2017 TRIENNIAL REVIEW
OF THE
COLORADO RIVER BASIN WATER BOARD BASIN PLAN

STAFF REPORT

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
COLORADO RIVER BASIN REGION

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INTRODUCTION

Section 303(c)(1) of the Federal Clean Water Act (CWA) requires states to hold public hearings to review Water Quality Standards (WQSs) every three years, and to modify and adopt standards as necessary. WQSs include beneficial uses, water quality objectives (WQOs), and state and federal antidegradation policies. Section 13240 of the California Water Code (CWC) requires regional water quality control boards to formulate and periodically update their water quality control plans. Basin plans are master-planning documents for ground and surface waters in the regions. A basin plan serves five major functions:

1. Identifies the waters of the Region;
2. Designates beneficial uses of those waters;
3. Establishes WQOs for the protection of those uses;
4. Prescribes an implementation plan; and
5. Establishes a monitoring and surveillance program to assess implementation efforts.

Consistent with State and Federal law, the California Regional Water Quality Control Board, Colorado River Basin Region (Colorado River Basin Water Board) evaluates the WQSs and its Water Quality Control Plan for the Colorado River Basin (Basin Plan) at least every three years, hence the term "Triennial Review." The purpose of the Triennial Review is twofold: 1) to identify potential water quality problems/issues, and; 2) to reaffirm parts of the Basin Plan where no potential problems are identified. The Colorado River Basin Water Board uses the Triennial Review to prioritize and direct basin planning efforts. The review does not necessarily mean that the Basin Plan will be revised. While a major part of the review involves identifying potential water quality issues that may require a basin plan amendment, an important part of the Triennial review is the reaffirmation of those portions of the Basin Plan where no potential problems are identified.

PUBLIC PARTICIPATION AND TIMELINE

Public participation is an essential component of the Triennial Review. Under 40 C.F.R. Section 131.20(b), the Colorado River Basin Water Board is required to hold one or more public hearings for the purpose of reviewing the WQSs in the Basin Plan. As described above, the Colorado River Basin Water Board process includes at least one public workshop, a 45-day public comment period, and a public hearing. In January 2017, Colorado River Basin Water Board staff proposed the following schedule for the 2017 Basin Plan Triennial Review:

Board Information Item	March 09, 2017
Public Workshop	April 17, 2017
Public comment period begins (45 days)	Sept. 15 2017
Public Workshop	Oct. 09, 2017
Public comment period ends	Oct. 30, 2017
Board Adoption Hearing	Nov. 09, 2017

After the Colorado River Basin Water Board adopts a Prioritized List of Basin Plan Issues, its staff addresses the highest priority issues as Basin Plan amendment projects. Staff then develops a project work plan for a select number of top priority Basin Plan amendment projects, and then determines which and how much of each project can be completed in the next three years, given resource constraints and feasibility factors, and in coordination with other high priority Colorado River Basin Regional Board activities and programs.

The Colorado River Basin Water Board began its 2017 Triennial Review in February of 2017. The Triennial Review consists of 1) internal and external solicitations of water quality issues that may need to be addressed through a basin plan amendment; 2) the identification of a high priority list of water quality issues; and 3) the development a work plan describing the actions that the Colorado River Water Board will take over the next three years to investigate and respond to high priority issues.

The specific tasks associated with the Colorado River Basin Water Board's Triennial Review process is summarized below:

- Conduct an internal review of the Basin Plan and past Triennial Review projects;
- Prepare a preliminary list of potential high priority water quality issues;
- Conduct public workshop(s) on a preliminary list of water quality issues;
- Revise the priority list of high priority water quality issues based on input from the general public and Board members;
- Prepare a work plan to address high priority issues, including the need for Basin Plan amendments, and resources needed to complete the amendments;
- Conduct a public hearing to adopt a Board Resolution to approve the high priority list and work plan; and
- Forward the Board Resolution and Administrative Record to the State Water Resources Control Board (State Water Board) for review and approval.

PROJECT & STAFF RESOURCES

The Triennial Review list highlights the fact that, while numerous Basin Planning actions are warranted, the allocated staff resources are insufficient to accomplish every project. Therefore, there is no guarantee that all issues appearing on the list will be acted upon or completed during the review. However, it is certainly not implied that those issues will not and should not, at some point, be pursued.

One PY or, *personnel year,* is defined as the amount of work that can reasonably be accomplished in a single year by a single employee. On average, Basin Plan amendments of *minimal complexity* are assumed to require approximately 0.3 PYs to accomplish; that is, one full-time employee spending 30% of their time on that project for that year. This is the minimum amount of resources required by a Basin Plan project due to the substantial process involved, even after Basin Plan amendments are adopted at the Regional Water Board level. *Medium complexity* amendments are assumed to require between 0.6 and 1.2 PY, depending on whether substantial investigation work has already occurred on a project, including dedication of resources external to the Water Board. *High complexity* projects are assumed to require from 1.5 to 3.0 PY, depending on staff's judgment of the specific level of controversy and complexity that could be anticipated.

If there is a special interest Basin Planning issue to stakeholders, the stakeholders are welcome to leverage their resources with the Colorado River Basin Water Board's resources and explore the possibility of addressing the issue with combined resources. This can be a viable option in those instances where funding and other resources are a limiting factor for a particular project, recognizing of course that at least some Water Board staff time is necessary to accomplish such activity.

SUMMARY

Careful consideration has and will continue to be given to all suggested issues of concern. In light of California's recent drought and the anticipation of future strains on California's water supply, the issue of protecting ground water has risen to the forefront of Colorado River Basin Water Board priorities. In order to ensure a reliable supply of water in the region, the water quality of these invaluable reserves must be protected, and the Colorado River Basin Water l Board is firmly committed to doing just that.

