Tentative Investigative Order (R9-2019-0007)
Response to Comments

The purpose of Tentative Investigative Order R9-2019-0007 (Order) is to assess the condition of the Santa Margarita River Estuary (Estuary) and to evaluate the linkage between the nutrient loading trends resulting from implementation actions by the Cities of Murrieta, Temecula, and Wildomar, the Counties of San Diego and Riverside, the United States Marine Corps Base Camp Pendleton (Camp Pendleton), and the Riverside Flood Control and Water Conservation District (District) (collectively referred to hereafter as Dischargers) and the restoration of the water quality and beneficial uses in the Estuary.

The San Diego Water Board provided a 30-day public comment period on the Order on October 9, 2018. In response to a request from Riverside County Phase I municipal separate storm sewer systems (MS4) Copermittees, the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) extended the comment period for an additional seven days. The San Diego Water Board also held two phone conferences with the Dischargers' representatives to review the monitoring requirements in the Order and identify opportunities to streamline requirements while still addressing overarching questions on nutrient loading trends in the Estuary. During the public comment period, which ended on November 15, 2018, eight comment letters were received and considered in the development of the revised Order. Below are responses to the major issues identified in the comment letters received.

1. Comments from NAVY Space and Naval Warfare Systems Command – Systems Center Pacific (SSCPAC)[1], the District[2], and Camp Pendleton regarding re-surfacing groundwater monitoring.

Comment 1(a)
District:

First, with respect to Resurfacing Groundwater monitoring, the [Riverside County Phase I MS4] Co-Permittees suggest that since [Camp Pendleton] would be carrying out such monitoring, it should be able to select the applicable standard methods.

Comment 1(b)
SSCPAC:

Under Resurfacing Groundwater Discharge Rates and [total nitrogen] and [total phosphorus] loading into Estuary, and duration of time/frame- states "as needed" but under frequency states "yearly"
- It is not clear what this means or how this is triggered. What are the criteria to determine "as needed"?
- No additional clarification is provided under section b.i.
- Suggested time frame (before growth season/after growth season/during) would be helpful
If it is condition driven then what are the primary indicators to signal unsatisfactory, need to sample?

[1]SSCPAC commenting on behalf of USMC Base Camp Pendleton.
[2]The District submitted comments on behalf of the County of Riverside and the Cities of Menifee, Murrieta, Temecula, and Wildomar.

Comment 1(c)
Camp Pendleton:

Resurfacing groundwater is associated with the Stuart Mesa Agricultural Fields discharge and not the Santa Margarita Valley Basin. Clarify that Santa Margarita Groundwater Basin means water watershed groundwater input to the estuary. Recommend monitoring shallow aquifer groundwater via established monitoring wells to assess watershed groundwater.

Response to Comment 1(a)

No change has been made to the Order or to Appendix C in response to this comment because the San Diego Water Board did not specify an "applicable standard methodology" that must be used by Camp Pendleton to monitor resurfacing groundwater discharge rates. Camp Pendleton may select the any appropriate method for groundwater monitoring with the understanding that groundwater work should be led by a professional geologist. As stated in Provision 8.b. of the Order, the lead professional performing engineering and geologic evaluations and judgments must sign and affix their professional geologist or civil engineering registration stamp to all technical reports, plans or documents submitted to the San Diego Water Board.

Response to Comment 1(b)

The monitoring time frame for groundwater resurfacing discharge rates should be conducted during summer and winter dry-weather when resurfacing groundwater nutrient loading into the Estuary can have the greatest impact on the development of eutrophic conditions. The San Diego Water Board will be available to discuss the details of any proposed Monitoring and Assessment Workplan (Workplan) for resurfacing groundwater that can efficiently address the questions listed under Directive 1.b.i, while producing scientifically defensible information.

Response to Comment 1(c)
Comment noted. Clarification added.

2. Response to comments by SSCPAC and The District regarding duration of Estuary dissolved oxygen monitoring.

Comment 2(a)
SSCPAC:

Section [b.ii.b] states "…Continuous year-round monitoring (at 15-minute intervals) must occur at two sites (adjacent to I-5 bridge and Stuart Mesa bridge) and at depths adequate to determine adequate attainment…"

Requesting continuous year monitoring yet isn't data requirement to show compliance during critical growth season (April to October)?

How will yearly data be applied/ considered as it relates to critical growth season.
- What is criteria in determining "adequate depths"?
- I5 and [Stuart Mesa Bridge] locations break up estuary, however depths are typically deeper then rest of estuary, yet for long term monitoring those areas are practical location.
- See previous comments /concerns regarding interval of sampling
- Potential for adaptive management- how will the potential use be triggered to utilize best science

Comment 2(b)
District:

Second, concerning Estuary surface monitoring, monitoring of dissolved oxygen ("DO"), temperature, pH, salinity/conductivity and water depth should be conducted on a continuous basis only during the April-October dry weather period, with periodic sampling to be conducted during November-March during the first year, with further wet weather to be determined as needed.

