

**State of California
Regional Water Quality Control Board
Central Coast Region**

Resolution No. R3-2020-0034

**Amendment to the Water Quality Control Plan for the Central Coastal Basin to
Adopt a Total Maximum Daily Load for Total Phosphorus to Address
Cyanobacteria Blooms in Pinto Lake and a TMDL Implementation Strategy for the
Pinto Lake Catchment**

WHEREAS, the California Regional Water Quality Control Board, Central Coast Region (hereafter Central Coast Water Board), finds that:

1. The Central Coast Water Board adopted the Water Quality Control Plan for the Central Coastal Basin (Basin Plan) on March 14, 1975. The Basin Plan designates beneficial uses and water quality objectives, implementation programs for achieving water quality objectives addressing point source and nonpoint source discharges, prohibitions, and incorporates statewide plans and policies. The Basin Plan is periodically reviewed and revised. The current Basin Plan is the June 2019 Edition. The Central Coast Water Board has determined that the Basin Plan requires further revision and amendment.
2. The Basin Plan may be amended in accordance with California Water Code (Water Code) section 13240, et seq.
3. The Central Coast Water Board has determined the Basin Plan requires further revision and amendment to incorporate a total maximum daily load (TMDL) for total phosphorus in Pinto Lake and a TMDL Implementation Plan for the Pinto Lake catchment, as identified the attached proposed Basin Plan amendment.
4. Pursuant to Water Code section 106.3(a), it is the policy of the State of California that every human being has a right to safe, clean, affordable, and accessible water adequate for human consumption. Water Code section 106.3(b) requires the Central Coast Water Board to consider how state actions impact the human right to water and creates a state policy that directs the Central Coast Water Board and other state agencies to explicitly consider the human right to water when revising, adopting, or establishing policies, regulations, and grant criteria when those policies, regulations, and grant criteria affect the human right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes.
5. The Central Coast Water Board adopted Resolution No. R3-2017-0004, resolving to continue to consider the human right to water when revising water quality control plans.

6. This proposed Basin Plan amendment promotes the state policy and Resolution No. R3-2017-0004 by establishing a total phosphorus TMDL for Pinto Lake. These lake waters are designated for protection of human health including water recreation, and municipal and domestic water supply.
7. The geographic scope of this TMDL encompasses Pinto Lake and the associated catchment drainage area including over 1,400 acres. Agriculture and residential developed areas are the current dominant land uses in the vicinity of the lake catchment. Grassland, woodlands, and wetlands are locally important land cover features of the lake catchment.
8. Pinto Lake is listed on the federal Clean Water Act section 303(d) List for water quality impairments due to cyanobacteria toxins (microcystin), chlorophyll *a*, and low dissolved oxygen. Due to the Clean Water Act section 303(d) listings, the Central Coast Water Board is required to adopt a TMDL (40 Code of Federal Regulations [CFR] sections 130.6(c)(1) and 130.7) and an associated implementation plan (Water Code section 13242).
9. The Central Coast Water Board's goal for establishing a total phosphorus TMDL for Pinto Lake and a TMDL Implementation Plan for the Pinto Lake catchment is to rectify the Clean Water Act section 303(d) impairments due to cyanobacteria toxins, algal scum and foam, chlorophyll *a*, low dissolved oxygen, un-ionized ammonia. Reductions in phosphorus loading, as described in the TMDL Report and Implementation Strategy Report, are anticipated to reduce the frequency and severity of cyanobacteria blooms and restore Pinto Lake to a desired condition.
10. The Central Coast Water Board proposes to amend the Basin Plan by inserting amendments into Chapter 4, Section 9 (Total Maximum Daily Loads).
11. On May 20, 2004, the State Water Resources Control Board (State Water Board) adopted the Policy for Implementation and Enforcement of the Nonpoint Source Pollution Control Program (NPS Policy). This TMDL is consistent with the NPS Policy. The NPS Policy requires the Regional Water Boards to regulate all nonpoint sources of pollution using the administrative permitting authorities provided by the Porter-Cologne Water Quality Control Act (Porter-Cologne Act, Water Code Division 7). Consistent with the NPS Policy and the Porter-Cologne Act, Regional Water Boards regulate nonpoint source discharges with waste discharge requirements, waivers of waste discharge requirements, and/or waste discharge prohibitions.
12. On September 30, 2004, the State Water Board adopted the Water Quality Control Policy for Developing California's Clean Water Act section 303(d) List (State Water Board Resolution No. 2004-0063) as amended on February 3, 2015 (State Water Board Resolution No. 2015-0005), hereafter referred to as the California 303(d) Listing Policy. This TMDL is consistent with the California 303(d)

Listing Policy. The California 303(d) Listing Policy describes the process by which the State Water Board and the Regional Water Boards will comply with the listing requirements of the federal Clean Water Act. The objective of the California 303(d) Listing Policy is to establish a standardized approach for developing California's Clean Water Act section 303(d) List and to provide guidance for interpreting data and information to make decisions regarding water quality standards attainment.

13. On June 16, 2005, the State Water Board adopted the Water Quality Control Policy for Addressing Impaired Waters: Regulatory Structure and Options (State Water Board Resolution No. 2005-0050), hereafter referred to as the Impaired Waters Policy. This TMDL is consistent with the Impaired Waters Policy. The Impaired Waters Policy provides policy and procedures for adopting TMDLs and addressing impaired waters in California. The Impaired Waters Policy states that the Regional Water Boards have independent discretion, broad flexibility, numerous options, and some legal constraints that apply when determining how to address impaired waters.
14. The U.S. Environmental Protection Agency's (USEPA) published TMDL guidance (Guidance for Water Quality-Based Decisions: The TMDL Process – Chapter 1, Policies and Principles, USEPA 404/4-91-001, April 1991) states that implementation of TMDLs and water quality-based controls should not be delayed due to lack of information and uncertainties about pollution problems, particularly with respect to nonpoint sources. More information about the spatial extent and nature of water quality impairments can be collected during TMDL implementation. At this time, there is sufficient information to develop and implement a TMDL for total phosphorus in Pinto Lake.
15. The elements of a TMDL are described in 40 CFR sections 130.2 and 130.7, Clean Water Act section 303(d), and USEPA guidance documents. A TMDL is defined as “the sum of individual WLA [waste load allocations] for point sources and LA [load allocations] for nonpoint sources and natural background” (40 CFR section 130.2). The Central Coast Water Board has determined that the TMDL for total phosphorus in Pinto Lake is set at a level necessary to attain and maintain the applicable narrative and numeric water quality objectives, taking into account seasonal variations and any lack of knowledge concerning the relationship between effluent limitations and water quality, consistent with 40 CFR section 130.7(c)(1).
16. Upon establishment of a TMDL by the State or USEPA, the State is required to incorporate the TMDL into the State Water Quality Management Plan (40 CFR sections 130.6(c)(1) and 130.7). In accordance with Water Code sections 13050(j) and 13242, the state must also identify appropriate programs of implementation and implementation measures. The Basin Plan and applicable statewide plans serve as the State Water Quality Management Plan governing the watersheds under the jurisdiction of the Central Coast Water Board.