Deliberations for prioritizing the 2017 triennial review issues encompassed a wide array of variables and considerations including:

- How the issue protects beneficial uses
- The extent to which staff and other resources have already been invested
- The availability of external resources to complete the project
- Project feasibility, and how realistic the completion within a given time frame is
- How well the project fits in the purview of the public interest
- Social, economic, ecological, and other potential impacts or benefits
- The geographic scope of the project
- Whether or not the project implements State Water Board policy, or is an EPA priority
- If the project addresses Regional needs identified by project or unit managers at the Regional Board

As mentioned previously, there is no guarantee that all triennial review issues appearing on the list will be acted upon or completed during the review. Likewise, issues that do not appear on the list may arise and be acted upon, depending on the changing needs of the Colorado River Basin Region. Not all triennial review issues will result in a basin plan amendment. The Regional Board is committed to establishing priorities for the region, and taking the necessary steps to see that those priorities are actioned whenever possible.

2017 TRIENNIAL REVIEW LIST

Except as noted hereinafter, staff proposes that the Regional Water Board reaffirm all beneficial uses of ground and surface waters as part of the Triennial Review. Also, for this Triennial Review cycle, after considering input and comments from Regional Board members and members of the public, staff has identified the following fifteen priority issues for review and/or update:

1. **Evaluate Potential Sources of Nitrates in Prioritized Basins**

2. **Establish Water Quality Objectives for Ground Water throughout the Coachella Valley**

3. **Review of Municipal Beneficial Use Designation in Ground Water With High Salinity**

4. **Revise Beneficial Use Designations to Correspond With Individual Groundwater Basins and Aquifers**

5. **Assess the Potential for Bioaccumulation of Selenium, Mercury, Pesticides, PCBs and PBDEs in Constructed Wetlands.**
6. **Conduct Regular Monitoring Throughout the Summer 2017 for Cyanotoxins**

caused by harmful algal blooms (HABs) at Popular Salton Sea Recreation Areas

7. **Incorporate Revised 2012 U.S. EPA Recreational Water Quality Criteria for Bacteria**

8. **Assess BUs of Constructed Wetlands In Imperial & Coachella Valleys**

9. **Assess Increasing Trend in Chlorpyrifos and Pyrethroid Pesticide Detections and Associated Toxicity in Agricultural Drains.**

10. **Identify Sources of Ammonia that are Causing Toxicity in the Coachella Valley Storm Water Channel (CVSC)**

11. **Make Monitoring Preparations for Establishing Baseline Conditions for Sediment and Water Quality for the Proposed Aquatic Habitats at Salton Sea**

12. **Update the Basin Plan Discussion Concerning New River Developments and Projects**

13. **Update Salton Sea Discussion and Associated Information Contained in The Basin Plan**

14. **Correct General Errors and Outdated or Obsolete Information Contained in the Basin Plan**

15. **Adoption of USEPA Water Quality Criteria for Mercury**

USEPA RECOMMENDED CRITERIA

40 CFR section 131.20 requires that Colorado River Basin Water Board provide an explanation when it does not adopt new or revised criteria for parameters for which US EPA has published new or updated CWA section 304(a) criteria recommendations. The Colorado River Basin Water Board has reviewed the USEPA 304(a) criteria recommendations for human health and aquatic life. Except as otherwise described in the Triennial Review Staff report. the Colorado River Basin Water Board is not updating its Basin Plan to reflect uodated 304(a) criteria because the State Water Board has taken the lead in adopting statewide WQOs. The Colorado River Basin Water Board continues to take an active supporting role in this process by engaging in discussions and assessments with the State Water Board regarding recommended water quality objectives and by providing data and other relevant information necessary for the state to guide its compliance efforts.

TRIENNIAL REVIEW PRIORITY ISSUE DESCRIPTIONS

ITEM 1: EVALUATE POTENTIAL SOURCES OF NITRATES IN PRIORITIZED BASINS

BACKGROUND:

Onsite wastewater treatment systems (OWTS), or septic systems, are useful and necessary structures that allow habitation at locations that are removed from centralized wastewater treatment systems. However, in some cases, the use of OWTS have not satisfactorily protected either water quality or public health. Some instances of these failures are related to the discharge of inadequately treated wastewater due to improper siting, design, operation or maintenance of the OWTS. Inadequately treated wastewater also comes from illegal discharges that have not been permitted by the Colorado River Basin Water Board or a local agency.

The primary pollutant of concern from septic discharges is nitrogen in the form of nitrate. Excess nitrate in drinking water reduces the amount of hemoglobin present in the blood, which can cause a life-threatening condition in babies, often referred to as “blue baby syndrome”. To protect public health, US EPA set a maximum contaminant level (MCL) of 10 milligrams per liter (mg/L) for Nitrate measured as Nitrogen. A number of aquifers throughout the region have public supply wells with measured nitrate concentrations that have exceeded the MCL in the past 10 years. Those areas are listed in Attachment 1 of this staff report.

Identifying and addressing controllable sources of nitrates in region’s groundwater is paramount to the long-term efforts to protect this valuable resource. Discharges from OWTS are not the only potential source; the following common nitrate sources can impact groundwater quality due to high density of operations, inadequate management or site-specific conditions:

- Agriculture: inorganic and organic fertilizer, livestock operations, compost
- Golf Courses: use of fertilizer and recycled water
- Landfills: leaking liners, illegal landfills, compost facilities
- Domestic wastewater: OWTS and municipal wastewater treatment plants
- Miscellaneous residential sources: lawn fertilizer, domestic animals, compost
- Atmospheric deposition: deposition of nitrogen compounds in emissions from cars and industries

These activities co-occur in many areas of the region. For example, eastern Coachella Valley is an agricultural area with small communities that rely on OWTS. Similarly, the City of Rancho Mirage has residential OWTS and several golf courses. However, the mere presence of these operations may not result in excess nitrate loading. Nitrate pollution is important to address regardless of the source. Therefore, the focus for this triennial review project is to perform nitrate assessment studies in areas

with elevated nitrate levels and evaluate potential sources.