Response to Comments 2(a) and 2(b)

The secondary dissolved oxygen numeric target (7-day average of daily minimum measurements ≥5.0 mg/L) is based on section 3.2 of the *Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List* (Policy). Estuary dissolved oxygen monitoring for either target should be conducted for a minimum of 26 weeks to be consistent the Policy's binomial test requirements for delisting a waterbody (see Table 4.2 of Policy). In addition, monitoring of dissolved oxygen in the winter months, beyond the April to October period, is necessary because eutrophic conditions can occur during winter dry-weather conditions as shown in the latest continuous data series collected by NAVY SCCPAC.[3]

To measure attainment of the primary dissolved numeric target (5.0 mg/L), continuous monitoring probes should be placed at a depth sufficient to ensure that the probes remain submerged during all tidal conditions. Measurements should also be taken at least one foot below the surface to ensure the probe is measuring the water column and not the higher-oxygenated water immediately at the water's surface (which is caused by water mixing with the atmosphere and by higher light levels at the water's surface allowing for higher photosynthesis than in the water column). Field methods for measurement of dissolved oxygen in the water column must adhere to protocols employed by the Southern California Coastal Water Research Project's Bight Regional Monitoring Program.

The proposed dissolved oxygen monitoring Workplan will be evaluated to determine if monitoring methods will yield information to determine if dissolved oxygen in the water column is protective of the most sensitive beneficial use (SPWN). At the present, the current dissolved oxygen Water Quality Objective (WQO) is what the San Diego Water Board relies upon to determine whether dissolved oxygen concentrations can support aquatic life beneficial uses in Estuary. Should new scientifically sound information about dissolved oxygen requirements for aquatic life beneficial uses in the Santa Margarita Estuary become available, the results may be considered for site specific WQOs (SSOs). An SSO requires a Basin Plan Amendment.

3. Comment by SSCPAC regarding monitoring in the River under intermittent flow conditions.

Comment 3

Appendix c, Table 1
Under Santa Margarita River water flow, temperature, conductivity, dissolved oxygen, pH, benthic algal biomass, ash free dry mass, chlorophyll a, shading canopy, and ambient [total nitrogen] and [total phosphorus] concentrations.
- Both location and frequency columns. Sites selected on map and monthly sampling during critical growth frame may not be feasible based on water flow.
***-** What is expectation under these conditions?*

[3] SSCPAC. (NAVY Space and Naval Warfare Systems Command – Systems Center Pacific). 2018. Technical Report 3125. Santa Margarita Estuary Water Quality Monitoring Data. Chuck Katz, Ignacio Rivera-Duarte, Kara Sorenson, and Bart Chadwick. SSC Pacific. San Diego, CA 92152-5001.

Response to Comment 3

The stream monitoring should be conducted in accordance to the guidelines provided the *Standard Operating Procedures (SOP) for the collection of field data for bioassessments of California wadable streams: benthic macroinvertebrates, algae, and physical habitat (Bioassessment SOP)*.[4]

The monitoring location chosen should have flow conditions that best represent the entire river segment in which it is located and loading to the estuary from that river segment. The San Diego Water Board will be available to discuss the details of any proposed Workplan for monitoring and assessment of River conditions that can efficiently address the questions listed under Directive 1.b.ii, while producing scientifically defensible information.

4. Comment by Camp Pendleton, Stetson Engineers[5], and the Sierra Club regarding exclusion of Caltrans from Order.

Comment 4(a)
Camp Pendleton:

Stakeholders were not aware of the decision to classify Caltrans as not subject to the Order and TMDL. While Caltrans may have a small land footprint in the watershed, road surfaces on their property are impervious and potentially generate a lot of stormwater runoff. Caltrans may also use pesticides/herbicides to control vegetation growth. Therefore, the potential for contaminated runoff from Caltrans properties to drainages may be significant. Caltrans should be required to help support estuary compliance monitoring and assessment along with other stakeholders until they can demonstrate that their contribution in the watershed is minimal.

Comment 4(b)
Stetson Engineers:

CALTRANS is not included as a named party in this [Investigative Order]. They had been named in the previous [Investigative Order] that led to the data collection and modeling for the TMDL. We are not sure why they are not included here.

Comment 4(c)
Sierra Club:

Finally, why is Cal-Trans exempt from testing?

Response to comments 4(a), 4(b) and 4(c)

As stated in finding 17 of the Order, Caltrans is not subject to the Order because its overall land footprint in the Santa Margarita River watershed is very small (0.2 percent of total Watershed area, see peer-reviewed Staff Report Table 3), Caltrans has affirmed that it does not use fertilizers, and monitoring has shown that Caltrans has very little nutrient discharge from monitored sites.[6]

[4] Ode, P.R., Fetscher, A.E., Busse, L.B., 2016, Standard Operating Procedures (SOP) for the Collection of Field Data for Bioassessments of California Wadeable Streams: Benthic Macroinvertebrates, Algae, and Physical Habitat, SWAMP-SOP-SB-2016-0001, http://www.waterboards.ca.gov/swamp.

[5] Stetson Engineers Inc., commenting on behalf of USMC Base Camp Pendleton.

[6] Based on information provided via e-mail by Carl Savage of Caltrans to Cynthia Gorham of the San Diego Water Board on June 2018 and a phone conference with Hiram Sarabia of the San Diego Water Board on February 12, 2019.

Caltrans will continue to provide monitoring results for Rainbow Creek to the San Diego Water Board. Caltrans is regulated by the requirements of State Water Board Order No. 2012-0011-DWQ (As amended by Orders Nos. 2014-0006-EXEC, 2014-0077-DWQ, 2015-0036-EXEC, and 2017-0026-EXEC).