17. The Pinto Lake total phosphorus TMDL and Implementation Plan are based on sound scientific knowledge, methods, and practices in accordance with Health and Safety Code section 57004. Health and Safety Code section 57004 requires external scientific peer review for certain water quality control policies. This TMDL project received scientific peer review by experts with substantial research experience in water quality, nutrient pollution, hydrology, and aquatic habitat. Consequently, the Central Coast Water Board has fulfilled the requirements of Health and Safety Code section 57004.
18. Central Coast Water Board staff will conduct a review of implementation activities when monitoring and reporting data are submitted as required by the existing or future permit regulating the discharge of waste from irrigated agricultural land (Agricultural Order), other existing or future waste discharge requirements permits, and existing or future National Pollutant Discharge Elimination System (NPDES) stormwater permits, or when other monitoring data and/or reporting data are submitted outside the requirements of existing permits and orders. Central Coast Water Board staff will pursue modification of permit conditions, or other regulatory means, as necessary, to address remaining impairments resulting from total phosphorus during the TMDL implementation phase.
19. Adoption of this TMDL and this Basin Plan amendment will not result in any degradation of water quality; in fact, they are designed to improve water quality. As such, this TMDL and this Basin Plan amendment comply with all requirements of both state and federal anti-degradation requirements (State Board Resolution No. 68-16, Statement of Policy with Respect to Maintaining High Quality of Waters in California and 40 CFR section 131.12).
20. Pursuant to Public Resources Code section 21080.5, the California Natural Resources Agency has approved the Regional Water Boards' basin planning process as a "certified regulatory program" that adequately satisfies the California Environmental Quality Act (CEQA) (Public Resources Code, section 21000 et seq.) requirements for preparing environmental documents (14 California Code of Regulations (CCR) section 15251(g); 23 CCR section 3775). Central Coast Water Board staff has prepared Substitute Environmental Documentation (SED) for this project that contain the required materials as set forth in the State Water Board's CEQA regulations (23 CCR section 3777). The SED includes the TMDL staff report and several of its attachments, including the following:
 - (1) this Resolution and the Basin Plan amendment language (Attachment 1 of the staff report);
 - (2) the TMDL Report (Attachment 2 of the staff report);
 - (3) the Implementation Strategy Report (Attachment 3 of the staff report);
 - (4) the CEQA Environmental Checklist Report (Attachment 4 of the staff report);
 - (5) the Scientific Peer Review and Staff Responses (Attachment 5 of the staff report); and
 - (6) the Public Comments and Staff Responses (Attachment 7 of the staff report).

The staff report also includes the Notice of Public Hearing-Notice of Opportunity to Comment (Attachment 6 of the staff report). The project itself is the establishment of a TMDL for total phosphorus in Pinto Lake and a TMDL Implementation Plan to achieve that TMDL. The Central Coast Water Board exercises discretion in assigning waste load allocations and load allocations, determining the program of implementation, and setting TMDL attainment dates and milestones in achieving the water quality standards. The Environmental Checklist, based on CEQA Guidelines Appendix G, and other portions of the SED contain significant analysis and numerous findings related to impacts and mitigation measures.

21. A CEQA scoping meeting was conducted on June 2, 2015, in the City of Watsonville; a notice of the CEQA scoping meeting was sent on May 5, 2015, to interested persons. The notice included the background of the project, the project purpose, a meeting schedule, and directions for obtaining more detailed information through the Central Coast Water Board website; the notice and project summary were available on the website or by requesting hard copies via telephone or email. Central Coast Water Board staff did not need to revise the CEQA analysis and resulting Environmental Checklist developed following this meeting. Foreseeable management strategies for Pinto Lake and the associated catchment are generally anticipated to be the same as identified in 2015, therefore further CEQA scoping and analysis was unnecessary.
22. Public Resources Code section 21159 provides that an agency shall perform, at the time of the adoption of a rule or regulation requiring the installation of pollution control equipment or a performance standard or treatment requirement, an environmental analysis of the reasonably foreseeable methods of compliance, and an analysis of the reasonably foreseeable environmental impacts of the methods of compliance, an analysis of reasonably foreseeable mitigation measures to lessen the adverse environmental impacts, and an analysis of reasonably foreseeable alternative means of compliance with the rule or regulation that would have less significant adverse impacts. Section 21159(c) requires that the environmental analysis take into account a reasonable range of environmental, economic, and technical factors; population and geographic areas; and specific sites. The staff report prepared for this proposed Basin Plan amendment, in particular the CEQA SED (Attachment 4), provides the environmental analysis required by Public Resources Code section 21159 and is hereby incorporated as findings in this Resolution.
23. In preparing the SED, the Central Coast Water Board considered the requirements of Public Resources Code section 21159 and 14 CCR section 15187, and intends the SED to serve as a Tier 1 environmental review. This analysis is not intended to be an exhaustive analysis of every conceivable impact, but an analysis of the reasonably foreseeable consequences of the adoption of this regulation, from a programmatic perspective. Compliance obligations will be undertaken directly by public agencies that may have their own obligations under CEQA. Project level impacts may need to be considered in any subsequent

environmental analysis performed by other public agencies, pursuant to Public Resources Code section 21159.2. To the extent applicable, this Tier 1 SED may be used to satisfy subsequent CEQA obligations of those agencies.

