

Response to comments by The Colorado River Commission of Nevada (CRCNV) and the City of Henderson, dated December 11 and December 20, 2018 respectively

COMMENT 1.

Colorado Region: Lake Mead (NAC445A.2152)

Lake Mead is currently at elevation 1078 ft. ASL and full pool elevation is 1220 ft. ASL. With the drought in the southwest the elevation is only expected to decline further in the future. The inner Las Vegas Bay location is 1.2 miles from the confluence of the Las Vegas Wash and Lake Mead. This is a moveable station. As lake elevations decline this location has the potential to move into the open water of Boulder Basin, which has its own set of standards. The water quality 1.2 miles from the confluence of the Las Vegas Wash and Lake Mead may not meet the open water standard for the following:

Water Quality Standard (WQS) - Nitrate - S.V. < 10 mg/L

WQS - Total Dissolved Solids - S.V. <1,000 mg/L

WQS - Chloride- S.V. < 400 mg/L

WQS - Sulfate- S.V. < 500 mg/L

The Inner Las Vegas Bay designation and associated water quality standards should remain no matter how far the site may move into Boulder Basin.

RMHQ - Chlorophyll a –

- Not more than 1 monthly mean in a calendar year at Station LWLVB 1.85 may exceed 45 µg/L.
- The mean for **chlorophyll a** in summer (July 1 - September 30) must not exceed 40 µg/L at Station LWLVB 1.85, and the mean for 4 consecutive summer years must not exceed 30 µg/L.
- The mean for **chlorophyll a** in the growing season (April 1 - September 30) must not exceed 16 µg/L at Station LWLVB 2.7 and 9 µg/L at Station LWLVB 3.5.

The **chlorophyll a** standards for sites 1.85 miles, 2.7 miles, and 3.5 miles from the confluence of the Las Vegas Wash and Lake Mead should take precedence over whether or not the site is in the open water of Boulder Basin.

RMHQ - Chlorophyll a –

- The mean for **chlorophyll a** in the growing season (April - September 30) must not exceed 5 µg/L in the open water of Boulder Basin, Virgin Basin, Gregg Basin, and Pierce Basin. The single value must not exceed 10 µg/L for more than 5 percent of the samples.

The open water of Boulder Basin designation should be changed to more than 3.5 miles from the confluence of the Las Vegas Wash and Lake Mead.

NDEP Response to all parts of Comment 1: The Inner Las Vegas Bay standards defined in Nevada Administrative Code (NAC) 445A.2154 will continue be applied from the confluence of the Las Vegas Wash to 1.2 miles into Lake Mead. "...consisting of Lake Mead from the confluence of the Las Vegas Wash with Lake Mead to 1.2 miles into Las Vegas Bay." During the Integrated Report (IR) water

quality assessment process, the Bureau of Water Quality Planning (BWQP) recognizes that, at lower lake elevations, the 1.2-mile description may extend into open water of Boulder Basin. It is the intention of BWQP to apply the criteria specified in NAC 445A.2154 to all stations and data that fall inside the 1.2-mile reach for a given time period and lake elevation. (Fixed stations may apply to 2152 or 2154 depending on lake elevation). Similarly, the other moveable stations (i.e., LWLVB 1.85, 2.7 and 3.5) with station-specific requirements to maintain higher quality (RMHQs) for **chlorophyll *a*** will continue to be measured from the confluence of the Las Vegas Wash and Lake Mead, regardless if they are in the open water of Boulder Basin or not. BWQP will evaluate the movable sites and declining lake levels further when we conduct our comprehensive review the water quality standards (WQS) for the Colorado River basin within this triennial review period.

COMMENT 2.

NAC 445A.2154 Colorado Region: Inner Las Vegas Bay. (NRS 445A.425, 445A.520) *The limits of this table apply to the body of water known as Inner Las Vegas Bay, consisting of Lake Mead from the confluence of the Las Vegas Wash with Lake Mead to 1.2 miles into Las Vegas Bay. Inner Las Vegas Bay is located in Clark County.*

"The language from NAC 445A.2152 should be applied to the areas of the Gregg and Virgin Basins closest to the inflows of the Colorado River and the Virgin and Muddy Rivers where the chlorophyll concentrations can exceed 10 µg/L for more than 5 percent of the samples and the growing season average can exceed 5 µg/L. The inflow areas receive the non-point source nutrients from the Colorado River and the Virgin and Muddy Rivers. Algal growth occurs near the confluence of the inflows and Lake Mead as the nutrients are consumed by the algae. The language "The Commission recognizes that at entrances of tributaries to Lake Mead, localized violations of standards may occur." should apply.