5. Comments by Camp Pendleton the District, and Stetson Engineers regarding exclusion of owners and operators of agricultural operations from the Order.

Comment 5(a)
Camp Pendleton:

Agricultural Dischargers are known to be significant contributors of nutrient loading in the watershed, yet they are not subject to the Draft Investigative Order estuary compliance monitoring and assessment requirements along with other Stakeholders (dischargers). The San Diego Water Board intends to address agricultural operations through Regional Agricultural WDRs. Therefore, Stakeholders need reassurance that agricultural dischargers will be required to take measures that will be effective in reducing agricultural nutrient loading, or will request that agricultural dischargers be subject to the Order requirements.
Recommend deleting the first line of Section 18, which states "Owners and operators of agricultural operations in the Santa Margarita River Watershed are not subject to this investigative order."

Comment 5(b)
District:

In the November 6th TAC conference call, a suggestion was made that results from monitoring conducted by non-MS4 dischargers in the watershed, such as agricultural operations, could be provided to the order recipients in order for them to address the monitoring questions. While the Riverside County Co-Permittees are not requesting that non-point source dischargers be added as parties to the TIO, we also note that obtaining monitoring information regarding such discharges would be of only limited utility, since the monitoring apparently to be conducted under the Agricultural WDRs (TIO Finding 18) is unspecified and, if in accordance with those WDRs, will be at a different frequency from that required of the MS4 operators subject to the [O]rder. Also, the [MS4] Co-Permittees have no information on what parameters would be monitored by the non-point sources.

Comment 5(c)
Stetson Engineers:

Agricultural interests are not included [in this Order] either.

Response to Comments 5(a), 5(b) and 5(c)

This statement has not been deleted, but the language in Finding 17 (previously 18) has been modified to further clarify why agricultural dischargers are not subject to the Order at this time.

Agricultural discharges in the San Diego Region are required to enroll in and are subject to San Diego Water Board Order Nos. R9-2016-0004 and R9-2016-0005 (Regionwide Agricultural WDRs). Finding 17 in the Order has been updated to state:

At this time, owners and operators of agricultural operations in the Santa Margarita River Watershed are not subject to this Order. The San Diego Water Board recognizes that more work is needed to reach full enrollment and implementation of the Regionwide WDRs in the Watershed. In 2019, the San Diego Water Board will dedicate increased staff resources to improve enrollment in and compliance with the requirements of the Regionwide Agricultural WDRs in the Watershed.

The Regionwide Agricultural WDRs include discharge prohibitions, discharge specifications, receiving water limitations, and management practice requirements for enrolled agricultural operations. These provisions are expected to result in the reduction and or elimination of total nitrogen and total phosphorus loading to surface water and groundwater from agricultural sources to the Santa Margarita River and Estuary.

Regionwide Agricultural WDRs require enrolled agricultural operations to implement monitoring of ambient Santa Margarita River water quality and ecosystem health in drainages influenced by agricultural land use ensuring that illicit agricultural discharges are detected. Third-party monitoring plans for commercial agricultural operations in the Santa Margarita Watershed, including monitoring sites in Sandia Creek and Devils Creek, have been approved by the San Diego Water Board.

The San Diego Water Board will monitor total nitrogen and total phosphorus discharges from Sandia Creek and Devils Creek into the Santa Margarita River to supplement monitoring efforts by third-party agricultural operations (who will be collecting data on the same parameters) allowing for more reliable estimation of nutrient loading from agricultural sources in high-loading drainages. The San Diego Water Board will compile and analyze those data. Monitoring data will be used to evaluate if agricultural operations should be named to this order in the future.

6. Comments by Stetson Engineers and the District regarding responsibility of Municipal Separate Stormwater Sewer System (MS4) Dischargers under the Order.

Comment 6(a)
Stetson Engineers:

Moreover, since agricultural interests and CALTRANS are not specifically named in this IO, is it to be assumed that the parties herein named (via their monitoring programs) will be expected to "confirm assumption that the implementation and enforcement of existing NPDES permits and WDRs is sufficient to bring about the necessary nutrient load reductions to restore the Estuary in accordance with the schedule provided in the Draft Staff Report" when agriculture-related loading is being addressed under a different program and CALTRANS is not included? In other words, will some of the parties involved bear responsibility to confirm that the programs of all of the parties are succeeding? Will the parties to this monitoring program be required to monitor (and model) to an extent necessary to address the Monitoring and Assessment Workplan Questions for all parties, including others not included in the SMR Nutrient Group?

Comment 6(b)
District:

The Riverside County Co-Permittees have significant concerns regarding the monitoring and assessment program outlined in the [Order] and Appendix C. The Co-Permittees are concerned with the [Order]'s placing the burden of demonstrating potential attainment of beneficial uses in the Santa Margarita River Estuary (Estuary) on the MS4 dischargers (the Co-Permittees, the County of San Diego, and [Camp Pendleton]), when modelling has demonstrated that only a small percentage of total nitrogen (TN) and total phosphorous (TP) loading into the Estuary is from MS4 discharges.