24. Consistent with the Water Board's substantive obligations under CEQA, the SED does not engage in speculation or conjecture, and only considers the reasonably foreseeable environmental impacts, including those relating to the methods of compliance, reasonably foreseeable feasible mitigation measures to reduce those impacts, and the reasonably foreseeable alternative means of compliance, that would avoid or reduce the identified impacts.
25. The staff report, draft Basin Plan amendment, and CEQA Environmental Checklist and associated analysis provide the necessary information pursuant to state law to conclude that the proposed TMDL, Implementation Plan, and the associated reasonably foreseeable methods of compliance will not have a significant adverse effect on the environment, with the exception of the impacts summarized below in Findings 26, 27, and 28. This determination is based on best available information in an effort to fully inform the interested public and the decision makers of potential environmental impacts. "Significant effects" on the environment are defined as "a substantial, or potentially substantial, adverse change within the area affected by the project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance" (14 CCR section 15382).
26. Analysis pursuant to the CEQA Environmental Checklist suggests TMDL implementation may have potentially significant adverse effects on the environment associated with Environmental Factor Category 4.a, Biological Resources. Wide-scale water conservation measures and changing water management practices potentially could result in reduced surface runoff and therefore lower flows to surface waters in the Pinto Lake catchment. This could result in potentially substantial adverse changes to habitat for protected species. Potential mitigation measures to prevent adverse changes to habitat for protected species from decreases in surface water flows from irrigated lands include phasing in management practices which might affect flows; and use of riparian buffers and other vegetated treatment systems that will effectively treat the water to remove pollutants, but not necessarily reduce flows. Given the uncertainty associated with evaluating the available information, it is possible that any potentially substantial adverse changes to habitat for protected species associated with this Basin Plan amendment will be less than significant. When the entities responsible for implementing this TMDL determine how they will proceed, the agencies responsible for those parts of the project can and should incorporate such alternatives and mitigation into any subsequent projects or project approvals.
27. Analysis pursuant to the Environmental Checklist suggests that TMDL compliance and associated implementation may have potentially significant effects to habitat of fish or wildlife species as described in Environmental Impact Category 19.a,

Mandatory Findings of Significance. Implementation of the TMDL may involve temporary installation and operation of structures and substantial earth movement, which could potentially adversely affect wildlife, plant, and animal species. Alternatives, their feasibility, and mitigation measures are described in more detail in the SED, in accordance with 14 CCR section 15091(a)(2).

28. Analysis pursuant to the CEQA Environmental Checklist suggests there may be potential adverse effects resulting from cumulatively considerable impacts associated with CEQA Environmental Impact Category 19.b, Mandatory Findings of Significance. "Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probably future projects. There are several approved TMDLs addressing water quality impairments in the Pajaro River basin that encompasses the Pinto Lake catchment. Implementation of the proposed TMDL for total phosphorus in Pinto Lake, in connection to other TMDLs in the larger Pajaro River basin, could have potentially significant impacts on the environment due to overlapping implementation schedules and milestones. With multiple TMDLs being implemented in the larger Pajaro River watershed, there could be an increase in funding available for implementation which could accelerate activities to implement management practices. Implementation of the other approved TMDLs in the Pajaro River basin, in conjunction with the proposed total phosphorus TMDL for Pinto Lake, might substantially reduce the habitat of a fish or wildlife species due to reduced flows from irrigated lands into aquatic habitat. Reduced flows may occur as a result of irrigation efficiencies, retention basins, or other Best Management Practices (BMPs) that pertain to water management practices.
29. Pursuant to CEQA Guidelines (14 CCR section 15093), the Central Coast Water Board hereby finds that the project's benefits override and outweigh its potential significant adverse impacts, for the reasons more fully set forth in the staff report and attachments thereto. Specific environmental benefits justify the adoption of this TMDL and TMDL Implementation Plan despite the project's potential significant adverse short-term environmental impacts. The Central Coast Water Board has the authority and responsibility to regulate discharges of waste associated with the sources of pollution causing impairment to water quality. Many of those discharges have caused significant widespread degradation and/or pollution of waters of the state as described in the *Total Maximum Daily Load Report for Total Phosphorus to Address Cyanobacteria Blooms in Pinto Lake, Santa Cruz County, California* and associated reference materials. This Pinto Lake TMDL would result in actions to restore the quality of the waters of the state and protect the beneficial uses, including aquatic habitat, recreation, and drinking water supply. While some impacts could occur due to reduced flows, or from implementing other actions to comply with the Pinto Lake TMDL, the benefits, which include contributing to the present and future restoration of beneficial uses, and reducing or eliminating pollution, nuisance, and contamination, warrant approval of the TMDL.

30. The SED identifies mitigation approaches that should be considered at the project level.
31. From a program-level perspective, incorporation of the alternatives and mitigation measures outlined in the SED will reduce potential impacts to no impact or keep the impact at less-than-significant levels.
32. Central Coast Water Board staff informed interested persons about the proposed total phosphorus TMDL for Pinto Lake, proposed TMDL Implementation Plan for the Pinto Lake catchment, and draft SED through public outreach meetings with interested persons, public notice of the availability of the proposed Basin Plan amendment and draft SED, and a 45-day written comment period. Notice of public hearing was given by advertising in newspapers of general circulation within the Region, and by emailing a copy of the notice to applicable government agencies and all persons requesting such notice. Relevant documents and notices were also made available on the Central Coast Water Board website. Central Coast Water Board staff responded to oral and written comments received from the public, and specifically, staff responded to significant environmental issues raised regarding the draft SED. All public comments were considered.
33. Upon adoption of this Resolution No. R3-2020-0034, the Central Coast Water Board will request that the State Water Board and California Office of Administrative Law review and approve the Basin Plan amendment incorporating the TMDL for total phosphorus in Pinto Lake. The TMDL and Implementation Plan for the TMDL will become effective upon approval by the California Office of Administrative Law. USEPA must also approve the TMDL.
34. The Basin Plan amendment may have an effect on fish and wildlife. The Central Coast Water Board will, therefore, forward fee payments to the Department of Fish and Wildlife under the California Fish and Game Code section 711.4.
35. The proposed Basin Plan amendment meets the "Necessity" standard of the Administrative Procedures Act, Government Code section 11353, subdivision (b). As specified in Finding 16, federal regulations require that TMDLs be incorporated into the Water Quality Management Plan. The Central Coast Water Board's Basin Plan is the Central Coast Water Board's component of the Water Quality Management Plan, and the Basin Plan is how the Central Coast Water Board takes quasi-legislative planning actions. Moreover, this TMDL defines programs of implementation for existing water quality objectives, and is, therefore, appropriately a component of the Basin Plan under Water Code section 13242. The necessity of developing this TMDL is established in the TMDL staff report, the Clean Water Act section 303(d) List, and the data contained in the administrative record documenting the water quality impairments in Pinto Lake.

