**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD**
**LAHONTAN REGION**

**MEETING OF JULY 8-9, 2015**
**SOUTH LAKE TAHOE**

**ITEM:** **10**

**SUBJECT:** **GUIDANCE FOR THE PRIORITIZATION OF THE LAHONTAN 303(d) LIST OF IMPAIRED WATERS**

**BACKGROUND:** The Federal Clean Water Act (CWA) gives States the primary responsibility for protecting and restoring surface water quality. Under the CWA, States that administer the CWA must review, make necessary changes, and submit the CWA section 303(d) List (list of impaired waterbodies) to the U.S. Environmental Protection Agency (US EPA). CWA Section 305(b) requires each State to report biennially to US EPA on the condition of its surface water quality. The US EPA requires the two reports be integrated. For California, this combined report is called the California 303(d)/305(b) Integrated Report.

In October of 2011, the US EPA approved the Lahontan 2010 303(d) List comprised a total of 121 water body-pollutant combinations. During 2014, the Lahontan 2012 303(d) List was adopted by the Lahontan Water Board, and later approved by the State Board, with State Board including nine additional listings. This 303(d) List is pending US EPA's approval. If approved, the Lahontan Water Board 303(d) List will contain a total of 157 surface water segments listed as impaired. The Lahontan Water Board is currently addressing 38 of the 157 listed impairments with TMDLs or regulatory actions.

**ISSUE:** No formal policy exists to guide staff on how to evaluate listings and prioritize the remaining 119 impairments. Does the Water Board support the proposed strategy to address the region's 303(d) List?

**DISCUSSION:** Staff developed a two-step approach to evaluate the remaining 119 unaddressed listings and prioritize impairments (draft guidance document- Enclosure 1).

**Step 1: Binning**

Listings were evaluated for whether they are being addressed, the quality of supporting data, and the applicability of the water quality objective (e.g. annual average, single value, etc.). To better understand these differences, and in the interest of developing a measured approach, staff categorized the listings into four different bins to reflect the variety of listing conditions. Please refer to Appendix A (Bates # 10-15 of the draft guidance document (Enclosure 1) to view the individual listings in each of the following four different bins:

Bin 1: Impairment Confirmed-Addressed: This includes waterbody impairments that are currently addressed by a regulatory action or a US EPA approved TMDL. See Tables 1 and 2 in the enclosed Staff Report.

Bin 2: Impairment Confirmed-Not Addressed: Staff will address the impairment through application of a regulatory action (e.g., permit, waiver, agreement) or development of a TMDL. Although staff identifies that the impairments in Bin 2 are confirmed and need to be addressed, there is no existing guidance on which listings should be prioritized (see Step 2 for proposed prioritization criteria).

Bin 3: Impairment Verification: An Impaired Waterbody Listing means that a water quality objective is exceeded for a certain water body, but may not mean beneficial uses are impaired. For these waters, one of three circumstances may exist: (1) the listing is prior to 2006 where an administrative record was not required, consequently the water quality data evaluated for listing is likely not available to verify beneficial use or water quality impairment; or (2) the water quality data evaluated meets the Listing Policy requirements for listing but more information/data is needed to determine if there is beneficial use impairment; or (3) the current water quality objective may not provide an appropriate measure for protection of beneficial uses and beneficial use impairment verification is needed. Refer to Appendix A of Enclosure 1 (Bates # 10-27 through 10-39) for examples of listings that fit into Bin 3.

Bin 4: No Action: Staff asserts that Bin 4 waterbodies should not be prioritized because: (1) the listing is due to natural sources and there is no policy in place to provide relief for these listings; or (2) the listing is

a result of a violation of a current water quality objective that is more stringent than needed for protection of beneficial uses. A basin plan amendment may be required to develop an appropriate site specific objective that protects a beneficial use, rather than an objective which reflects historical water quality or a very limited data set.