Response to Comments 6(a) and 6(b)

The Santa Margarita River Estuary (Estuary) and Santa Margarita River (River) are listed in the Clean Water Act 303(d) section list of impaired waters for eutrophication and for nutrients, which requires the State to develop and implement total maximum daily loads (TMDLs). The San Diego Water Board has been working collaboratively with the Santa Margarita River Watershed Nutrient Initiative Group (Stakeholder Group) since 2011 to develop a water quality restoration strategy for the Estuary (Estuary Project). As discussed in the *Santa Margarita River Estuary, California. Nutrients Total Maximum Daily Load Project Draft Staff Report* (Draft Staff Report) in Appendix A, this approach is sensible because after the 2006 investigative order that found widespread eutrophication, two major sources of nutrients to the Estuary have ceased (treated sewage from Camp Pendleton and groundwater dewatering from the North County Transit District) and the San Diego Water Board has issued stronger discharge requirements to MS4s and agricultural operations (Finding 16 in the Order).

The San Diego Water Board staff has worked closely and collaboratively with the Stakeholder Group with the understanding that a TMDL Basin Plan Amendment would be prepared for Board adoption if the Stakeholder strategy is not successful. MS4 stakeholders have been active participants through every step of the development of the Estuary Project. It has been clear since the beginning that a monitoring and assessment program of Estuary conditions is needed that would complement the MS4 Copermittees' Water Quality Improvement Plan implementation monitoring to determine whether the Estuary is improving in order to justify the Stakeholder strategy could serve as an alternative TMDL approach to the impairment.

While Dischargers may not contribute the largest percentage of the nutrient loading to the Estuary, the San Diego Water Board has to evaluate and manage all sources of nutrients to the Estuary. Therefore, Dischargers should conduct monitoring. The monitoring requirements in the final version of the Order were reduced and apportioned in proportion to the responsibility of the Dischargers.

In addition, the development of an investigative order as a means to integrate Camp Pendleton (a Discharger not subject to the Regionwide MS4 permit) into the necessary monitoring and assessment program was suggested and agreed to by the Stakeholder Group.

The San Diego Water Board looks forward to collaborating with the Dischargers and other stakeholders in the Santa Margarita River Watershed in the development of a restoration strategy for the River.

7. Comment by Stetson Engineers about coordination of implementation actions.

Comment 7

> *These questions [in Directive 1.a.i of the Order] may be sufficient to address whether compliance [with existing NDPES permits and WDRs] occurs, however more may be needed by the named parties to address coordinated implementation of BMPs and other activities necessary to comply.*

Response to Comment 7

The San Diego Water Board agrees that the coordinated implementation of BMPs may be required to achieve the restoration targets in the Estuary. However, implementation is beyond the scope of an investigative order. MS4 agencies are encouraged to coordinate efforts with Caltrans, third-party groups representing owners and operators of agricultural operations, and others conducting monitoring within the Santa Margarita River Watershed to obtain data necessary to address the questions listed under Directive 1 or any additional questions that may streamline or improve coordinated BMP implementation.

8. Comment by the District indicating that the Order short-circuits work with the San Diego Regional Board (Water Board) Staff on development of the Water Quality Improvement Plan (WQIP).

Comment 8

The Co-Permittees also are concerned that the [Order] short-circuits their extensive work with San Diego Regional Water Board (Water Board) staff on development of the Water Quality Improvement Plan (WQIP) for the Santa Margarita River Watershed (submitted to the Water Board on October 9, 2018), which is focused on addressing the contribution of discharges from the Co-Permittees' MS4s, with respect to the implementation of best management practices ("BMPs") intended to address the eutrophication impairments of the Estuary.

Response to Comment 8

Once the Workplan for the Order is approved, it is required to be incorporated into the monitoring program of the Santa Margarita Watershed Management Area WQIP (WQIP) through the WQIP update process by September 6, 2019. This update is in accordance with Executive Officer WQIP Acceptance Letter dated November 27, 2019, and provisions F.2 and A.4 of the Regional MS4 Permit.

The Estuary Monitoring and Assessment Program is coordinated with the implementation efforts included in the WQIP, which are focused on addressing nutrients as the Highest Priority Water Quality Condition (HPWQC) in the Watershed Management Area.

As stated in the peer-reviewed Estuary Project Draft Staff Report:

Ideally, the local municipalities will amend their Water Quality Improvement Plans1 to include an Estuary Monitoring and Assessment Program plan. If not, then the San Diego Water Board could consider other options, such as a water quality Investigative Order pursuant to Water Code section 13267 to establish an appropriately informative monitoring and assessment plan. (Appendix A, Section 1).

The Phase I MS4 Copermittees opted to not include a Monitoring and Assessment Program for the Estuary in the WQIP for the Santa Margarita River Watershed Management Area. The Copermittees are including both wet and dry weather monitoring programs in the WQIP as required under the Regional MS4 Permit. The development of an investigative order as a means to integrate Camp Pendleton (a Phase II MS4 Discharger not subject to the Phase I Regional MS4 Permit) into the necessary monitoring and assessment program was suggested and agreed to by the Stakeholder Group.

9. Proposal by the District to implement an Alternative Monitoring and Assessment Program Plan (AMAPP) through the WQIP instead of the Order.

Comment 9

Riverside County [Phase 1 MS4s] Co-Permittees propose that they, the County of San Diego and the Camp, undertake the following AMAPP as an alternative to the [Order]. The AMAPP could be implemented through the WQIP and/or as a special nutrient study. [Camp Pendleton], though not a WQIP participant, could be joined through a cooperative agreement.

