valley Municipal Water District
Chino Basin Watermaster	Inland Empire Utilities Agency
City of Banning	Irvine Ranch Water District
City of Beaumont	Jurupa Community Services District
City of Corona	Orange County Water District
City of Redlands	San Bernardino Valley Municipal Water District
City of Rialto	San Gorgonio Pass Water Agency
City of Riverside	Temescal Valley Water District
Colton/San Bernardino Regional Tertiary Treatment and Wastewater Reclamation	Western Riverside Co Regional Wastewater Authority/Western Municipal Water District
Eastern Municipal Water District	Yucaipa Valley Water District

Note: The Santa Ana Water Board is also a non-funding task force member.

I. The Draft Manuscript Must Be Revised to Remove All Policy Implications

The BMPTF supports SAWPA's comments on the larger policy implications associated with the Draft Manuscript that were submitted on September 14, 2023. No other region in California, and arguably the United States, has a more robust program for managing salt than the Santa Ana Region. Salt management is key to protecting and balancing the region's multiple beneficial uses, which include groundwater recharge for municipal uses, agricultural and landscape irrigation, and the protection of aquatic life. To balance these multiple, and sometimes competing, beneficial uses, it is important that thresholds for protection consider all the uses and not just one single beneficial use.

However, rather than looking at the Santa Ana Region in its entirety, the Draft Manuscript appears to call into question the Region's use and reliance on recycled water and imported Colorado River water. Its basis for doing so is the need to meet biological condition thresholds to protect aquatic life. Unfortunately, such statements are short-sighted and suggest that recycled and Colorado River water should not be used as water resources in the region if they would result in the Draft Manuscript's biological indicators being exceeded. Such inferences are impractical and need to be removed from the Draft Manuscript.

Further, the Draft Manuscript puts forward numeric thresholds from models for salinization and suggests that such thresholds are appropriate to be used by water resource managers and that they "compliment"

the water quality objectives in the Water Quality Control Plan for the Santa Ana Region (Basin Plan). Throughout the Draft Manuscript, there are multiple references to "managers" and how they should use, or consider using, the thresholds contained therein. For example, one of the conclusions of the study is that "[t]hese thresholds may be used by monitoring or management programs to identify streams at risk, prioritize sites for protection, and improve casual assessments." (Draft Manuscript, p. iii.) These are value judgment statements that need to be removed from the Draft Manuscript for several reasons.

First, such comments and conclusions are inappropriate because it suggests that by virtue of derivation and calculation of the thresholds in this Draft Manuscript that they hold some regulatory significance, which is not true. The Santa Ana Water Board is the agency with primary authority for protecting water quality in the region's surface waters this includes identifying and determining what numeric thresholds may be necessary to protect aquatic life beneficial uses. When performing this function, the Santa Ana Water Board must follow the Porter-Cologne Water Quality Control Act (Porter-Cologne) and the Clean Water Act (CWA).

Under Porter-Cologne, the Santa Ana Water Board is tasked with setting water quality objectives, which are the limits or levels of water quality constituents or characteristics that are "established for the reasonable protection of beneficial uses of water …."[1] When adopting water quality objectives, regional boards are required to consider a number of factors, including but not limited to, economic considerations, water quality conditions that could reasonably be achieved through control of all factors and the need to develop and use recycled water.[2] Further, regional boards are required regulate activities to attain the highest water quality that is *reasonable*, "considering all demands being made and to be made on those waters and the total values involved, beneficial and detrimental, economic and social, tangible and intangible."[3] In other words, before water quality based thresholds are used for regulatory purposes, or in this case are used by "managers" to make decisions, they need to undergo careful consideration and scrutiny that considers multiple factors. Until such a process occurs, it is inappropriate for the Draft Manuscript to suggest that the numeric thresholds are appropriate for any purpose or use.

Second, the individual ion and salinity water quality objectives in the Basin Plan, as noted in the Draft Manuscript, were developed with data to characterize baseline conditions, or alternatively, non-degradation targets. (Draft Manuscript, p. 4.) This means that they are not "use based" objectives but reflections of ambient water quality conditions – regardless of the uses. Under the CWA, water quality standards are to be set to protect beneficial uses and maintain high quality waters as they existed when the CWA was adopted in 1972. It does not require water quality to meet natural background levels. In comparison, the Draft Manuscript puts forward a reference condition approach and attempts to recreate natural background levels through models. (See, e.g., Draft Manuscript, p. 1.) While the U.S.

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[1] Water Code, § 13050(h).
[2] Water Code, § 13241.
[3] Water Code, § 13000.

Environmental Protection Agency recognizes reference condition approaches for setting water quality criteria, it is not the only approach for determining appropriate criteria for protecting beneficial uses. The primary authority for deciding what approach is appropriate resides with the Santa Ana Water Board. However, as explained, the Santa Ana Water Board works cooperatively with the BMPTF to manage salinity throughout the Santa Ana Region. Thus, if determined necessary by the Santa Ana Water Board, the development of water quality criteria for the protection of aquatic life beneficial uses should be implemented through a cooperative process between the Santa Ana Water Board, the BMPTF and other stakeholders. Judgments as to the appropriate approach should then be made in that collaborative process rather than in a Draft Manuscript.