Nitrate assessment is currently underway in portions of Coachella Valley. As part of the assessment, staff is reviewing nitrate concentration trends, presence of indicator chemicals in groundwater, and land use in the Indio Subbasin. Nitrate assessments have been completed for the central Coachella Valley cities of Palm Desert, Rancho Mirage, Indian Wells, and part of Cathedral City, where preliminary data reported high nitrate concentrations, dense population centers and hydrologically sensitive areas. Following completion of the nitrate assessment in the western Indio Subbasin (Palm Springs and Cathedral City) and the eastern Indio Subbasin (Indio, La Quinta, Coachella), staff will present the findings to the Board.

In the 2014 Triennial Review, Colorado River Basin Water Board staff proposed to research threats to groundwater quality from septic systems in the La Quinta Cover area. In a workshop held on April 17, 2017 in preparation for the 2017 Triennial Review, the Colorado River Basin Water Board members advised staff to continue addressing the effects of septic discharges on regional groundwater quality by including the issue on the 2017 Triennial Review list. The Colorado River Basin Water Board advised staff to specifically address the following:

a. Perform a region-wide groundwater quality assessment using available data;

b. Look into how to address improperly sited septic systems in eastern Coachella Valley; and

c. Address effects of septic systems on groundwater based on a prioritized list of areas at risk from septic discharges.

Colorado River Basin Water Board staff is already doing that for groundwater in the Coachella Valley.

RECOMMENDATION: Staff recommends a region-wide assessment of all other groundwater basins/sub-basins in the Region that are the sources of drinking to identify: (1) data gaps and (2) areas most vulnerable to degradation/pollution from nitrates. Following this, staff would prepare a draft list, which prioritizes: (1) vulnerable areas for water quality protection actions and (2) areas where data gaps must be addressed. Data gaps could be addressed by responsible parties pursuant to the CWC § 13267, or through State Water Board discretionary contract funds by an outside agency (e.g., United States Geological Survey) if funding is available. An amendment to the Basin Plan to designate Beneficial Uses and Water Quality Objectives for groundwater based on known aquifer boundaries instead of hydrologic units/areas is also recommended (see Item 4)

ACTION: Assessment Study

EFFORT LEVEL: Approximately 3.0 PYs existing staff

TOTAL TIME TO COMPLETE: 6 years

IMPLEMENTING
DIVISION: groundwater Division

ITEM 2: ESTABLISH WATER QUALITY OBJECTIVES FOR GROUND WATER THROUGHOUT THE COACHELLA VALLEY

BACKGROUND:
In accordance with the CWC, each regional board must establish WQOs for waters of the state within their region to ensure reasonable protection of their beneficial uses. When establishing WQOs for a water body, a regional water board must consider its beneficial uses, ambient water quality, reasonably achievable water quality, economic factors, the region's housing development needs and recycled water use. (CWC§ 13241).

The State Water Board adopted a Recycled Water Policy in February 2009 (revised in January 2013), which requires water and wastewater entities to develop Salt and Nutrient Management Plans (SNMP's) for their region's groundwater basins or sub-basins. The purpose of SNMP's is to facilitate regional management of salts and nutrients from all sources in a manner that optimizes recycled water use while ensuring protection of beneficial uses and human health. The Colorado River Basin Water Board is required to consider the adoption of an implementation plan for the each basin based on its SNMP.

In 2015, Coachella Valley stakeholders submitted a SNMP to the Colorado River Basin l Water Board. The Plan provided required information about the region's groundwater, including sub-basin assimilative capacity and loading estimates. In accordance with the Recycled Water Policy, assimilative capacity must be calculated by comparing the mineral water quality objective with the average mineral concentration of the basin/sub-basin. The Basin Plan does not contain a numeric water quality objective for total dissolved solids (TDS) in groundwater. In order to calculate assimilative capacity for TDS, Coachella Valley SNMP assumed a limit of 1,000 mg/L TDS for the entire Coachella Valley basin. This concentration is listed as the upper contaminant level in the Consumer Acceptance Contaminant Levels or Secondary Maximum Contaminant Levels (SMCLs), along with a recommended limit of 500 mg/L and a short-term limit of 1,500 mg/L for TDS (22 CCR§ 64449). According to these SMCL regulations, "constituent concentration ranging to the upper contaminant level are acceptable if it is neither reasonable nor feasible to provide more suitable waters." The Colorado River Basin Water Board uses the SMCLs to interpret its narrative WQO for aestheric qualities

including objectionable taste and odor.. The U.S. EPA promulgates a single non-enforceable secondary MCL of 500 mg/L.

Calculating the TDS assimilative capacity based on the upper contaminant limit will encourage additional salt and nutrient loading in areas of the basin/ sub-basin with high quality waters, thus degrading the water quality and potentially affecting agricultural, municipal and industrial beneficial uses. In June 2016, Colorado River Basin Water Board staff expressed to the Regional Water Board their concern that a 1,000 mg/L upper contaminant limit is not protective of ambient water quality and beneficial uses of Coachella Valley's groundwater. Based on these outstanding concerns, the Executive Officer directed staff to prepare a work plan to develop site-specific objectives for TDS for the higher priority groundwater basins within Region 7, and the Colorado River Basin Water Board concurred.

State Water Board's GAMA Basin Prioritization Project is a common tool used by regional water boards for groundwater management purposes. The tool's ranking system is based on public supply well density, groundwater pumping, agricultural groundwater use, leaking underground storage tanks, pesticide application rates and land surface area. GAMA high priority basins within Colorado River Basin Region are the Coachella Valley Basin and the southern portion of the Upper Mojave River Basin, as shown in Attachment 2 of this Staff Report. At this time staff is focusing on the Coachella Valley Basin due the outstanding issues with the SNMP, starting with the Indio Sub-basin. To prioritize future potential amendments for area-specific water quality objectives, staff plans to develop a prioritized list of Colorado River Basin Region groundwater aquifers based on the Regional Water Board's priorities and the region's water quality management needs.