36. Consistent with Water Code section 13141, the Basin Plan amendment includes an estimate of the total cost of implementation of the agricultural related portions of this TMDL and identifies potential sources of financing.
37. On July 16, 2020, the Central Coast Water Board held a public hearing by video and teleconference to consider the Basin Plan amendment and SED, and heard and considered all public comments and evidence in the record. Notice of the public hearing was given to all interested persons and published in accordance with Water Code section 13244. Notice of updated public hearing information was given to all interested persons in accordance with Government Code section 11125.

THEREFORE, be it resolved that:

1. The Central Coast Water Board, after considering the entire record, including oral testimony at the hearing, hereby adopts the Basin Plan amendment in Attachment 1 to this Resolution No. R3-2020-0034.
2. The Central Coast Water Board Executive Officer is directed to forward copies of the Basin Plan amendment to the State Water Board in accordance with the requirements of section 13245 of the Water Code.
3. The Central Coast Water Board requests that the State Water Board approve the Basin Plan amendment in accordance with the requirements of sections 13245 and 13246 of the Water Code and forward the Basin Plan amendment to the California Office of Administrative Law and to the USEPA for approval.
4. The Executive Officer is authorized to sign a Certificate of Fee Exemption or transmit payment of the applicable fee as may be required to the Department of Fish and Wildlife.
5. If, during the approval process, Central Coast Water Board staff, State Water Board staff, the State Water Board, or the California Office of Administrative Law determines that minor, non-substantive corrections to the language of the Basin Plan amendment are needed for clarity or consistency, the Executive Officer or their designee may make such changes, and shall inform the Central Coast Water Board of any such changes.
6. The SED prepared by the Central Coast Water Board staff pursuant to Public Resources Code 21080.5 and 23 CCR sections 3775-3782 are hereby approved and adopted.

I, Matthew T. Keeling, Executive Officer, do hereby certify the foregoing is a full, true and correct copy of a Resolution adopted by the California Regional Water Quality Control Board, Central Coast Region, on July 16-17, 2020.

Matthew T. Keeling
Executive Officer

Attachment: Attachment A to Resolution No. R3-2020-0034: Amendment to the Water Quality Control Plan for the Central Coastal Basin to Incorporate a Total Maximum Daily Load for Total Phosphorus to Address Cyanobacteria Blooms in Pinto Lake and a TMDL Implementation Plan for the Pinto Lake Catchment, Santa Cruz County, California

**California Environmental Protection Agency
Central Coast Regional Water Quality Control Board**

**Basin Plan Amendment
Attachment A to Resolution No. R3-2020-0034**

Amendment to the Water Quality Control Plan for the Central Coastal Basin to
Incorporate a Total Maximum Daily Load for Total Phosphorus to Address
Cyanobacterial Blooms in Pinto Lake and a TMDL Implementation Plan for the Pinto
Lake Catchment, Santa Cruz County, California



Attachment A to Resolution No. R3-2020-0034

Revise the June 14, 2019 Basin Plan as follows:

Amendment to the Water Quality Control Plan for the Central Coastal Basin to Incorporate a Total Maximum Daily Load for Total Phosphorus to Address Cyanobacterial Blooms in Pinto Lake and a TMDL Implementation Plan for the Pinto Lake Catchment, Santa Cruz County, California

Add the following to Chapter 4 after section 4.9.20:

4.9.21. Total Maximum Daily Load for Total Phosphorus to Address Cyanobacterial Blooms in Pinto Lake and a TMDL Implementation Plan for the Pinto Lake Catchment, Santa Cruz County, California

The Central Coast Regional Water Quality Control Board adopted this TMDL on July 16-17, 2020.

This TMDL was approved by:

The State Water Resources Control Board on: _____ Date

The California Office of Administrative Law on: _____ Date

The U.S. Environmental Protection Agency on: _____ Date

Problem Statement

Pinto Lake is a shallow, 103-acre lake located within the Lower Pajaro River watershed in Santa Cruz County. Pinto Lake has experienced nutrient-driven cyanobacteria blooms, associated toxicity, and water quality degradation for many years. As such, the federal Clean Water Act section 303(d) List identifies Pinto Lake as an impaired waterbody. Recent grant-funded restoration and mitigation projects, including alum treatments to the lake bottom, appear to have temporarily sequestered phosphorus in lake bottom sediments and consequently reduced the severity and toxicity of cyanobacteria blooms since 2017. One-time lake alum treatments are known to have less effectiveness over time, therefore continuing adaptive lake and watershed management practices and strategies need to be implemented to ensure water quality is protected and maintained.

Accordingly, the overarching water quality management goal of this TMDL project is to rectify the Clean Water Act section 303(d) List impairments by achieving and maintaining acceptable levels of total phosphorus. Pinto Lake water quality impairments that will be corrected by reducing the total phosphorus load include the following: cyanobacteria hepatotoxic microcystins, chlorophyll a, low dissolved oxygen, and scum/foam.

Numeric Targets

Numeric targets represent acceptable levels of pollutants that will result in the desired conditions for the lake. This TMDL project identifies numeric targets for constituents like total phosphorus, nitrate, and un-ionized ammonia as well as for nutrient-response indicators including microcystin, chlorophyll *a*, and dissolved oxygen. When these numeric targets are met, Pinto Lake can be removed from the 303(d) List. These targets are protective of recreation, aquatic habitat, wildlife, and drinking water supply beneficial uses. Over time staff anticipate that the lake will respond by showing improvements in the levels of these constituents as a result of reductions in phosphorus and sediment loading.

