



SOUTHERN NEVADA WATER AUTHORITY

SOUTHERN NEVADA WATER SYSTEM
River Mountains Water Treatment Facility
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March 3, 2015

John Heggeness, Branch Supervisor
Nevada Division of Environmental Protection
Bureau of Water Quality Planning
901 S. Stewart Street, Suite 4001
Carson City, NV 89701

Dear Mr. Heggeness:

The Southern Nevada Water Authority (Authority) appreciates the opportunity to comment on the “Nevada Division of Environmental Protection Notice of Intent to Conduct a Triennial Review of Nevada’s Surface Water Quality Standards.” The Authority is a government agency formed in 1991 to address Southern Nevada’s unique water needs on a regional basis. The Authority is governed by a seven-member Board of Directors comprised of representatives from each of its seven member agencies. The Authority’s mission is to manage the region’s water resources and develop solutions that will ensure adequate future water supplies for the Las Vegas valley.

The Authority welcomes the opportunity provided by the Nevada Division of Environmental Protection (NDEP) to offer input on aspects of Nevada’s water quality standards that should be considered for potential revision. The Authority sees four main areas that need to be addressed. First, due to the drought in the Colorado River and subsequent lowering lake levels in Lake Mead, many of the current standards associated with the Las Vegas Bay will not work into the future because the locations will be in the open water of Boulder Basin. Second, when sixty percent of the volume of the reservoir is lost or the background concentration changes due to changes in Lake Powell, it may be impossible to preserve the Requirements to Maintain Existing Higher Quality (RMHQ). Third, Lake Mead is a very large reservoir with three inflow areas. Standards for the open water of a reservoir, by their very nature, cannot apply to inflowing transitional areas. Fourth, some of the beneficial uses, especially that deal with aquatic life are outdated for the actual type of aquatic life using the river and may no longer apply.

Colorado Region: Lake Mead (NAC 445A.2152)

Lake Mead is currently at elevation 1088 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 Bays location is 1.2 miles from the confluence of the Las Vegas Wash and Lake Mead. 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 1.2 miles from the confluence of the Las Vegas Wash and Lake Mead may not meet the open water quality standard for the following:

SNWA MEMBER AGENCIES

Big Bend Water District • Boulder City • Clark County Water Reclamation District • City of Henderson • City of Las Vegas • City of North Las Vegas • Las Vegas Valley Water District

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

WQS - Total Dissolved Solids – S.V. < 1000 mg/L

WQS - Chloride – S.V. < 400 mg/L

WQS - Sulfate – S.V. < 500 mg/L

The Inner Las Vegas Bay designation 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 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 1 – 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.

There should also be a distance in Gregg and Virgin Basin close 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 in close proximity to the confluence of the inflows and Lake Mead and the nutrients are consumed by the algae. These standards are too restrictive for inflow transitional areas.

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

The RMHQ for Total Inorganic Nitrogen will need modification to reflect the loss of 60% 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 elevations. 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.

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

WQS - Turbidity – S.V. < 25 NTU

The suspended solids and turbidity standards are inappropriate for the area closest to the inflow of the Virgin, Muddy, and Colorado Rivers. As the lake declines the sediments in the delta are resuspended and moved into Lake Mead. 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. The aquatic life standards for suspended solids and turbidity were not developed for razorback suckers.

Colorado Region: Inner Las Vegas Bay (NAC 445A.2152)

RMHQ – Total Inorganic Nitrogen – 95% of S.V. samples < 5.3 mg/L

The RMHQ for Total Inorganic Nitrogen will need modification to reflect the loss of 60% of the volume of Lake Mead. Changes in elevation alter the volume of water available for mixing. Some elevations provide more volume than others based on the contours in Las Vegas Bay. 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 elevations. 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.

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

WQS - Turbidity – S.V. < 25 NTU

The suspended solids and turbidity standards are inappropriate for the area closest to the Las Vegas Bay delta. As the lake declines the sediments in the delta are resuspended and moved into Lake Mead. 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. The aquatic life standards for suspended solids and turbidity were not developed for endangered razorback suckers.

Colorado Region: Colorado River below Hoover Dam (NAC 445A2148)

The description of the reach regulated by this NAC is from Hoover Dam to the Lake Mohave Inlet. This description needs clarification. Based on maps of Lake Mohave, this reach covers from Hoover Dam to where Lake Mohave widens into a bowl. If this is true then the point where the lake widens to Davis Dam has no standards.

RMHQ – Total Nitrogen – A. Avg. < 1.0 mg/L

S.V. < 1.5 mg/L

The RMHQ for Total Nitrogen will need modification to reflect the loss of 60% 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.

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 for aquatic life is outdated based on current uses. The State of Arizona is no longer raising trout in the fish hatchery near Willow Beach. There may be plans to open the hatchery in the future and raise trout, but currently they are raising razorback suckers in support of the Lower Colorado River Multi-Species Conservation Program.^{1,2} Razorback suckers are a river fish and prefer warm turbid water. Razorback suckers are stocked into Lake Mohave to develop and maintain a brood stock. The brood stock population target is 50,000 adults.

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

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

The RMHQ for Total Nitrogen will need modification to reflect the loss of 60% 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.

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 for aquatic life is outdated based on current uses. Trout are not stocked or 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.² Razorback suckers are a river fish that prefer warm turbid water.

If you have any questions about these comments please do not hesitate to contact me at 702-856-5041 or peggy.roefer@snwa.com.

Sincerely,



Peggy Roefer
Regional Water Quality Manager

References

1. Lake Mohave Razorback Sucker Monitoring 2012 Annual Report
www.lcrmscp.gov/reports/2012/d8_annrep_2012.pdf
2. Lower Colorado River Multi-Species Conservation Program
www.lcrmscp.gov/publications/fish_aug.pdf