RECOMMENDATION:	Staff recommends amending the Basin Plan to; (1) establish numeric WQO's for TDS in the Indio Subbasin of the Coachella Valley, and; (2) designate Beneficial Uses and Water Quality Objectives for groundwater based on known aquifer boundaries instead of hydrologic units/areas.. The need for numeric WQO's in other priority basins should also be evaluated, amending the Basin Plan as necessary
ACTION:	Basin Plan Amendment
EFFORT LEVEL:	Approximately 2.0 PYs existing staff / $500K - $700K contract funding required
TOTAL TIME TO COMPLETE:	4 years
IMPLEMENTING DIVISION:	Groundwater Division

ITEM 3: REVIEW OF MUNICIPAL BENEFICIAL USE DESIGNATION IN GROUND WATER WITH HIGH SALINITY

BACKGROUND:

State Water Board Resolution No. 88-63 (Sources of Drinking Water Policy or SDP Policy) requires regional water boards to consider all waters of the state as suitable or potentially suitable for municipal or domestic water supply, with some exceptions. This requirement is met by designating all surface waters and groundwater basins with the municipal and domestic supply beneficial use (MUN), unless they meet one of the following exceptions outlined in the Sources of Drinking Water Policy:

a. The total dissolved solids (TDS) exceed 3,000 mg/L (5,000 uS/cm, electrical conductivity) and it is not reasonably expected by Regional Boards to supply a public water system, or;

b. There is contamination, either by natural processes or by human activity (unrelated to the specific pollution incident), that cannot reasonably be treated for domestic use using either Best Management Practices or best economically achievable treatment practices, or;

c. The water source does not provide sufficient water to supply a single well capable of producing an average, sustained yield of 200 gallons per day.

Section 106.3 of the CWC (California's Human Right to Water Policy or Policy) states that "every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes." The State Water Board adopted this Policy as a core value under Resolution 2016-0010. To implement this Policy, the Colorado River Basin Water Board considers the human right to water in all activities that could affect existing or potential sources of drinking water (MUN).

The Basin Plan designates groundwater beneficial uses in Chapter 2, Table 2-5 based on hydrologic unit and area boundaries. All Colorado River Basin hydrologic units / areas that have at least one aquifer in that unit that currently supports a MUN beneficial use have the MUN designation. However, based on available groundwater quality data, some of the hydrologic units / areas have localized regions with excessively high salinity levels that cannot reasonably support the MUN beneficial use.

While it is evident that some areas cannot reasonably support the MUN beneficial use, it would not be justifiable to consider de-designating entire hydrologic units or areas. Low-quality ground waters that exceed 3,000 mg/L are often localized, particularly in

Imperial hydrologic unit (7-23). In order to further evaluate whether these and other areas can reasonably support the MUN beneficial use, it will be necessary to identify smaller regions that are hydrologically independent. Such boundaries may be both horizontal and vertical based on the aquifer boundaries, groundwater levels, groundwater flow directions and rates, and water quality of the surrounding areas.

For example, the Imperial Valley groundwater basin consists of at least two major aquifers horizontally separated by a semi-permeable aquitard. The water quality throughout the basin is highly variable. According to groundwater data available on Geotracker GAMA, there is an apparent trend of increasing TDS along the axis of the valley toward the Salton Sea. The groundwater flow direction is also generally along the same axis toward the Salton Sea (DWR Bulletin 118). Local municipalities generally rely on imported Colorado River water for their public water supply, with the exception of a few small communities in the lower half of the basin that rely on groundwater. Staff proposes to evaluate Imperial Valley groundwater basin (DWR Basin number 7-30) to determine whether areas of highly saline groundwater may be de-designated for MUN without affecting areas within the basin where water quality is higher.

Under Item 4 of this Staff Report, Staff proposes amending the Basin Plan to change the way that groundwater beneficial uses are designated geographically to use known aquifer boundaries, rather than hydrologic units/areas. Performing such an amendment would provide detail and accuracy to how the beneficial uses are designated, ensuring that specific beneficial uses apply to groundwater areas that are hydrologically continuous. The two issues are closely related and the required work may be performed concurrently.

RECOMMENDATION: It is recommended that the Colorado River Basin Water Board conduct an assessment study in Imperial Valley groundwater basin to identify and delineate regions of groundwater that do not presently support MUN use, cannot potentially support MUN use, and do not have the potential to degrade higher quality waters. Data gaps could be addressed through State Water Board discretionary contract funds by an external agency or institution if funding is available. If hydrologically independent regions unsuitable for MUN use are identified, the Board should consider an amendment to eliminate the MUN designation for that region. Finally, it is recommended that the Board amend the Basin Plan to designate Beneficial Uses and Water Quality Objectives for groundwater based on known aquifer boundaries instead of hydrologic units/ areas (see Item 4).

ACTION: Basin Plan Amendment

EFFORT

LEVEL: Approximately 3.0 PYs existing staff / $500K contract.

TOTAL TIME TO COMPLETE: TBD

IMPLEMENTING DIVISION: Basin Planning

ITEM 4: REVISE BENEFICIAL USE DESIGNATIONS TO CORRESPOND WITH INDIVIDUAL GROUND WATER BASINS AND AQUIFERS

BACKGROUND:

Basin Plan Chapter 5, Section III, Paragraph B reads as follows:

"The ground water Beneficial Use Designations for this Region are currently based on hydrologic units. In the next three years, Regional Board staff intends to review the appropriate groundwater data and propose changes to the Beneficial Use Designations so that they will correspond to individual groundwater aquifers within the various hydrologic units. The proposed changes in designations will also be based on the review of the "Sources of Drinking Water Policy" in Chapter 2. These changes would result in an updated version of Table 2-5 (Chapter 2) and a more detailed map of the groundwater aquifers in this Region."