Response to Comment 9

The majority of the components proposed under the AMAPP were discussed during two separate phone conferences (on November 6 and November 15, 2018) with the San Diego Water Board staff and Stakeholder Group during the public comment period. The San Diego Water Board has incorporated changes consistent with the AMAPP into Table 1 of Appendix C of the Order where appropriate.

Below is a brief comparison of the components in the AMAPP and the proposed revisions to monitoring and reporting program in the Order:

a) Resurfacing Groundwater Monitoring (Parameters) - the parameters to be measured are the same;

b) Resurfacing Groundwater Monitoring (Sites) - the number of sites in the revised Order is one, as compared to two under the AMAPP;

c) Estuary Surface Water Monitoring (Parameters) - the parameters to be measured are the same as the AMAPP, with the exception that the revised Order requires speciation of Nutrients into total and dissolved forms, measurement of chlorophyll-a, the measurement of turbidity and degree of tidal muting or influence;

d) Estuary Surface Water Monitoring (Duration) - the revised Order requires monthly sampling of chlorophyll-a between April and May and limited sampling during the winter; the sampling Order also requires limited winter sampling of total and dissolved inorganic nitrogen and phosphorus;

e) Estuary Monitoring (Macroalgal biomass monitoring requirements) - are largely the same, with the exception that the Order specifies that the method for sampling is the Bioassessment SOP;

f) Estuary Monitoring (Benthic Community Condition monitoring requirements) - are only for 4 years, as compared to 5 years in the AMAPP;

g) River Monitoring (Parameters) - the revised Order requires speciation of nutrients into total and dissolved inorganic nitrogen and phosphorus;

h) River Monitoring (Duration, flow only) - measurement of flow is monthly from May-October, and bimonthly during winter, as compared with monthly (or more frequently) from April-October; and

i) River Monitoring (Duration, all other parameters) - the revised Order requires measurement monthly from May-October, and bimonthly during winter, as compared to monthly the first year and quarterly years 2 to 5 under the AMAPP.

10. Comments by Camp Pendleton, the District, and the Sierra Club regarding the costs of the Monitoring and Assessment Program in the Order.

Comment 10(a)
Camp Pendleton:

The Estimated Implementation Costs need a disclaimer to indicate that the cost is a preliminary estimate and does not reflect the actual cost and that it is based on monitoring requirements outlined in the draft Staff Report and the Investigative Order.

Comment 10(b)
Sierra Club:

> *Draft investigative order R9-2019-0007 addresses the need for the acquisition of data to make informed decisions about the Santa Margarita watershed. However, we are concerned that the benefit of additional information is outweighed by the significant burden of cost. Five million dollars is a substantial sum of money to impose on a population of 300,000 which we believe could be better used on multi-benefit projects that improve water quality, aquifer recharge, excessive sediment transfer and erosion or reduce trash.*

Comment 10(c)
District:

> *[T]he County authorized a consultant to prepare a cost estimate, that was based on Table 15, " Example Estuary Monitoring and Assessment Guidelines" from the February 2018 Redline Version of the [Draft Staff Report] …Without necessarily agreeing that the consultant's estimates were accurate, we note that the scope of the monitoring set forth in Appendix C of the [Order] is considerably greater than in Table 15 of the February 2018 Redline [Draft Staff Report]. For example, Table 15 does not include: (a) sampling to determine resurfacing groundwater discharge rates and TN and TP loading into the Estuary; (b) April to October monthly sampling for estuary surface water total suspended solids, chlorophyll a, and turbidity and mouth conditions; (c) sampling to determine dry weather nutrient loading from Rainbow, Sandia and Devil's Creeks; and (d) April to October monthly in the Santa Margarita River for flow, temperature, conductivity, dissolved oxygen, pH, benthic algal biomass, ash free dry mass, chlorophyll-a, or shading canopy.*

Response to Comments 10(a), 10(b), and 10(c)

Monitoring of the Estuary and its watershed is needed to quantitatively assess progress towards restoration. Unfortunately, monitoring of such a large and complex system (192-acre Estuary with a 750-square mile watershed) is not inexpensive. The regional importance of the Estuary and its watershed as habitat for rare and endangered species merits resources being directed towards its restoration and protection, which must necessarily include monitoring of progress made towards restoration.

Also, the San Diego Water Board has reviewed existing monitoring efforts and has determined that those data being collected are insufficient to adequately address the questions posed in the Order. In addition, while the existence of historical data is helpful to identify hot spots of nutrient loading into the Estuary and to assess historical loading trends, those data do not allow the San Diego Water Board to track restoration of the Estuary into the future.