NDEP Response to Comment 2: During the IR water quality assessment process, BWQP recognizes that entrances of tributaries to Lake Mead may cause localized violations of standards and BWQP will make a judgement at that time whether to exclude any data that may be influenced by localized tributary waters. NAC 445A.121 (8) notes that *"The specified standards are not considered violated when the natural conditions of the receiving water are outside the established limits, including periods of extreme high or low flow."* The BWQP will consider an extreme low-level of Lake Mead as a factor in assessing possible localized violations of standards.

COMMENT 3.

RMHQ-Total Inorganic Nitrogen - 95% of S.V. samples < 4.5 mg/L

The RMHQ for Total Inorganic Nitrogen may need modification to reflect the loss of 62% of the volume of Lake Mead. Changes in elevation alter the volume of water available for mixing. The

background concentration of nitrogen in Lake Mead could also change due to changes in the inflowing water from Lake Powell due to the drought. There are also operational changes expected in Hoover Dam with lower lake levels. Currently, there are two elevations at which water is withdrawn from Lake Mead. In the future, if the lake falls below 1060 ft. ASL, this will change to one withdrawal point very deep in the reservoir. This change in withdrawal point has the potential to alter the water quality in Lake Mead in ways that have not been previously seen.

NDEP Response to Comment 3: BWQP will look at the RMHQs during this triennial review period as part of the Colorado River basin WQS review. However, BWQP does not anticipate proposing to modify the RMHQs during the WQS review.

COMMENT 4.

WQS - Suspended Solids - S.V. < 25 mg/L
WQS - Turbidity – S.V. < 25 NTU

The suspended solids and turbidity standards are inappropriate for the areas closest to the inflow of the Virgin, Muddy, and Colorado Rivers. As the lake declines the sediment in the deltas are resuspended and moved into Lake Mead. In future Water Quality Integrated Reports please apply the language from NAC 445A.2152, "The Commission recognizes that at entrances of tributaries to Lake Mead, localized violations of standards may occur." The compliance point should allow for a transitional zone and be a distance from the end of the delta so that there is time for the larger particles to settle into the reservoir. Also, researchers have found that razorback suckers spawn close to these inflows due to the turbidity. The turbidity provides cover for the juvenile razorback suckers, so they have a chance to grow to a size where they cannot be eaten by predators. It is unfortunate that there is not more flexibility in water quality standard determinations that allow for consideration of the needs of endangered species.

NDEP Response to Comment 4: During the IR water quality assessment process, BWQP recognizes that entrances of tributaries to Lake Mead may cause localized violations of standards and BWQP will make a judgement at that time whether to exclude any data that may be influenced by localized tributary waters. BWQP will review the appropriateness of water quality criteria for aquatic life in the Colorado Basin during this triennial review period. NAC 445A.121 (8) notes that "*The specified standards are not considered violated when the natural conditions of the receiving water are outside the established limits, including periods of extreme high or low flow.*" The BWQP will consider an extreme low-level of Lake Mead as a factor in assessing possible localized violations of standards.

COMMENT 5.

Colorado Region: Inner Las Vegas Bay (NAC 445A.2154) RMHQ - Total Inorganic Nitrogen - 95% of S.V samples <5.3 mg/L

The RMHQ for Total Inorganic Nitrogen may need modification to reflect the loss of 62% of the volume of Lake Mead. Changes in elevation alter the volume of water available for mixing. The background concentration of nitrogen in Lake Mead could also change due to changes in the inflowing water from Lake Powell due to the drought. There are also operational changes expected in Hoover Dam with lower lake levels. Currently, there are two elevations at which water is withdrawn from Lake Mead. In the future, if the lake falls below 1060 ft. ASL, this will change to one withdrawal point very deep in the reservoir. This change in withdrawal point has the potential to alter the water quality in Lake Mead in ways that have not been previously seen.

NDEP Response to Comment 5: BWQP will look at the RMHQs during this triennial review period as part of the Colorado River basin WQS review. However, BWQP does not anticipate proposing to modify the RMHQs during the WQS review. BWQP is currently drafting a document describing the implementation procedure for RMHQs and antidegradation, in general. If natural conditions change due to severe prolonged drought, that could relate to the component where RMHQs may not apply in extremes of high or low flow.

COMMENT 6.

WQS - Suspended Solids -S.V. < 25 mg/L WQS - Turbidity - S.V. < 25 NTU

The suspended solids and turbidity standards are inappropriate for the areas closest to the Las Vegas Bay delta. As the lake declines the sediment in the deltas are resuspended and moved into Lake Mead. In future Water Quality Integrated Reports please apply the language from NAC 445A.2152, "The Commission recognizes that at entrances of tributaries to Lake Mead, localized violations of standards may occur." The compliance point should allow for a transitional zone and be a distance from the end of the delta so that there is time for the larger particles to settle into the reservoir. Also, researchers have found that razorback suckers spawn close to the Las Vegas Wash and Lake Mead confluence due to the turbidity. The turbidity provides cover for the juvenile razorback suckers, so they have a chance to grow to a size where they cannot be eaten by predators. It is unfortunate that there is not more flexibility in water quality standard determinations that allow for consideration of the needs of endangered species.