As of 2017, the groundwater Beneficial Use table 2-5 still uses the hydrologic unit / area system to identify Beneficial Uses. Table 2-5 is accompanied by the map titled "Colorado River Hydrologic Basin Planning Area (CR)" (Basin Planning Area map). The map's boundaries and index roughly correspond with the "CalWater 2.2.1" map, an interagency watershed map created to standardize the boundary delineation, coding and naming of California watersheds by government agencies.

Hydrologic Unit and Area boundaries are analogous to watersheds and are shaped by topography. Groundwater Basin boundaries outline the horizontal shape of an aquifer or stacked series of aquifers with reasonably well-defined boundaries in a lateral direction, based on features that significantly impede groundwater flow, and a definable bottom. Because features that impede groundwater flow are often associated with topographic protrusions, groundwater basins may correspond with the overlying hydrologic units. For example, Ward HU 7-12 is contained by Ward Valley Basin 7-3[1]. However, in many cases there are additional subsurface features such as faults that create groundwater barriers, or other situations where watersheds and aquifers do not match up. Examples of this include Colorado HU 7-15, which contains 5 whole groundwater basins and portions of 4 others, and Imperial HU 7-23, which contains the majority of three groundwater basins and small

portions of 2-4 others.

Groundwater basins are delineated by the DWR under its Bulletin 118 Publications for the purposes of ground water management. A version of this map is included in the Basin Plan, titled “Colorado River Hydrologic Region”. The Bulletin 118 Map is commonly used by State Agencies, including the State and Regional Water Boards.

- Using groundwater basin boundaries for the purpose of water quality management is preferable, particularly within the Colorado River Basin Region due to its hydrogeology and topography. Because this Triennial Review prioritizes groundwater issues, it may be necessary to amend the Basin Plan in accordance with Chapter 5, Section III, Paragraph B, by modifying Table 2-5 to identify beneficial uses based on known aquifers/ basins, in accordance with the map and current Policies

RECOMMENDATION: Staff proposes to review available groundwater data and beneficial uses currently designated and to identify beneficial uses of individual groundwater basins, subbasins and/or aquifers within the hydrologic units. Beneficial uses of groundwater in the Colorado River Basin Region are currently based on hydrologic units. Based on finding of this assessment, staff will propose to amend the Basin Plan as necessary.

ACTION: Assessment Study

EFFORT LEVEL: Approximately 3.0 PYs of additional staff / $500K contract

funding required.

TOTAL TIME TO COMPLETE: TBD

IMPLEMENTING DIVISION: To be determined

ITEM 5: EVALUATE THE POTENTIAL FOR BIOACCUMULATION OF SELENIUM, MERCURY, PESTICIDES, PCBs AND PBDEs IN CONSTRUCTED WETLANDS

BACKGROUND:

The fact that bioaccumulation is occurring at the Imperial constructed wetlands is well established. Historical data show that while these wetlands have some capacity to reduce levels of specific nutrients, they also have a natural tendency to bio-magnify harmful contaminants in the tissues of aquatic, and possibly terrestrial, organisms. It has been more than a decade since a comprehensive bioaccumulation study was conducted at these wetlands. Understanding the rate and severity of bioaccumulation in the wetlands will enable the Board and its staff to evaluate the impacts on beneficial uses, and to anticipate what we might

expect from the new aquatic habitats at Salton Sea, since they will be fed by the same impaired inflows. It will also support the development of policy to address those impacts, such as potential site-specific WQOs. This work will be actioned and funded under the RB7 SWAMP program. The primary questions we hope the study will answer are:

- What is the ecological health of the wetland and its biotic community?
- Which contaminants are bio-accumulating, and to what degree?
- Is toxicity present in the wetland? And if so, which organisms are at the greatest risk?
- How does current data compare to historical data in terms of spatial and temporal trends?

RECOMMENDATION: Proceed with evaluating the extent of bioaccumulation that is occurring at the constructed wetlands. The information gained will provide the insight needed to understand the transport and transformation of contaminants that can be anticipated within the newly created aquatic habitats prescribed under the Salton Sea 10-year plan.

ACTION: Assessment Study

EFFORT LEVEL: Approximately 1.0 PYs of existing staff

TOTAL TIME TO COMPLETE: 12 months

IMPLEMENTING DIVISION: SWAMP Program

ITEM 6: CONDUCT REGULAR MONITORING THROUGHOUT SUMMER 2017 FOR CYANOTOXINS AND MICROCYSTINS (AS WELL AS ENTEROCOCCUS) AT POPULAR SALTON SEA RECREATION AREAS

BACKGROUND: In March of 2017, it came to the attention of Regional Board staff that an organization called SE-ATHLETES would be taking children out to Salton Sea on a monthly basis for recreation. That same month, Region 7 SWAMP staff subsequently sampled for harmful algal blooms and identified the presence of cyanobacteria at the North Shore. The sampling detected the presence of associated cyanotoxins (specifically, anatoxin-a). This potent neurotoxin can potentially pose a threat to humans and pets. The detected levels of the toxin triggered a public notice whereby caution signs have since been posted at the sampling locations. The locations include the State Recreation Area boat launch; the Yacht Club Lagoon; and the shoreline of the State Recreation Area.

These locations were selected for sampling due to an increase in recreational use there. The warmer summer months create ideal conditions for cyanobacteria to thrive and bloom, and so we expect toxin levels to increase as temperatures rise. Monitoring is necessary to characterize the threat to the Sea's beneficial uses and continue supporting the California Natural Resources Agency's (CNRA) Salton Sea Management Program. The outcome of this surveillance could potentially result in a change in WQOs, specifically for nutrients which drive the blooms. The change in WQOs would require amending the Basin Plan.

RECOMMENDATION: Continue monitoring harmful algal blooms throughout the year while members of the public are recreating in Salton Sea.