The San Diego Water Board derived its cost estimates based largely on information provided by the Stakeholder Group, as River monitoring and groundwater was not originally included in the estimates provided in the Draft Staff Report. In addition, the San Diego Water Board worked closely with stakeholders, including SCCWRP, to identify opportunities to streamline the monitoring requirements included in the Order while still addressing the key monitoring and assessment questions. As a result, the following changes to the monitoring and reporting requirements in the Order have been made:

- Eliminating groundwater monitoring in the Santa Margarita Valley Basin (reducing the number groundwater monitoring locations from two to one);
- Eliminated monitoring in Rainbow Creek, Sandia Creek, Devils Creek (reducing the number of river monitoring sites from six to three);

- Eliminating the requirement to conduct algal monitoring (benthic algal biomass, ash free dry mass, and chlorophyll a) as part of the river monitoring; and
- Eliminating continuous flow monitoring year round in the river (flow monitoring is required monthly from May-October and bimonthly from November to April).
- Eliminating reporting on nutrient mass loading to the River from agricultural drainages, including but not limited to Rainbow Creek, Sandia Creek, and Devil's Creek.

The San Diego Water Board also agreed that reducing the 10-year implementation time frame of the Order would be consistent with an adaptive management approach to achieve restoration of beneficial uses in the Estuary. The monitoring and assessment program established in the Order will last for 4 years, at which time the San Diego Water Board will work with the public and the Stakeholder Group to evaluate whether continuation of the monitoring and assessment program or other actions, including revision of the numeric targets in the Draft Staff Report or adoption of a TMDL, are necessary to ensure eutrophication is no longer causing impairments in the Estuary. The revised monitoring and assessment requirements represent a reduction of the estimated overall cost from $5,280,000 to $1,864,141, (an overall cost savings of almost 65 percent) and a reduction in the annual costs from $525,000 to $457,952 to be shared amongst the seven Dischargers named in the Order.

11. Comment by the District and the City of Menifee requesting exclusion of City of Menifee from Order

Comment 11(a)
The City of Menifee:

Like Caltrans, the City of Menifee comprises less than one percent of the Watershed area and is primarily regulated by a different permit, the Santa Ana Regional Board's Order No. R8-2010-0033. Since the wording of the [Order] suggests that a de minim[i]s overall land use area is the basis for not subjecting Caltrans to the [Order], Menifee is similarly situated and should also be excluded.

Comment 11(b)
District:

Riverside County Co-Permittees note that the TIO was also issued to the City of Menifee, which has less than 1.3 square miles of jurisdictional area within the Santa Margarita River Watershed Management Area. Due to the small size of Menifee's land area, the nutrient load modelling conducted as part of the nutrient Estuary TMDL process assumed no contribution from Menifee.

Response to Comments 11(a) and 11(b)

The San Diego Water Board has removed the City of Menifee from the Order given its small footprint within the Santa Margarita River Watershed (1.3 square miles) and the fact that it will participate in the Water Quality Improvement Plan implementation efforts, which are focused on addressing nutrients as the highest priority in the watershed.

12. Comment by the District regarding the nutrient numeric endpoint (NNE) targets

Comment 12

Another aspect of the incomplete nature of the [Order] process is that the [Draft Staff Report] for the Estuary Nutrients TMDL is not a final document. The NNEs set forth in the [Draft Staff Report] are proposed goals in the [Order], but these NNEs have not been adopted by the Water Board as water quality objectives in the San Diego Region Basin Plan. Because of a lack of final regulatory review for the NNEs, and the potential for changes in the NNEs as further information is obtained regarding the health of the Estuary, the Riverside County Co-Permittees believe that the NNEs should be evaluated using a weight-of-evidence approach to guide the evaluation of beneficial use protection. This would enable the Water Board and the watershed stakeholders, including the dischargers, to consider whether the NNEs should be modified to reflect new science.

We also request that in any final version of an investigative order, the Water Board make clear that there is no enforceable compliance obligation for the order recipients to meet the NNEs. At this point, these are proposed goals, but not enforceable Basin Plan Water Quality Objectives as part of the MS4 permittees' compliance obligations under the Regional Permit.

Response to Comment 12

The San Diego Water Board acknowledges that the NNEs have not been adopted as a regulation. As stated in finding 15 of the Order,

This Order relies on using the NNE approach to assess the condition of the Estuary and determine protection of the most sensitive beneficial uses (EST, MIGR, RARE, and SPWN). Although the NNE-based numeric targets have not been adopted in a formal TMDL or as a water quality objective, the NNE approach provides a scientifically-defensible methodology for interpreting the narrative biostimulatory WQO and for controlling nutrient loads to levels such that the risk of impairing the designated beneficial uses is minimized.

The San Diego Water Board also agrees that information provided through this Order as well as monitoring data obtained from other sources (e.g. the Phase I Regional MS4 Permit, the Commercial Agriculture WDRs, the Rainbow Creek TMDL monitoring) will provide valuable information that can be used to evaluate beneficial use attainment in the Estuary as well as the assumptions in the Draft Staff Report. The term of the Order was reduced from 10 years to 4 years to allow the San Diego Water Board and the stakeholders to evaluate whether continuation of the monitoring and assessment program or other actions, including revision of the numeric targets in the Draft Staff Report or adoption of a TMDL, is necessary.

13. Comment by the District regarding the missing Draft Staff Report reference.

Comment 13

The Co-Permittees note further that the [Draft Staff Report] itself is also not internally complete. For example, crucial information on the modelling of delivered [Total Nitrogen] and [Total Phosphorus] loads in Table 10 ([Draft Staff Report], page 39) is missing and a link to the study cited in the [Draft Staff Report], Butcher 2017b, was not available in the [Draft Staff Report] References in Section 15. This makes it impossible for stakeholders and the public to see what amount of [Total Nitrogen] and [Total Phosphorus], by source, actually enters the Estuary, an important fact in assessing monitoring results.