NDEP Response to Comment 6: BWQP will initiate a review of this during this triennial review period as part of the Colorado River basin WQS review. BWQP will review the appropriateness of water quality criteria for aquatic life during the Colorado basin WQS review process.

COMMENT 7.

Colorado Region: Colorado River below Hoover Dam (NAC 445A.2148)

The description of the reach regulated by this NAC is from Hoover Dam to the Lake Mohave Inlet. This description needs clarification. Please clarify if this reach covers from Hoover Dam to where Lake Mohave widens into a bowl or includes all of Lake Mohave. If the reach only covers from where below Hoover Dam to where Lake Mohave widens into a bowl, then the point where the lake widens to Davis Dam has no standards.

NDEP Response to Comment 7: NAC 445A.2148 is described as “*The Colorado River from Hoover Dam to the Lake Mohave Inlet.*” NAC 445A.2146 is described as “*the Colorado River from the Lake Mohave Inlet to the California-Nevada state line below Davis Dam.*” Lake Mohave is included in the standards of water quality set forth in 445A.2146. During the triennial review period, BWQP will review the appropriateness of designating Lake Mohave as a separate waterbody and establishing a stationary point to describe the inlet to Lake Mohave

Reference:

“NAC 445A.2148 Colorado Region: Colorado River below Hoover Dam. (NRS 445A.425, 445A.520) The limits of this table apply to the body of water known as the Colorado River from Hoover Dam to the Lake Mohave Inlet. This segment of the Colorado River is located in Clark County.”

“NAC 445A.2146 Colorado Region: Colorado River below Davis Dam. (NRS 445A.425, 445A.520) The limits of this table apply to the body of water known as the Colorado River from the Lake Mohave Inlet to the California-Nevada state line below Davis Dam, except for the length of the river within the exterior borders of the Fort Mojave Indian Reservation. This segment of the Colorado River is located in Clark County.”

COMMENT 8.

RMHQ - Total Nitrogen - A. Avg < 1.0 mg/L, S.V. < 1.5 mg/L

The RMHQ for Total Nitrogen may need modification to reflect the loss of 62% of the volume of Lake Mead. Changes in elevation alter the volume of water available for mixing. The water quality in Lake Mohave and downstream is directly impacted by the water quality in Lake Mead.

NDEP Response to Comment 8: BWQP will look at the RMHQs during this triennial review period as part of the Colorado River basin WQS review. However, BWQP does not anticipate reviewing the RMHQs to modify them during the WQS review. BWQP is currently drafting a document describing the implementation procedure for RMHQs. If natural conditions change due to severe prolonged drought, that could relate to the component where RMHQs may not apply in extremes of high or low flow.

COMMENT 9.

WQS – Temperature - S.V. Nov-Apr < 13 °C

S.V. May-Jun < 17 °C

S.V. Jul - Oct < 23 °C

The temperature beneficial use standard should take into consideration of the native endangered fish in Lake Mohave rather than the introduced non-native fish. The Colorado River below Hoover Dam is designated as critical habitat for the endangered razorback sucker and Lake Mohave contains the primary genetic brood stock for all remaining razorback suckers. The brood stock population target is 50,000 adults. The current temperature standards were developed for the cold-water non-native trout produced at the Willow Beach Fish Hatchery. Endangered razorback suckers are river fish and prefer warm turbid water. Please consider segmenting the reach below Hoover Dam between the river section and the section where the river widens into a bowl and making the upper section a cold-water fishery and the lower section a warm-water fishery or returning the temperature standard to the pre-1985 change in standards. The pre-1985 standards were:

Avg. Jun - Sep < 20 °C

S.V. Jun - Sep < 25°C

S.V. Oct - May < 16 °C

Temperatures in the summer in this part of Nevada routinely exceed 100 °F. A standing body of water, such as a lake, cannot meet cold-water temperature standards in the summer.

[NDEP Response to Comment 9:](#) BWQP will initiate a review of this during this triennial review period as part of the Colorado River basin WQS review. BWQP is intending to review the appropriateness of temperature criteria for aquatic life during the WQS review process.

COMMENT 10.