ACTION: Water Quality Surveillance

EFFORT LEVEL: Approximately 0.5 PYs of existing staff

TOTAL TIME TO COMPLETE: 6 Months

IMPLEMENTING DIVISION: SWAMP program

ITEM 7: ADOPTION OF 2012 USEPA RECREATIONAL WATER QUALITY CRITERIA FOR BACTERIA REVISION

BACKGROUND: The State Water Resources Control Board is developing a statewide policy to incorporate Revised 2012 USEPA Recreational Water Quality Criteria for Bacteria by 2018. The proposed bacteria objectives would supersede the numeric water quality objectives for bacteria in the Basin Plan. The State Board is also proposing a new beneficial use, LREC-1, where recreational uses of a waterbody are limited due to physical conditions that limit contact with the water, e.g. restricted access, concrete channelization, or shallow depths. If adopted, the Colorado River Basin Water Board will be required to amend its Basin Plan to incorporate the new WQOs.

The 2012 Recreational Water Quality Criteria reflect the latest scientific knowledge, public comments, and external peer review. The criteria are designed to protect the public from exposure to harmful levels of pathogens while participating in water-contact activities such as swimming, wading, and surfing in all waters designated for such recreational uses.

What may change: The proposed criteria are based on the most up-to-date health studies and use a broader definition of illness to recognize that symptoms may occur without a fever, including a number of stomach ailments. EPA also narrowed from 90 days to 30 days the time period over which the results of monitoring samples may be averaged. This produces a more accurate picture of the water quality for that given time, allowing for improved notification time about water quality to the public. This shortened time period especially accounts for heavy rainfall that can wash pollution into rivers, lakes or the Salton Sea.

RECOMMENDATION: The new science-based criteria provide information to protect public health by providing more protective recommendations to recreational users. Staff recommends adopting the USEPA criteria for bacteria with a Basin Plan amendment once it has been finalized

ACTION: Basin Plan Amendment

EFFORT LEVEL: Approximately 0.5 PYs of additional staff

TOTAL TIME TO COMPLETE: 6 Months

IMPLEMENTING DIVISION: Basin Planning

ITEM 8: ASSESS BENEFICIAL USES OF CONSTRUCTED WETLANDS IN IMPERIAL AND COACHELLA VALLEYS

BACKGROUND: There are three constructed wetlands currently in operation within the region, and a fourth wetland is expected to be operational in 2018, located on Torres-Martinez Tribal land east of Indio, California. The wetlands are sustained by flows from Salton Sea's two main tributaries, the New and Alamo Rivers, which are both impaired by a number of pollutants. The wetlands were constructed to serve as both habitat and water treatment, with the hope that improvements in water quality would be realized, thus limiting the amount of pollution entering the Salton Sea. To date, no measurable water quality improvements have materialized at Salton Sea as a result of these wetlands.

Currently, none of these wetlands have designated beneficial uses outlined in the Basin Plan. As such, staff will be preparing a report that will characterize the water quality of these wetlands, and examine the beneficial uses supported by these systems, as part of this triennial review. The outcome will lead to a Basin Plan

amendment that will establish WQOs, as well as designated beneficial uses for these water bodies.

RECOMMENDATION: Prepare a staff report for the establishment of beneficial uses and/or WQOs for constructed wetlands located in the Imperial Valley.

ACTION: Basin Plan Amendment

EFFORT LEVEL: Approximately 0.5 PYs of additional staff

TOTAL TIME TO COMPLETE: 6 Months

IMPLEMENTING DIVISION: Basin Planning

ITEM 9: ASSESS INCREASING TREND IN CHLORPYRIFOS AND PYRETHROID PESTICIDE DETECTIONS AND ASSOCIATED TOXICITY IN AGRICULTURAL DRAINS

BACKGROUND: Under the RB7 SWAMP program, a field study was conducted in Imperial Valley drains in the fall of 2015 to assess the use of neonicotinoid pesticides, as well as chlorpyrifos and pyrethroids. Although neonicotinoids were detected in 88% of samples, they were below the 96-hour acute toxicity thresholds. In contrast, however, chlorpyrifos was detected in all Imperial Valley samples, with several samples showing sufficient chlorpyrifos toxicity units to account for toxicity. Moreover, two of the toxic samples showed sufficient pyrethroid toxicity to account for amphipod mortality. Characterizing the trend is critical to developing and implementing future water quality control policy.

RECOMMENDATION: The Regional Board should continue to monitor the toxicity effects of chlorpyrifos and pyrethroid pesticides throughout the agricultural drains of Imperial Valley. This monitoring could potentially lead to future WQOs for these constituents of emerging concern.

ACTION: Assessment Study

EFFORT LEVEL: Approximately 0.5 PYs of existing staff

TOTAL TIME TO COMPLETE: 6 Months

IMPLEMENTING DIVISION: SWAMP Program

ITEM 10: IDENTIFY SOURCES OF AMMONIA THAT ARE CAUSING TOXICITY IN THE COACHELLA VALLEY STORM WATER CHANNEL (CVSC)

BACKGROUND: In 2012, the Surface Water Ambient Monitoring Program (SWAMP) utilized a toxicity identification evaluation (TIE) and found ammonia to be the source of toxicity in the CVSC. However, it is unknown where the source is originating from, and so a strategic monitoring effort is needed to identify the source of the ammonia.

RECOMMENDATION: An investigative monitoring study is needed to pinpoint the sources of ammonia that are the cause of toxicity in the CVSC. The potential outcome of this evaluation could result in a TMDL for ammonia.

ACTION: Assessment Study

EFFORT LEVEL: Approximately 0.5 PYs of existing staff

TOTAL TIME TO COMPLETE: 6 Months

IMPLEMENTING DIVISION: Basin Planning

ITEM 11: MAKE MONITORING PREPARATIONS FOR ESTABLISHING BASELINE CONDITIONS FOR SEDIMENT AND WATER QUALITY FOR THE PROPOSED AQUATIC HABITATS AT SALTON SEA

BACKGROUND: Once water is introduced to the artificial habitats at Salton Sea, the Biogeochemical cycle begins immediately. It is imperative to establish baseline conditions early on, if we're to have a reliable monitoring program for these new habitats. The Colorado River Basin Water Board will coordinate with other agencies (CNRA, DWR, IID, BOR, etc.) to maximize efficiency and avoid duplication of sampling effort.