Response to Comment 13

A PDF of Butcher *et al.* 2017b is now available on the San Diego Water Board's website.[7]

14. Comments by the District expressing concern the Order does not comply with Water Code Section 13267 because the monitoring requirements and costs do not bear a reasonable relationship to the need for, or the benefits of the report.

Comment 14

[T]he cost estimate provided in the [Order] both lacks factual support and appears to underestimate the actual costs of the monitoring and assessment program… Section 13267(b)(1) also requires that the Water Board establish the "burden" of the investigative order. Because the scope of the monitoring and assessment program still was under modification as late as November 15 (see discussion in Section III.B.2 [of the comment letter]), the final scope is not known and, thus, the Water Board cannot provide to the [Order] parties an accurate metric for determining whether there is a "reasonable relationship" between a to-be-determined burden and the need for the information required by the [Order]. … [A]s outlined in Section III.A.3 [of the comment letter], the requested and expensive monitoring and assessment program set forth in the [Order] will not in fact answer all of the "monitoring questions" that the program was designed to attain. As explained above, even though the monitoring and assessment program in the [Order] is extensive, it does not, and cannot, account for the discharges of non-point sources, which comprise the overwhelming majority of nutrient loading to the Estuary. Furthermore, monitoring of the load reductions from the MS4s alone would not yield useful information on the ultimate attainment of the NNEs in the Estuary, because the assessment of attainment of the NNEs would also be complicated by unquantified nutrient loading from uncontrolled sources in the watershed. … As discussed in Section III.A.4 [of the comment letter], a number of the parameters proposed to be sampled in the [Order's] monitoring and assessment program set forth in the [Order] and Exhibit B (sic) are not necessary and would not lead to the discovery of useful information regarding the condition of the Estuary. Because of these issues, the burdens, including costs, of proposed monitoring does not bear a reasonable relationship to any benefits derived.

Response to Comment 14

The relationship of the discharges to the impairments in the Estuary, the burden of providing the required reports, including the costs, bears a reasonable relationship to the need for the reports and reasonable for the following reasons:

While the Discharger's load reductions alone may not result in the attainment of the NNEs, this monitoring will provide a metric by which the San Diego Water Board and the Stakeholder Group can verify that that the assumptions in the Draft Staff Report will achieve restoration of beneficial uses in the Estuary. Moreover, the monitoring under the Order is only one component that the San Diego Water Board is using to evaluate whether nutrient loads to the Estuary are decreasing.

Monitoring of nutrient loading will also be conducted through the Commercial Agriculture WDRs, the Phase I and II MS4 permits, and the San Diego Water Board's Surface Water Ambient Monitoring Program (SWAMP) funds. The San Diego Water Board will use the data and information from all of these programs, in conjunction with the monitoring and assessment under the Order, to confirm assumptions that the implementation and compliance with the Phase 1 MS4 Permit, Phase II MS4 Permit, and Commercial Agriculture WDRs will ultimately result in attainment of the NNEs.

[7] https://www.waterboards.ca.gov/sandiego/water_issues/programs/tmdls/santa_margarita_river_estuary.html

As discussed in the responses to comments 9 and 10, the San Diego Water Board streamlined the monitoring to reduce cost while still ensuring that monitoring questions were answered. The San Diego Water Board acknowledges the District's concern that the scope of the monitoring is insufficient to answer the monitoring questions because there is no monitoring for nutrient loads coming from nonpoint and uncontrollable sources under the Order.

However, the San Diego Water Board disagrees that there is insufficient information to answer this question. The River monitoring required by Directive 1.c. will be located at three points in the mainstem of the Santa Margarita River (one at the boundary of San Diego County, one at the boundary of Riverside County, and one at the boundary of Camp Pendleton) that are representative of upstream sources of nutrients. Dischargers subject to the Order must also monitor their dry weather nutrient loading into the River and the Estuary. Together, this monitoring data can be used to verify whether the Discharger's nutrient loads are decreasing to levels that will result in the ultimate attainment of the NNEs.

The San Diego Water Board looks forward to collaborating with the Dischargers and other stakeholders in the Santa Margarita River Watershed in the development of a restoration strategy for the River.

15. Comments by the District regarding the development of the Order.

Comment 15

Stakeholders only had a month to review the terms of the [Order] and the proposed monitoring program and the monitoring program itself is not yet final.

Response to Comment 15

Water Code Section 13267 does not require the San Diego Water Board to provide a comment period prior to issuance of an investigative order. Nevertheless, the San Diego Water Board provided a public comment period for the Order in keeping with the robust public involvement in the development of the NNE targets for the Estuary. The conference calls between San Diego Water staff and the Stakeholder Group during the public comment period was a courtesy designed to give the Stakeholder Group a forum to voice any concerns with the Order before the Order was finalized. Any revisions made to the Order after the conclusion of the public comment period have been made after careful consideration of all public comments. The monitoring program for the Order is considered "final" once a final order is issued by the San Diego Water Board.