The numeric targets include the following:

Primary numeric target for microcystin (numeric target to interpret the narrative Basin Plan objective for toxicity and recreational beneficial uses):

- Microcystin concentration not to exceed 0.8 micrograms per liter ($\mu\text{g/L}$).

Secondary numeric target for microcystin (numeric target to interpret the narrative Basin Plan objective for toxicity and domestic and municipal supply beneficial uses):

- Microcystin concentration not to exceed 0.3 $\mu\text{g/L}$.

Numeric target for total phosphorus and resulting nutrient-responses (numeric target to interpret the narrative Basin Plan objective for biostimulatory substances and aquatic life beneficial uses):

- Total phosphorus as P concentration not to exceed 0.17 milligrams per liter (mg/L).

Numeric targets for nutrient-response indicators (numeric targets to interpret the narrative Basin Plan objective for biostimulatory substances and aquatic life beneficial uses):

- Dissolved oxygen concentration not to be reduced below 5.0 mg/L .
- Median values for dissolved oxygen should not fall below 85% saturation.
- In the growing season (June 1 – November 30), water column chlorophyll *a* concentration not to exceed 25 $\mu\text{g/L}$.
- In the wet season (December 1- May 31), water column chlorophyll *a* concentration not to exceed 25 $\mu\text{g/L}$.

Numeric target for nitrate (Basin Plan objective for municipal and domestic supply beneficial uses):

- Nitrate as nitrogen concentration not to exceed 10 mg/L .

Numeric target for un-ionized ammonia (Basin Plan general objective for aquatic life beneficial uses):

- Un-ionized ammonia as nitrogen concentration not to exceed 25 $\mu\text{g/L}$.

To implement the narrative water quality objective for biostimulatory substances, the allowable total maximum daily load (loading capacity) for Pinto Lake was developed using total phosphorus concentrations and total water column chlorophyll *a* concentrations. Table 1 presents the total phosphorus numeric target used to establish the total phosphorus loading capacity for Pinto Lake.

Table 1. Numeric target used to establish the loading capacity for Pinto Lake.

Waterbody	Total Phosphorus	Chlorophyll <i>a</i>
Pinto Lake	0.17 mg/L	25 µg/L

Source Analysis

Sources of phosphorus to Pinto Lake include internal loads and watershed loads. Internal loads result from long-term nutrient input to the lake over periods of years causing the accumulation of phosphorus in lake bottom sediment. This sediment-bound lake bottom phosphorus can subsequently be released into the water column by geochemical reaction, decay of organic matter, or by sediment disturbance and resuspension.

Watershed loads of phosphorus include runoff and groundwater seepage from agricultural operations, runoff from residential areas, onsite wastewater treatment systems, grazing lands and pasture, natural background sources, and atmospheric deposition. Researchers conclude that watershed loads can be associated, in part, with increased erosion and discharge of phosphorus-rich sediment as a result of the removal of historic native vegetation.

TMDL

Table 2 presents the TMDL for total phosphorus in Pinto Lake. Central Coast Water Board staff anticipate that attainment of this TMDL will result in attainment of numeric targets and water quality standards, and will rectify impairments identified on the Clean Water Act section 303(d) List.

The TMDL may be achieved in multiple ways including the following:

- Water quality conditions meet all regulatory and policy requirements necessary for removing the impaired waters from the Clean Water Act section 303(d) List of impaired waters; or,
- Pinto Lake attains the total phosphorus TMDL (annual total phosphorus loading capacity of 200 pounds per year); or,
- Pinto Lake attains the numeric targets for total phosphorus and/or nutrient-response indicators (i.e., dissolved oxygen water quality objectives, chlorophyll *a* targets, and microcystin targets).

Table 2. Total maximum daily load for total phosphorus in Pinto Lake expressed as both daily load and annual load. Existing load and loading capacity are estimated to two significant figures.

Waterbody	Total phosphorus lake water quality numeric target (mg/L) ¹	TMDL-annual total phosphorus load (loading capacity) (lbs./yr.) ²	TMDL-daily total phosphorus load (loading capacity) (lbs./day) ³	Percentage reduction to achieve loading capacity
Pinto Lake	0.17	~200	0.55	90%

¹milligrams per liter

² pounds per year

³ pounds per day

Allocations

This TMDL project identifies that major watershed improvement efforts should be directed towards phosphorus control. A TMDL is defined as “the sum of individual WLA [waste load allocations] for point sources and LA [load allocations] for nonpoint sources and natural background” (40 CFR section 130.2). To that end, total phosphorus allocations are given to both internal loading sources (lake bottom sediment), as well as owners and operators of irrigated lands, municipal and industrial NPDES-permitted storm water entities, onsite waste water treatment systems, atmospheric deposition, undeveloped areas owners, and owners/operators of livestock on rangeland and pasture. Table 3 presents the allocations that are anticipated to restore and maintain applicable water quality standards in the lake.

Table 3. Waste load allocations and load allocations for all surface waterbodies in the Pinto Lake catchment. Current phosphorus load and load allocations are estimated to two significant figures, and thus this rounding may not sum to 100 percent of total.

Phosphorus Source	Current total phosphorus loading (lbs./yr. ¹)	Total phosphorus load allocation (lbs./yr. ¹)	Percent reduction (%)
- Waste Load Allocations -			
Urban stormwater-runoff	130	20	~85%
Industrial facility stormwater-runoff	45	7	~85%
- Load Allocations -			
Irrigated agriculture/cropland	580	87	~85%
Onsite Wastewater Treatment Systems (septic systems)	130	20	~85%
Grazing land and pasture	50	8	~85%
Undeveloped areas and woodlands	90	14	~85%
Internal lake loading from lake bottom sediments	1,300	13	~99%
Shallow groundwater	20	3	~85%
Direct atmospheric deposition	45	45	Not applicable
Wetlands	Presumed negligible	No allocation	Not applicable
Total	~2,400²	~200	

¹ pounds per year

² This value includes 1) nutrient loading from the surrounding watershed; 2) nutrient loading from internal nutrient flux from the sediments; and 3) accounts for phosphorus losses due to outflow from the lake.