RECOMMENDATION: It is absolutely imperative to monitor the water quality of these habitats immediately upon hydration, in order to characterize the chemical and biological health of these waters and establish baseline water quality conditions. This initial monitoring is critical if there is to be a meaningful monitoring program in the long term. The outcome will provide the

cornerstone from which all future monitoring activities at Salton Sea will be based. Data generated from the monitoring will be used to support policy actions that may potentially include TMDLs and changes to WQOs or BUs. Preparations must be made immediately in terms of planning and budgeting. This work will be actioned and funded under the RB7 SWAMP program.

ACTION: Assessment Study

EFFORT LEVEL: Approximately 0.5 PYs of existing staff

TOTAL TIME TO COMPLETE: 6 Months

IMPLEMENTING DIVISION: SWAMP Program

ITEM 12: UPDATE THE BASIN PLAN DISCUSSION CONCERNING NEW RIVER DEVELOPMENTS AND PROJECTS

BACKGROUND: Basin Plan information concerning the New River is significantly outdated. Obsolete language needs to be removed and new developments from the past several years need to be added into the Basin Plan to bring the Basin Plan up to date on New River activities, developments, and policy. The condition of the New River, regulatory and non-regulatory cleanup efforts and key developments are not just important to the Regional Water Board. They are also closely tracked by the Legislature, Governor Brown's Office, CalEPA, State Water Board, USEPA, and other regional and binational stakeholders. Recent New River developments no reflected in the Basin Plan include:

- Mexico's regulatory efforts to address direct industrial discharges into the New River in Mexicali, including untreated discharges of wastes from slaughterhouses,
- The successful completion of the Mexicali I and II binational projects in Mexicali, which culminated with the construction of Las Arenitas WWTP;
- Mexico's ongoing efforts to expand treatment capacity at Las Arenitas WWTP;
- The findings of a study funded by the NADBank/BECC to characterize the sewage infrastructure problems in Mexicali—problems that have resulted in additional bypasses of raw

sewage from Mexicali into the New River and other emerging water quality threats;

- The New River Improvement Project Strategic Plan, its structural and non-structural recommendations to address New River pollution, status of recommendations, etc;

RECOMMENDATION: The Basin Plan should be updated to reflect current and emerging water quality threats to New River water quality at the Border with Mexico, the Strategic Plan's recommendations (e.g., projects for the Calexico area), and latest regulatory efforts to address New River NPS pollution from the Imperial Valley.

ACTION: Basin Plan Amendment

EFFORT LEVEL: Approximately 0.2 PYs of existing staff

TOTAL TIME TO COMPLETE: 3 Months

IMPLEMENTING DIVISION: JLA

ITEM 13: UPDATE SALTON SEA DISCUSSION AND ASSOCIATED INFORMATION CONTAINED IN THE BASIN PLAN

BACKGROUND:
The Salton Sea is California's largest inland surface water. Salts concentrate in the Sea because it is a closed basin. As the Sea becomes saltier, its ecosystem changes dramatically. Without implementation of a restoration project, the Sea's fishery is projected to disappear in the near future. This in turn will have a significant adverse impact on migratory birds. The last update to the Basin Plan concerning the Sea occurred in 1992. Since that time, the Sea has diminished in size, salinity has long since exceeded 45,000 parts per million, and substantive legislative and regulatory developments have occurred that have significant impact on the fate of the Sea. Key events and legislature related to Salton Sea restoration and mitigation are summarized below.

1998 On November 12, the Salton Sea Reclamation Act was enacted into law (Public Law 105-372). The Act directs the US Department of Interior to study options for managing the salinity and elevation of the Sea to preserve fish and wildlife health and to enhance opportunities for recreation use and economic

development, while continuing the Sea's use as a reservoir for irrigation drainage.

2002 On October 28, the State Water Board issued Order WRO 2002-0013, and revised it on December 20. Revised Order WRO 2002-0013 approved the long-term transfer of up to 300,000 acre-feet of water per year authorized for diversion and use from the Colorado River under Imperial Irrigation District's (IID) water right Permit 7643 to San Diego County Water Authority (SDCWA), Coachella Valley Water District (CVWD) and Metropolitan Water District of Southern California (MWD). The approved transfer was for a term of 45 years with an optional 30-year renewal period, for a total of 75 years.

2003 In January, the US Department of Interior released the Salton Sea Study Status Report evaluating alternatives to control salinity and the Sea's elevation. No funding has been appropriated to implement the alternatives.

On October 10, IID, CVWD, SDCWA, and MWD signed the Quantification Settlement Agreement (QSA). The QSA quantifies the rights of California to Colorado River water, provides for the transfer of water from the IID to the SDCWA, and requires IID to mitigate the effects of the transfer on salinity by releasing mitigation water to the Sea until 2017.

2005 In September, US Department of the Interior, Bureau of Reclamation published an Environmental Assessment and Finding of No Significant Impact for the Salton Sea Shallow Water Habitat Pilot Project, providing data for the design of saline shallow water ponds north of the Alamo River.

2007 On June 26, the State of California published the final Programmatic Environmental Impact Report (PEIR) on Salton Sea Restoration. As of August 2017, the comprehensive restoration preferred alternative identified in the PEIR has not been funded.

2013 Assembly Bill 71 (A.B. 71), as amended, was signed into law on September 28, ensuring local input and participation in Salton Sea restoration efforts. A.B. 71 provided funding for a restoration funding and feasibility study to be led by the Salton Sea Authority in consultation with CNRA.

In July, the Department of Water Resources released the Final Environmental Impact Statement / Report for the Species Conservation Habitat Project. The preferred alternative consists of 3,770 acres of shallow saline ponds at the mouth of the New River.

2014 On November 18, IID filed a petition with the State Water Board requesting modification of Revised Order WRO 2002-0013 and calling upon the State of California to its obligation to restore the Salton Sea.