Colorado Region: Colorado River below Davis Dam (NAC 445A.2146)

WQS - Temperature - S.V. Nov - Apr < 13 °C

S.V. May-Jun < 17 °C

S.V. Jul - Oct < 23 °C

The temperature beneficial use standard should take into consideration the native endangered fish in the Colorado River below Davis Dam rather than the introduced nonnative fish. Trout are not spawning below Davis Dam. The Lower Colorado River Multi-Species Conservation Program is stocking 6,000 razorback suckers annually for 45 years into this reach of the Colorado River to restore the species. The current temperature standards were developed for the stocked cold-water

non-native trout. Endangered razorback suckers are river fish and prefer warm turbid water. Please consider changing the temperature standard to the pre-1985 standards. The pre-1985 standards were:

Avg. Jun - Sep < 20 °C

S.V. Jun - Sep < 25°C

S.V. Oct - May < 16 °C

NDEP Response to Comment 10: BWQP will initiate a review of this during this triennial review period as part of the Colorado River basin WQS review. BWQP is intending to review the appropriateness of temperature criteria for aquatic life during the WQS review process

Response to comments by The Pyramid Lake Paiute Tribe dated December 28, 2018.

COMMENT 1.

In February of 2011, the "Third Parties" (Reno, Sparks and Washoe County) submitted a letter requesting the review of Total Phosphorus (TP) and Total Nitrogen (TN) water quality standards on the Truckee River. NDEP agreed that a review was warranted, which initiated a Third Parties review of water quality standards. The Third Parties contracted LimnoTech in 2014 to analyze TN and TP effects on dissolved oxygen in the lower Truckee River. The report found that revisions to increase the State's TP and TN water quality standards and Total Maximum Daily Load (TMDL) would adversely impact dissolved oxygen levels in the lower Truckee River. The report also found that dissolved oxygen would be affected if the TMWRF facility does not increase effluent capacity and the region continues to grow. Upon completion of the LimnoTech Report, it was decommissioned by the funding body, as it provided unsatisfactory results to TMDLs being adjusted. Knowing that Washoe County's population will continue growing an estimated 100,000 people by 2030 and effluent will continue to increase, there is a need to review water quality standards in the lower Truckee River.

[NDEP Response to Comment 1: Review of the WQS on the lower Truckee River is not planned during this triennial review period. The BWQP is working with the Bureau of Water Pollution Control \(BWPC\) to ensure that the current total phosphorus \(TP\) and total nitrogen \(TN\) standards in the lower Truckee River are not exceeded.](#)

COMMENT 2.

NDEP is currently evaluating whether it is appropriate to adopt new EPA recommended criteria for ammonia. The Tribe supports adoption of a stricter ammonia standard for protection of aquatic life in the lower Truckee River.

[NDEP Response to Comment 2: Comment noted.](#)

COMMENT 3.

NDEP is also evaluating whether to adopt EPA's recommended criterion for cadmium and how or when to adopt into state water quality standards. Because cadmium's toxicity is dependent on water hardness, will NDEP consider water hardness data collected from the lower Truckee River?

NDEP Response: Hardness is a factor in the current equations used to calculate criteria values for cadmium. BWQP is looking into the appropriateness of amending the current criteria for cadmium to reflect more recent EPA recommended criteria. As is true for the current cadmium criteria for aquatic life, the updated criteria would calculate a sample-by-sample criteria calculated using hardness. Discharge permit limits to the Truckee River are calculated based on the hardness of the Truckee River at or near the point of discharge.

COMMENT 4.

Carbaryl is a popular pesticide that has been found to be the second most frequently detected insecticide in waters in the United States. Water temperature, pH and hardness are factors potentially affecting the toxicity carbaryl in the aquatic environment. The EPA has found that carbaryl's toxicity increases with temperature and hardness for various species of trout. Because the lower Truckee River is impaired for temperature, will NDEP analyze lower Truckee River data when considering adoption of the EPA-recommended carbaryl criteria?

NDEP Response: BWQP is looking into the appropriateness of adopting the EPA's recommended criteria for carbaryl. EPA acknowledges that the toxicity of carbaryl may be affected by temperature, hardness and pH and has developed criteria that will be protective of aquatic life in a wide range of environmental conditions. EPA derived these aquatic life water quality criteria for carbaryl using EPA's 1985 *Guidelines for Deriving Numerical National Water Quality Criteria for the Protection of Aquatic Organisms and Their Uses*.

COMMENT 5.

Because the public comment period falls within a time of numerous holidays, the Tribe would like to request additional time to review the NDEP's proposed changes to the State's water quality standards.

NDEP Response to Comment 5: BWQP notes that the purpose of the triennial review process is to present potential changes that may be initiated in the next three years. Specific changes to Nevada's WQS would go through a separate review and public comment process, and a formal standards adoption procedure.