16. Comment by the District regarding the procedure for adopting the Order.

Comment 16

The public and stakeholders need to know what process will be followed by the Water Board in adopting the [O]rder…Here, while the [Order] released on October 8, 2018 clearly indicates that it would be adopted by the San Diego Water Board itself [the Order] has a 2019 Regional Board order number and lays out findings to be adopted by the Board)

Response to Comment 16

Section 13223(a) of the Water Code authorizes regional water boards to delegate powers and duties to its Executive Officer, with certain specified exceptions inapplicable here. Section 13223(b) further states that whenever any reference in the Water Code is made to an action that may be taken by a regional board, such reference includes an action taken by the Executive Officer pursuant to his or her delegated authority. Issuance of an Investigative Order pursuant to section 13267 of the Water Code is not a nondelegable power and duty. Therefore, an investigative order issued under the signature of the Executive Officer is an action of the San Diego Water Board.

17. Comments by the District that the reporting compliance dates are unrealistic and need to be extended.

Comment 17

With respect, none of these deadlines is realistic. First, six months is not enough time for the Riverside County Co-Permittees, the County of San Diego, and the Camp to develop a workplan which meets the extensive requirements of the TIO, even if the questions to be addressed by the workplan were in fact appropriate (see discussion in Section II.A.3 above). While the Co-Permittees object to the TIO on numerous grounds, if the Water Board moves forward to issue it, the Co-Permittees request that the workplan preparation period be extended to at least nine months after order approval.

Response to Comment 17

The Dischargers named in the Order have had on-going discussions with the San Diego Water Board staff regarding the need to develop an Investigative Order to track restoration of the Estuary for over a year. The Order requires Dischargers to monitor groundwater, nutrient loading to the River, and Estuary condition. Camp Pendleton who is responsible for groundwater monitoring has conducted extensive groundwater monitoring in the past at the same location as required by the Order and has documented the work in monitoring reports. The Southern California Coastal Water Research Project (SCCWRP), has completed extensive nutrient loading monitoring work in the River and has also shared technical reports documenting the work with the Dischargers. Estuary condition monitoring work has been carried out by Camp Pendleton for years and the work including the methods employed are well documented in reports that have been shared with Dischargers for several years. Given the fact that Dischargers have known of the need to conduct monitoring under the Order and that the work needed has been conducted successfully in the past and is well documented it is reasonable to anticipate the completion of a Workplan in six months. The San Diego Water Board staff have also expressed their willingness to continue to collaborate with Dischargers during Workplan development. In addition, dischargers may seek extensions of schedule due dates with approval by the Executive Officer.

18. Sherrie Sullivan Comment 1 for Finding 4[8]

Comment 18

There are no verified records of SCS in the SMR estuary that I am aware of, there are a couple of anecdotal observations that remain unverified. If the author knows of a verified source a citation is appropriate as this is not common knowledge.

[8] Sherri Sullivan, Head of Wildlife Management Section for Marine Corps Base Camp Pendleton's Environmental Security Department. Commenting on behalf of USMC Base Camp Pendleton.

Add least Bell's vireo (Vireo bellii pusillus), occurrence in riparian in the upper estuary.

Response to Comment 18

According to the US Bureau of Reclamation Report, 2012, a wild steelhead was captured in the upper reaches of the Santa Margarita River in spring 2009. This fish would have had to travel through the Santa Margarita River Estuary to reach the upper River. The US Bureau of Reclamation prepared the Southern CA Steelhead Passage Assessment for the Lower Santa Margarita River, CA and CUP Surface Water Availability Analysis (TM1.1) April 2012 Report to identify impacts that might occur from proposed water development projects sponsored by the USBR, Camp Pendleton, and Fallbrook Public Utility District.

Oncorhynchus mykiss: "Large series of juvenile fish were taken in San Juan Creek, lower San Mateo Creek (UMMZ 132964) and the lower Santa Margarita River (UMMZ 132968) in the summer of 1939, indicating successful reproduction at that time. Anglers referred to juvenile fish in coastal lagoons as sundowners, often large numbers could be caught in coastal lagoons in the 1930s and earlier (R. Croker, pers. comm.)" from "The Status and Distribution of the Freshwater Fishes of Southern California" 1993, C, Swift, T, Haglund, M. Ruiz, and R. Fisher. Southern California Academy of Sciences.

Least Bell's Vireo will be added to Finding 4.

19. Sherrie Sullivan Comment 2 for Finding 9

Comment 19

Requires a citation, I do not believe anyone can demonstrate with the data currently available that the estuary impairment is impacting salmonid species. Recommend revising text if data is not available.

Response to Comment 19

The sentence has been changed to read:

When eutrophic conditions are present, the Estuary does not meet the WQOs for dissolved oxygen and biostimulatory substances found in the Basin Plan. Eutrophic conditions in the Estuary promote algal blooms which result in low dissolved oxygen concentrations in the water column that can cause death to sensitive rare and endangered aquatic species (see section 5 of Appendix A)

A literature review is currently being developed for water quality conditions and presence of steelhead in California estuaries to develop a synthesis report (Sandi Jacobsen, pers. comm.).

20. Sherrie Sullivan Comment 3 for Appendix C.i.c.

Comment 20

This is a lot of activity in the estuary during breeding season for tern, plover. rail and least Bell's vireo (upstream monitoring stations). Please ensure conservation measures are in place to avoid adverse impacts to these species.

Response to Comment 20
The monitoring plan should include a section on conservation measures to ensure to protect endangered birds during the breeding season.