2015 On March 18, State Water Board convened a workshop on View of the Salton regarding the status of the Salton Sea and revised Water Rights Order 2002-0013.

On April 28, the Little Hoover Commission (LHC) held a public hearing to review the State of California's Salton Sea environmental mitigation and restoration governance strategy. LHC conducted a subsequent hearing on June 25. Their report was published on September 24, 2015.

In July, IID released the Salton Sea Restoration and Renewable Energy Initiative (SSRREI). SSREI proposes a collaborative incremental restoration approach designed to minimize environmental and air quality impacts, while using revenue generated by renewable energy projects to fund larger scale environmental mitigation and restoration efforts at the Sea.

In September, Governor Brown appointed Bruce Wilcox to the new position of CNRA Assistant Secretary for Salton Sea to lead the Salton Sea restoration efforts and coordinate with the stakeholders.

2016 CNRA Assistant Secretary for the Salton Sea initiated the Salton Sea Management Program and its nine advisory committees to coordinate restoration efforts with stakeholders and the public.

Throughout the year, the State Water Board held four workshops to receive updates and solicit public input regarding the status of agency actions identified by the Salton Sea Task Force and the status of the Salton Sea Management Program.

On August 31, a Memorandum Of Understanding (MOU) was executed between the US Department of the Interior and the CNRA to foster collaboration between the agencies and coordination with other stakeholders as they work toward meeting resource mitigation goals.

On the same day that the MOU was executed, the Water Funder Initiative announced a goal to provide $10 million over five years to support Salton Sea restoration.

2017 In March, the CNRA released its 10-Year Plan which outlined proposed projects for a smaller and sustainable sea designed to meet restoration goals set forth by the Salton Sea Task Force and the 2016 MOU between the US Department of Interior and CNRA.

On December 31, the release of Salton Sea mitigation water by IID will cease in accordance with the QSA.

The Colorado River Basin Water Board is actively coordinating and collaborating with CNRA, the Salton Sea Authority and individual Salton Sea stakeholders on the Salton Sea Management Program. As the restoration and mitigation projects are developed and implemented, basin planning actions will be necessary to protect

	water quality and public health at the Salton Sea. To prepare for future regulatory amendments, the Regional Water Board will update the Basin Plan to reflect the current state of the Salton Sea.
RECOMMENDATION:	Staff recommends updating the Basin Plan, as an administrative amendment, to reflect policy and legislative developments, as wells as changes in water quality and environmental conditions at the Salton Sea since 1992
ACTION:	Basin Plan Amendment/Editorial Changes
EFFORT LEVEL:	Approximately 0.4 PYs of existing staff
TOTAL TIME TO COMPLETE:	5 Months
IMPLEMENTING DIVISION:	Basin Planning

ITEM 14: CORRECT GENERAL ERRORS AND OUTDATED OR OBSOLETE INFORMATION CONTAINED IN THE BASIN PLAN

BACKGROUND: The Basin Plan is the cornerstone from which all Colorado River Basin Water Board actions build from. Staff proposes to correct errors and outdated information contained in the Basin Plan, in order to bring it current and in compliance with current regulations and statutes. The updates include, but are not limited to the following:

- Standardize format throughout the document including margins, spacing, footnotes, heading styles, section styles, bulleting, numbering, etc.

- Replace the map titled “Colorado River Hydrologic Basin Planning Area” with updated higher resolution map based on the interagency map CalWater 2.2.1 of hydrologic units and areas used to delineate watershed boundaries

- Replace the map titled ”Colorado River Hydrologic Region” with updated higher resolution map based on Department of Water Resources Bulletin 118 groundwater basins

- Add a high-resolution map or maps that clearly identify all major surface waters

- Replace the outdated Yucca Valley Prohibition figure 4-1 that was not updated with the 2016 Amendment

- Update and replace Chapter 1 Figure 1-1, “Colorado River Planning Areas”, with a map with better resolution and a clear legend

- Revise the format Chapter 2 beneficial use Tables 2-2 through 2-5.

- Correct possible misspellings of surface waters in Chapter 2 beneficial use Table 2-3

- Correct possible misnomers of hydrologic units / areas in Chapter 2 beneficial use Table 2-5 to be consistent with standard watershed nomenclature

- Identify and correct other errors, typos

RECOMMENDATION: Staff is recommending the following actions:

- Perform a comprehensive review of the Basin Plan to identify all errors, outdated information and formatting issues in coordination with all units

- Adopt an administrative amendment to correct typos and errors
- Adopt an administrative amendment to standardize format
- Adopt an administrative to update miscellaneous outdated information
- Identify urgent corrections and include those with any upcoming amendment

ACTION: 3 Basin Plan Amendments

EFFORT LEVEL: Approximately 0.6 PYs of additional staff

TOTAL TIME TO COMPLETE: TBD

IMPLEMENTING DIVISION: Basin Planning

ITEM 15: ADOPTION OF USEPA WATER QUALITY CRITERIA FOR MERCURY

BACKGROUND: The State Water Resources Control Board adopted Statewide Water Quality Criteria for mercury in 2017. The objectives were recommended by USEPA and supersede the numeric water quality objectives for mercury currently found in the Basin Plan. The Colorado River Basin Water Board intends to amend its Basin Plan to incorporate the new mercury WQOs.

The mercury Criteria reflect the latest scientific knowledge, public comments, and external peer review. The criteria are designed to protect the public from exposure to harmful levels of mercury in all waters designated for recreational uses.

RECOMMENDATION: The new science-based criteria provide information to protect public health by providing more public health protection. Staff recommends adopting the State Board WQOs for mercury with a Basin Plan amendment.

ACTION: Basin Plan Amendment

EFFORT LEVEL: Approximately 0.5 PYs of additional staff

TOTAL TIME TO COMPLETE:	6 Months
IMPLEMENTING DIVISION:	Basin Planning