Third, as discussed in Section II below, there are significant questions regarding the numeric thresholds and how they were derived. However, rather than subjecting the numeric thresholds and the Draft Manuscript to further technical review, the Draft Manuscript concludes that the thresholds from the models are appropriate for identifying where salinization is likely posing a risk. (Draft Manuscript, p. 75.) Such statements have real-world implications. Often, published numeric thresholds such as the ones proposed in the Draft Manuscript are used as surrogate water quality criteria to interpret narrative water quality objectives. This means that regardless of the authors' intent with respect to publication of the work conducted, the State Water Resources Control Board and other Regional Water Boards could use these numeric values as if they are in fact water quality criteria for protecting aquatic life. Considering the implications of such actions, publication of numeric thresholds should only occur after being subject to a thorough and proper review process that includes multiple stakeholders and technical experts. It is our understanding that outside of seeking input from the BMPTF and others in the Santa Ana Region, SCCWRP does not plan to subject the Draft Manuscript to further review and comment.

At most, the Draft Manuscript has put forward a novel approach for deriving numeric thresholds. Until further reviewed, evaluated, and verified, this novel approach and the resulting numeric thresholds should be limited as being informational only. In other words, they should not be used to make water resource management or water quality regulatory decisions, and the Draft Manuscript should include such caveats accordingly.

II. The Draft Manuscript Contains Significant Technical Issues that Must Be Addressed Before Publication references

The BMPTF retained John Rudolph, a Senior Aquatic Biologist at WSP, to review the Draft Manuscript. Mr. Rudolph is well known for his expertise in this field, and he has been an active participant in the State Water Board's biological objectives process led in part by SCCWRP. A Technical Memorandum with Mr. Rudolph's findings is attached hereto. The Technical Comments provided here are in addition to the comments already provided by SAWPA and others and are not intended to be repetitive. Overall, Mr. Rudolph found that the issues he identified deal with underlying assumptions for the natural background salinity modeling, which could substantially influence the model output used to set salinity thresholds. In

other words, these underlying assumptions must be addressed before the Draft Manuscript is finalized and published. We provide a brief summary of his findings.

- Use of the Meador-Carlisle (2007) study as the basis for applying the results of the Draft Manuscript to fish is weak.
- The Draft Manuscript makes inconsistent statements with respect to how duplicate water quality data was handled.
- The Draft Manuscript uses more restrictive reference criteria for identifying reference sites than has otherwise been used in California through Ode (2016), which results in more streams exceeding the expected salinity levels that may otherwise exist in appropriate reference streams.
- Considering that ion composition varies from region to region, it would be more appropriate to use a California specific model that captures geographic, geologic, and ionic diversity within the state rather than a national dataset.
- Table 13 sets hypothetical salinity goals whereby a stream could be considered to not meet a salinity objective even though the benthic invertebrate or periphyton community is considered to be similar to reference.
- The Draft Manuscript includes contradictory message points in that it concludes that elevated ionic concentrations are pervasive (p. 88) even though most sites meet the restrictive numeric thresholds derived in the Draft Manuscript.

Considering the underlying technical issues, the Draft Manuscript must be substantially revised.

III. The BMPTF is a Key Partner for Salinity Management in the Santa Ana Region

As conveyed in the SAWPA comments, the Draft Manuscript's implied judgments with respect to recycled water and the use of Colorado River water fail to recognize the long-standing salt management efforts that are implemented throughout the Santa Ana Region. For decades, water and wastewater agencies in the Santa Ana Region have worked cooperatively and collectively to manage salt in the regions surface waters and groundwaters. The BMPTF works with local agencies along with the Santa Ana Water Board to implement the region's TDS and Nitrogen Management Plan and comply with the State Water Board's Recycled Water Policy. For example, implementation of the TDS/Nitrogen Management Plan includes the development of and periodic updates to wasteload allocations that are imposed on publicly owned treatment works (POTWs) that discharge treated wastewater to the Santa Ana River and its tributaries. Wasteload allocations are set at levels necessary to ensure compliance with Basin Plan objectives adopted in 2004 that were based on historical ambient water quality conditions. Dischargers may be authorized to discharge at levels that exceed the ambient water quality conditions but only if they can demonstrate that doing so involves the implementation of projects that are to the maximum benefit to the people of the State and that beneficial uses are protected. This long-standing process has protected Santa Ana River beneficial uses for years and will continue to do so for many years

to come. With respect to the State Water Board's Recycled Water Policy, the Santa Ana Region has been the model for salt and nitrogen management plans required under the Policy. Yet, despite leading the way on salt and nitrogen management, the Draft Manuscript makes general value judgments on recycled water use and imported water without recognizing the careful thought and process that goes into the permitting of every recycled water project proposed within the Santa Ana Region.

Moreover, considering the leadership role that the BMPTF has played with respect to salinity management in the Santa Ana Region, we encourage SCCWRP to seek input from the BMPTF and its members when conducting studies like the one documented in the Draft Manuscript. The BMPTF as a whole and its members have a deep understanding of salinity management and impacts in the Santa Ana Region and an appreciation for the need to protect, manage and balance all beneficial uses in the region.

In summary, for the reasons expressed above, the BMPTF finds that the Draft Manuscript in its current form should not be published. In the event that SCCWRP decides to publish a revised version, we respectfully request that SCCWRP meet with the BMPTF again to explain what changes were made in response to comments proved. If you have questions on the BMPTF's comments, SCCWRP staff can contact me at rgray@sawpa.gov or (951) 354-4242. Again, we appreciate the opportunity to provide comments.

Sincerely,

Rachel M. Gray
Water Resources and Planning Manager

Cc: Jayne Joy, Santa Ana Water Board Executive Officer
Eric Lindberg, Santa Ana Water Board Assistant Executive Officer
Cindy Li, Santa Ana Water Board Senior Engineering Geologist

Attachment:

Technical Memorandum – John Rudolph, WSP