Controllable Water Quality Conditions

In accordance with the Basin Plan, controllable water quality shall be managed to conform to or to achieve the water quality objectives and load allocations contained in this TMDL. The Basin Plan defines controllable water quality conditions as follows: *“Controllable water quality conditions are those actions or circumstances resulting from man's activities that may influence the quality of the waters of the State and that may be reasonably controlled.”* (Basin Plan Chapter 3, Water Quality Objectives, page 30). The implementation section of this document describes strategies to attain the waste load allocations and load allocations listed in Table 3, for both controllable and uncontrollable conditions.

Compliance with Anti-degradation Policy

State and federal anti-degradation policies require, in part, that where surface waters are of higher quality than necessary to protect beneficial uses, the high quality of those waters must be maintained unless otherwise provided by the policies.

Section 3.2 of the Basin Plan states that wherever the existing quality of water in a stream reach, lake, or waterbody is better than the water quality objective established to protect and support the designated beneficial uses, that water quality shall be maintained and protected, unless and until warranted pursuant to provisions in federal and state anti-degradation policies.

Compliance with anti-degradation requirements may be determined on the basis of trends in water quality in applicable waterbodies, consistent with the methodologies and criteria provided in section 3.10 of the California 303(d) Listing Policy (adopted September 30, 2004, by State Water Board Resolution No. 2004-0063, as amended by State Water Board Resolution No. 2015-0005 on February 3, 2015). Section 3.10 of the California 303(d) Listing Policy explicitly addresses the anti-degradation component of water quality standards as defined in 40 CFR section 131.12, and provides for identifying trends of declining water quality as a metric for failing to comply with anti-degradation requirements.

Section 3.10 of the California 303(d) Listing Policy states that pollutant-specific water quality objectives need not be exceeded to be considered non-compliant with anti-degradation requirements: *“A water segment shall be placed on the section 303(d) List if the water segment exhibits concentrations of pollutants or water body conditions for any listing factor that shows a trend of declining water quality standards attainment”*.

Margin of Safety

The margin of safety component of a TMDL accounts for uncertainty concerning the relationship between pollution controls and water quality responses (see 40 CFR section 130.7(c)(1)). This TMDL incorporates an explicit 5% margin of safety component to ensure water quality standards are attained by allocating 95% of the total loading capacity to sources and reserving 5% of the total loading capacity. The implicit margin of safety component includes conservative assumptions in the TMDL analysis (i.e., establishing conservative water quality numeric targets protective of beneficial uses).

TMDL Attainment Schedule

Interim Water Quality Milestone: Achieve and maintain the microcystin water quality numeric target in receiving waters. This numeric target was established to interpret the narrative Basin Plan objective for toxicity and the contact recreation beneficial use. The interim attainment date for achieving this numeric target is within 5 years of the effective date of the Basin Plan Amendment (Office of Administrative Law (OAL) approval date).

Final TMDL Attainment Date: Within 10 years after the OAL approval date, achieve the phosphorus waste load allocations and load allocations; or meet all regulatory and policy requirements necessary for removing the impaired waters from the Clean Water Act section 303(d) List of impaired waters; or attain the numeric targets for nutrient-response indicators (i.e., dissolved oxygen water quality objectives, chlorophyll *a* numeric targets, and microcystin numeric targets).

Implementation

The following summary of the TMDL implementation strategy identifies a series of actions and schedules for implementing parties to reduce phosphorus loading via regulatory programs, voluntary measures, and grant-funded programs.

Storm Drain Discharges to Small Municipal Separate Storm Sewer Systems (MS4s):

MS4 entities in the Pinto Lake catchment are required to implement and comply with the General Permit for Waste Discharge Requirements for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems (Water Quality (WQ) Order 2013-0001-DWQ NPDES NO. CAS000004, as amended by Order WQ 2015-0133-EXEC, Order WQ 2016-0069-EXEC, WQ Order 2017-XXXX-DWQ, Order WQ 2018-0001-EXEC, and Order WQ 2018-0007-EXEC) (Phase II Small MS4 Permit) or future National Pollutant Discharge Elimination System (NPDES) stormwater permits. Consistent with the provisions of the existing Phase II Small MS4 Permit, the Central Coast Water Board will require MS4 entities discharging to the Pinto Lake catchment to develop and submit, for Executive Officer approval, a Waste Load Allocation Attainment Program (WAAP). The WAAP shall include descriptions of the actions that will be taken by the MS4 entity to attain the TMDL waste load allocations, and shall specifically address:

- A. Development of an assessment and implementation strategy;
- B. Source identification and prioritization;
- C. Best management practices (BMP) identification, prioritization, implementation schedule, analysis, and effectiveness assessment;
- D. Monitoring and reporting program development and implementation. Monitoring program goals shall address: (1) assessment of stormwater discharge and/or receiving water quality; (2) assessment of BMP effectiveness; and (3) demonstration and progress towards achieving waste load allocations;
- E. Coordination with stakeholders; and
- F. Other pertinent factors.

Determination of Progress Towards Attainment of Waste Load Allocations

Waste load allocations will be achieved through implementation of management practices and strategies to reduce phosphorus loading. To allow for flexibility, Central Coast Water Board staff will assess progress towards and attainment of waste load allocations using one or a combination of the following:

- A. Water quality data demonstrating the receiving water numeric target for total phosphorus has been attained;

- B. Water quality data demonstrating the receiving water numeric targets for nutrient-response indicators have been attained (i.e., dissolved oxygen water quality objectives, chlorophyll *a* targets, and microcystin targets);
- C. Storm drain outfall monitoring data demonstrating that the total phosphorus mass-based load allocations have been reduced or attained at storm drain outfalls;
- D. MS4 entities may provide sufficient evidence of implementation and assessment of pollutant load reduction projects and BMPs capable of achieving the total phosphorus waste load allocations, combined with water quality monitoring data demonstrating progress toward attaining the mass-based waste load allocations; and
- E. Any other effluent limitations and conditions which are consistent with the assumptions and requirements of the waste load allocations.