**Step 2: Prioritization for Bin 2 (Impairment Confirmed-Not Addressed)**

To address the confirmed impairments, there are options to consider:

1. No Change in Process: rely on staff recommendation and management direction.
2. Establish Prioritization Criteria: the following example provides prioritization guidance based largely on impacts of the impairment to human health, disadvantaged communities, and other beneficial uses:

   High priority:
   Direct impacts to human health, with highest priority to disadvantaged communities

   Medium priority:
   a) Impacts to multiple beneficial uses
   b) Non-urban area with known recreation

   Low priority:
   a) Non-urban area with little to no recreation and supports few beneficial uses
   b) Water body is an isolated impairment or is ephemeral with very limited seasonal flows

Other criteria that could be considered include economic impacts, proximity to a Lahontan office, level of staff effort required to address the listing, type of beneficial use affected, level of recreation, achievability and efficiency of resources, and stakeholder input.

**Prioritization Frequency and Public Input**

There is no guidance available at the State Board or US EPA level to prioritize impairments. Past prioritization for the Lahontan Water Board has been at the staff and management level to inform annual workplans. Decision making could be made at the staff and management level or presented to the Board in an EO Report or presentation. If prioritization is completed at the staff and management level, there is no requirement for public input. At the Board decision

level, public noticing and a hearing would be required. A separate public comment period could be applied for any level of decision.

With the Lahontan 303(d)/305(b) Integrated Report being done once every six years, prioritization to identify which impaired waterbodies to address will help inform annual workplans.

Other Regions

Staff conducted a limited informal survey of other regions and received a response from five of the eight other regions. While no region has written guidance on prioritizing their 303(d) list for workplanning, there are themes common to most or, in some cases, all of the regions polled.

Regional Board staff does not customarily present their prioritization effort to its regional board. The San Francisco Bay Regional Board staff did present a prioritization as part of the last triennial review. This was done because staff perceived public concern. However, they received no public input on the matter.

Staff at all regional boards develop their priorities at the TMDL Unit level. Most prioritizations are given final approval by management, but the Central Coast Regional Board management historically allowed all decisions to be finalized by the unit chief.

When developing workplan priorities, four regions referenced the need to work on existing large scale TMDL projects analogous in resource allocation to the Tahoe TMDL and two regions prioritize TMDL updates and scheduled reconsiderations. Nearly all regions elevate projects due to stakeholder concern. Regions also prioritize addressing impaired waters when staff views the pollutant source as readily controllable, when there is parallel Water Board project (such as a new permit) in the same watershed, or if the project is likely to be wholly addressed within one fiscal year. After all these considerations, regional board staff then look at such criteria as data sufficiency, public health impacts, aquatic resources, and other potential criteria.

**RECOMMEN-DATION:** No formal action required, but the Water Board will be asked to provide direction to staff.

| ENCLOSURE | ITEM | Bates Number |
|---|---|---|
| **1** | Prioritization of Lahontan Region 303(d) List. including Appendix A | **10-7** |
| **2** | Presentation | **10-45** |

# ENCLOSURE 1

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# Prioritization of Lahontan Region 303(d) List

## Guidelines for Prioritizing Listed Water Bodies

**Lahontan Water Board TMDL Unit Staff**

July 2015

# INTRODUCTION

The 303(d) List is a compilation of the impaired waters in the Lahontan Region. Once a water body is placed on the 303(d) List, the next step is for the Water Board to determine the most efficient way to address the impairment. A TMDL may be needed or a regulatory action (such as a cleanup order or waste discharge permit) may be the most effective and quickest action to improve water quality and restore the beneficial use. Other impairments may be from natural sources and cannot be controlled. The goal is to restore water quality and beneficial uses where controllable and reduce the number of impaired water bodies.. According to the 2012 303(d) List, (not yet approved by US EPA) the Lahontan region has 157 water bodies (lakes, rivers, or reaches of rivers) listed as impaired. To address the 157 listings, it is imperative that staff prioritize these listed waters. The process used to prioritize the Region's listed waters is the primary focus of this staff report.

The 303(d) list is a subset of the Integrated Report, which assesses the water quality of all water bodies in the Region (Clean Water Act Section 305(b)), and determines which water bodies are not fully supporting beneficial uses (CWA Section 303(d)). Integrated Report Categories 4A, 4B, and 5 comprise the Section 303(d) list. The defining element of a water body on the list is impairment of one or more beneficial uses. The impairment status is different for each of the three categories:

- Category 4A: Evidence shows at least one use is not supported but a TMDL has been developed and approved by the USEPA (This category applies only to waters with <u>all</u> of their listings addressed by USEPA-approved TMDLs).
- Category 4B: Evidence shows at least one use is not supported but a TMDL is not needed because an existing regulatory program is reasonably expected to result in the attainment of the water quality standard within a reasonable, specified time frame (The category applies only to waters with <u>all</u> of their listings addressed by alternative regulatory program/s).
- Category 5: Evidence shows at least one use is not supported (and a TMDL is needed). Category 5 recognizes water bodies with some, but <u>not all</u> listings addressed by USEPA-approved TMDLs or alternative regulatory programs. Category 5A means a TMDL is needed. Category 5B means the listing is being addressed by an approved TMDL but other listings for the same waterbody still need TMDLs. Category 5C means the listing is being addressed by an action other than an approved TMDL but other listings for the same waterbody still need TMDLs.

The first prioritization step is to divide the entire Lahontan 2012 303(d) List into bins that define the current knowledge of the water body impairment. The second step is to prioritize realized water body impairments that staff will address first. Discussion of the binning and prioritization structure will be discussed in the section below. For specific examples of the binning and prioritization process applied to the 2012 Lahontan 303(d) List, refer to *Appendix A*.

## APPROACH

*Bins*

The first prioritization step is to use current staff knowledge, available information and data, and the Listing Policy to bin water body impairments. Staff developed four bins that encompass the listed waters. Please refer to *Appendix A* for how the binning process was applied to the 2012 303(d) List. The listed waters are either:

Bin 1: Impairment confirmed - addressed
- a) By an action other than a TMDL
- b) By a TMDL

Bin 2: Impairment confirmed – not addressed
- a) Evaluate non-TMDL strategies: new permits, updates in permits; Office of Environmental Health and Hazard assessment health advisories; waivers
- b) Where non-TMDL strategies are infeasible and/or would be ineffective, develop TMDLs

Bin 3: Impairment verification
- a) Evaluate existing dataset and other available information (i.e. permits; news articles; discharger information)
- b) Additional sampling/monitoring:
  - i. impairment confirmed (move to Bin 2)
  - ii. no impairment (delist using data collected)
  - iii. water quality objective violated but no impact to beneficial uses (move to Bin 4)

Bin 4: No action
- a) Natural sources
- b) 303(d) listed based on the water quality objective exceedance but beneficial uses are fully protected because the water quality objective is more stringent than needed to protect beneficial uses (may be addressed through development of a site-specific objective)
- c) Problematic/inappropriate evaluation criteria

Bin 1 includes water body impairments that are currently addressed by a regulatory action or a USEPA approved TMDL. Examples of this include the Bridgeport Grazing Waiver to address the pathogen impairments in the Bridgeport Valley tributaries, and the Lake Tahoe TMDL to address the deep water clarity impairment by fine sediment and nutrients. Bin 1 includes category 4A, 4B, and 5B, and 5C of the 303(d) list. The listings in Bin 1 do not require any prioritization. Table 1 shows the 24 listings addressed by an adopted TMDL.

**Table 1. Number of Listings addressed by a TMDL**

| TMDL | # Listings being Addressed | Year TMDL Approved by US EPA |
|---|---|---|
| Heavenly Valley Creek Sediment | 1 | 2002 |
| Indian Creek Reservoir Phosphorus | 2 | 2003 |
| Squaw Creek Sediment | 1 | 2007 |
| Blackwood Creek Sediment | 1 | 2008 |
| Truckee River Sediment | 3 | 2009 |
| Lake Tahoe Sediment and Nutrients | 16 | 2011 |

For the other 14 listings currently being addressed by actions other than a TMDL, Table 2 lists the action taken and the number of listings being addressed by year.

**Table 2. Listings addressed by a regulatory action other than a TMDL**

| Action in lieu of TMDL | Waterbodies-pollutant addressed | # Listings being Addressed | Year Action Started |
|---|---|---|---|
| CERCLA remediation | Leviathan Creek, Aspen Creek, Bryant Creek - metals | 3 | 1992 |
| State Water Board issued water rights decision to control lake level and salts | Mono Lake - salinity/TDS/chlorides | 1 | 1998 |
| Cleanup and Abatement Orders to Molycorp | Searles Lake – Salinity/TDS/Chlorides and Total Petroleum Hydrocarbons | 2 | 2006 |
| USFS restoration project - prohibited grazing and restored stream | Cold Creek – Total Nitrogen | 1 | 2010 |
| Bridgeport Grazing Waiver – pathogens (fecal coliform) | Buckeye Creek, Robinson Creek (Hwy 395 to Bridgeport Reservoir), Robinson Creek (Twin Lakes to Hwy 395, Swauger Creek, East Walker River (below Bridgeport Reservoir) - pathogens | 5 | 2012 |
| STPUD WDR for wastewater disposal | Snowshoe Thompson Ditch 1 – phosphorus and total kjeldahl nitrogen | 2 | 2012 |