Monitoring

MS4 entities with operations and stormwater conveyance systems discharging to receiving waters in the Pinto Lake catchment, specifically the City of Watsonville and the County of Santa Cruz, are currently required to develop and submit monitoring programs as part of their WAAP. The goals of the monitoring programs are described in the requirements of the WAAP. Monitoring in Pinto Lake should continue to include data for the following parameters: total phosphorus, pH, water temperature, ammonia, unionized ammonia (calculated based on total ammonia and field measurements of pH and water temperature), dissolved oxygen, chlorophyll *a*, and microcystin.

Central Coast Water Board staff encourages these MS4 entities to develop and submit creative and meaningful monitoring and implementation programs. Monitoring strategies can use a phased approach, for example, by phasing in outfall or receiving water monitoring after BMPs have been implemented and assessed for effectiveness. Pilot projects, where BMPs are implemented in well-defined areas covering a fraction of the MS4 entity, may facilitate accurate assessment of how well the BMPs control pollution sources. Successful practices would then be implemented in other or larger parts of the MS4 entity.

Industrial and Construction Stormwater Discharges:

There is one registered industrial facility in the Pinto Lake catchment: Sun-Land Garden Products. This facility is operating under the Statewide General Permit for Stormwater Dischargers Associated with Industrial Activities, State Board Order 2014-0057-DWQ, NPDES No. CAS000001 (Industrial General Permit) or any future permit regulating the discharge of waste associated with industrial activities. The Industrial General Permit requires enrollment of dischargers of industrial stormwater that meet certain criteria based on their risk to impact water quality.

Dischargers whose projects disturb one or more acres of soil or whose projects disturb less than one acre but are part of a larger common plan of development that in total disturbs one or more acres, are required to obtain coverage under the Statewide General Permit for Storm Water Discharges Associated with Construction and Land

Disturbance Activities, State Board Order 2009-0009-DWQ, NPDES No. CAS000002, as amended by Order 2010-0014-DWQ and Order 2012-0006-DWQ (Construction General Permit), or any future permit regulating the discharge of stormwater associated with construction and land disturbance activities.

To maintain existing water quality and prevent any further water quality degradation, Sun-Land Garden Products and construction stormwater dischargers subject to the Construction General Permit shall continue to implement and comply with the requirements of the Industrial General Permit and the Construction General Permit, as applicable.

More information may be obtained during the implementation phase of this TMDL to further assess the level of nutrient contributions to surface waters from this source category, and to identify any actions needed to reduce nutrient loading.

Irrigated Agricultural Lands Discharges:

Owners and operators of irrigated agricultural land in the Pinto Lake catchment must comply with the Conditional Waiver of Waste Discharge Requirements for Irrigated Lands (Order R3-2017-0002; the "Agricultural Order") and the Monitoring and Reporting Programs in accordance with Orders R3-2017-0002-01, R3-2017-0002-02, and R3-2017-0002-03, or with any future permit regulating the discharge of waste from irrigated agricultural land, to meet load allocations, achieve the TMDL, and help rectify the impairments addressed in the TMDL. The current Agricultural Order specifically requires owners and operators of irrigated lands to do the following:

- A. Implement, and update as necessary, management practices to reduce nutrient loading.
- B. Maintain existing, naturally occurring riparian vegetative cover in aquatic habitat areas.
- C. Develop/update and implement farm plans.
- D. Properly destroy abandoned groundwater wells.
- E. Develop and initiate implementation of an Irrigation and Nutrient Management Plan (INMP) or alternative certified by a Professional Soil Scientist, Professional Agronomist, or Crop Advisor certified by the American Society of Agronomy, or similarly qualified professional.

Sediment control is crucial to reducing phosphorus loading to Pinto Lake. Future revisions to the Agricultural Order or other permit regulating the discharge of waste from irrigated agricultural land should incorporate sediment and erosion management plans with appropriate management practices and turbidity limits to maintain or restore applicable water quality standards in Pinto Lake. Future permits should also include monitoring and reporting requirements that will provide data to demonstrate attainment of water quality standards. Central Coast Water Board staff will pursue modification of the existing Agricultural Order conditions, or other regulatory means, if necessary, to address remaining impairments resulting from nitrogen or phosphorus compounds during the TMDL implementation phase.

Monitoring

Central Coast Water Board staff will conduct a review of implementation activities as monitoring and reporting data are submitted, as required by the Agricultural Order, or when other monitoring data and/or reporting data are submitted outside the requirements of the Agricultural Order. Owners and operators of irrigated agricultural lands must perform monitoring and reporting in accordance with the Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands, Monitoring and Reporting Program Orders No. R3-2017-0002-01, No. R3-2017-0002-02, and No. R3-2017-0002-03, or other permit regulating the discharge of waste from irrigated agricultural land.

Determination of Progress Towards Attainment of Load Allocations

Load allocations will be achieved through a combination of implementation of management practices and strategies to reduce total phosphorus loading. To allow for flexibility, Central Coast Water Board staff will assess progress towards and attainment of total phosphorus load allocations using one or a combination of the following:

- A. Water quality data demonstrating the receiving water numeric target for total phosphorus has been attained;
- B. Water quality data demonstrating the receiving water numeric targets for nutrient-response indicators have been attained (i.e., dissolved oxygen water quality objectives, chlorophyll a targets, and microcystin targets);
- C. Ranch-level surface discharge monitoring data demonstrating that the total phosphorus mass-based load allocations have been reduced or attained at the ranch-level. Evidence of effective sediment and erosion control may constitute a proxy demonstration of phosphorus discharge control;
- D. Owners/operators may provide sufficient evidence of implementing management practices that are capable of achieving mass-based load allocations identified in this TMDL, combined with water quality monitoring data demonstrating progress toward attaining the mass-based waste load allocations at the ranch-level; and/or
- E. Owners/operators of irrigated lands may provide sufficient evidence to demonstrate that they are, and will continue to be, in compliance with the mass-based load allocations. Such evidence could include documentation submitted by the owner/operator to the Executive Officer that the owner/operator is not causing waste to be discharged to impaired waterbodies resulting in or contributing to violations of the load allocations.

Onsite Wastewater Treatment Systems (OWTS) Discharges:

Owners of OWTS and local agencies must comply with the Water Quality Control Policy for Siting, Design, Operation, and Maintenance of Onsite Wastewater Treatment Systems (OWTS Policy) adopted by the State Water Board on June 19, 2012 (by Resolution No. 2012-0032) and amended on April 17, 2018 (by Resolution No. 2018-0019). This Policy establishes a statewide, risk-based, tiered approach for the regulation and management of OWTS installations and replacements and sets the level of performance and protection expected from OWTS.

The OWTS Policy stipulates that existing, new, and replacement OWTS that are located near a water body that has been listed as impaired on the Clean Water Act section 303(d) List may be addressed by one or more of the following:

- Special provisions contained in a Local Agency Management Plan (LAMP);
- Compliance with specific requirements of Tier 3; and/or
- Special provisions in the Advanced Protection Management Program (APMP) to address the Load Allocation for OWTS established in this TMDL for phosphorus loading to Pinto Lake.

The LAMP and APMP shall include descriptions of the actions that will be taken by the local entity to attain the TMDL load allocation, and could include the following for OWTS within 900 feet of the lake:

- Encourage or require phosphorus free soaps (e.g., laundry detergent);
- Encourage voluntary implementation of enhanced septic system treatment to sequester phosphorus (such as alum applications);
- New and proposed OWTS within 600 feet of a surface waterbody in the Pinto Lake catchment implement enhanced septic system treatment to sequester phosphorus; and
- Upon repair or expansion of OWTS, implement enhanced septic system treatment (such as alum application to sequester phosphorus).

Domestic Animal and Livestock Waste Discharges:

Owners and operators of land with livestock and/or farm animals must control discharges of soil and sediment into water courses nearby pursuant to an existing regulatory framework adopted by the Central Coast Water Board. Section 4.8.5.1 of the Central Coast Basin Plan establishes a land disturbance prohibition for the Pajaro River watershed. The Pajaro watershed includes Pinto Lake and its associated catchment. The Basin Plan prohibition requires residents who have livestock and farm animals to manage their property to protect water quality.

In practice, this means residents who have livestock and farm animals on their property must begin, or continue, to self-assess and self-monitor their property to determine if erosion control or other practices must be used to reduce excessive erosion and waste discharges. If erosion and waste discharges are observed, prevention and control practices must be implemented.

Undeveloped areas and woodlands

Phosphorus loading from these areas is considered background, defined as the ambient waterbody concentration regardless of whether those pollutants are natural or result from upstream human activity. Background concentrations are not directly controllable through an existing regulatory program. However, some load reductions will be achieved through ongoing non-regulatory actions such as grant funded projects that trap sediment and associated phosphorus before it reaches the lake.

Internal loading from lake-bottom sediments

The largest source of phosphorus loading to the lake is internal, and loading occurs when phosphorus disassociates from lake-bottom sediments and is released into the water column. Treatments to remove, sequester, or otherwise inhibit the availability of phosphorus in the lake are essential and will require ongoing implementation and maintenance. For example, the 2017 grant funded project to apply alum to the lake bottom has been demonstrated to sequester phosphorus and data from the lake also show a significant reduction in the severity and longevity of cyanobacterial blooms. However, this type of treatment has a limited life span and the lake will likely require future alum or other treatments to maintain effectiveness.

Sources not Directly Controllable

Sources of phosphorus loading that are not directly controllable with existing management measures include direct atmospheric deposition to the lake and loading from shallow groundwater.

Atmospheric deposition

Direct atmospheric deposition to the lake is considered a background source, regardless of whether those pollutants are natural or result from human activity. There are no feasible regulatory or non-regulatory approaches to reduce direct atmospheric loading at this time.

Shallow groundwater

Phosphorus loading from shallow groundwater is considered a background source, regardless of whether those pollutants are natural or result from human activity. There are no feasible regulatory or non-regulatory approaches to directly reduce loading at this time. However, implementation, such as irrigation and nutrient management, should indirectly reduce phosphorus loading to the shallow groundwater over time and should therefore reduce future loading to the lake.

Financial Assistance for Implementation

Other sources of funding (e.g., grants, contracts, supplemental environmental project funds, etc.) will likely be needed for future projects to manage and maintain the phosphorus loading from the watershed and lake bottom sediments.

Tracking and Evaluation

Measures of TMDL implementation progress may not necessarily be limited to receiving water column concentration-based metrics and/or time-weighted average concentrations of water column pollutants. Therefore, the approach proposed in this TMDL is to strive for pollutant load reduction strategies while continuing to collect additional data on receiving water concentrations, and recognizing that there may not always be a direct linkage between mass-based load reductions and in-lake or in-stream concentrations of pollutants in grab samples. Regardless of the short or intermediate-term effects on in-lake and in-stream pollutant concentrations, pollution control efforts, such as sediment control BMPs and improved nutrient and irrigation management, will ultimately have environmental and water quality benefits.

In recognition of the uncertainties highlighted above, other metrics that can provide insight on interim progress to reduce nutrient pollution may be utilized, for example:

- Assessments of phosphorus mass-based load reductions (e.g., tons of pollutant load reduced per year);
- Reductions in total phosphorus concentrations in Pinto Lake;
- Reductions in the severity and frequency of harmful cyanobacteria blooms in Pinto Lake;
- Estimates of the scope and extent of implementation of improved management practices capable of ultimately achieving load allocations; and
- Improvements in receiving water nutrient-response indicators (i.e., dissolved oxygen, chlorophyll *a*, and microcystins), independent of phosphorus concentrations.

Central Coast Water Board staff may conclude in future reviews that ongoing implementation efforts may be insufficient to ultimately achieve the allocations and numeric targets. If this occurs, Central Coast Water Board staff will recommend revisions to the TMDL Implementation Plan. Central Coast Water Board staff may conclude and articulate in the reviews that implementation efforts and results are likely to result in achieving the allocations and numeric targets, in which case existing and anticipated implementation efforts should continue. When allocations and/or numeric targets are met, Central Coast Water Board staff will recommend the waterbody be removed from the 303(d) List.