Bin 2 captures water bodies confirmed as impaired but not being addressed. Staff confirms a water body as impaired when temporal and spatial data demonstrates violations of water quality objectives developed to protect beneficial uses. Additional information used to confirm impairment may include staff knowledge, discharger information, and/or determination of the source. This bin is then further vetted into tiers to prioritize which impairments to address first. This structure is described later in this report.

Bin 3, Impairment Verification, includes water body-pollutant combinations that have been placed on the Lahontan 303(d) List for impaired waters, but staff is not confident with the existing data set to determine if the water body is impaired. The 2004 Water Quality Policy for Developing California's Clean Water Act Section 303(d) List (Listing Policy) explicitly outlines how many samples are necessary to list on the 303(d) List for conventional and toxicant pollutants. For toxicant pollutants, two exceedances of two samples are necessary to list. For conventional pollutants, five of five samples are necessary to list. These small datasets may not clearly represent ambient conditions. In many cases, the Lahontan Water Board has not recommended these listings and State Board has included them in the Lahontan 303(d) List through their approval process. Staff recommends further evaluation/monitoring of these listings before implementing projects to address the impairment. In some cases, further evaluation may determine that there is no impairment (and no water quality objective exceedance) and the water body can be delisted. Alternatively, we may learn that the current water quality objective is more stringent than what is needed to protect beneficial uses and therefore may need to be revised at a later time (listings would be moved to Bin 4). In other cases, the data may confirm impairment of a beneficial use, and these listings would be moved to Bin 2.

Bin 4 captures listings that do not need action at this time. The Lahontan Region has a varied geological nature, including mineral deposits, geothermal springs, and other factors that influence the composition of the region's waters. These factors can result in exceedances or violations of the water quality objectives where the discharge is not from a discrete and/or non-point source but is instead natural. Additionally, in many cases, the Water Board adopted site specific objectives based on a limited data set historically, and water quality no longer reflects the historical condition. Currently, there is no policy that exists at the regional, State Board, or federal level to provide relief for these listings. Staff has encountered this issue through the Integrated Report process and these water body-pollutant combinations are listed since there is no established exemption for natural sources. This policy must come from the state or federal level and relates to the categorization process outlined in the Listing Policy. Alternatively, Water Board staff may need to develop site specific objectives for these water bodies.

Addressing all listed waters in the Lahontan region is complicated by issues specific to, or uniquely prevalent in, the region. Waters of the Lahontan region are, on the whole, high quality waters. Instead of relying on region wide water quality objectives, for many of these waters, a site specific objective (SSO) applies for particular constituents. These SSOs were established to protect historical high quality water, not necessarily to protect a beneficial use. That is, the SSO, if violated, may not indicate impairment of the beneficial use. So, while the objective is violated, and the water body is eligible for listing on the 303(d) list, beneficial uses are fully protected.

## *Prioritization of Bin 2 (Impairment Confirmed-Not Addressed)*

The prioritization effort focuses on water body listings in Bin 2, which is comprised of confirmed beneficial use impairments that need to be addressed through the development and implementation of a regulatory program or a TMDL. Although staff recognizes that the

impairments in Bin 2 are confirmed and need to be addressed, there are limited staff resources to address all impairments simultaneously and so they must be prioritized with specific criteria. Bin 2 water body impairments are further categorized by:

High priority:

Direct impacts to human health; highest priority to disadvantaged communities

Medium priority

a) Impacts to multiple beneficial uses, including aquatic life
b) Non-urban area with known recreation

Low priority

a) Non-urban area with little to no recreation and supports few beneficial uses
b) Water body is an isolated impairment or is ephemeral with very limited seasonal flows

High priority impairments: These impairments have direct impacts to human health, and could, in some cases, involve disadvantaged communities. Examples of these impairments could include mercury impairments in water bodies where the fish are often caught and eaten, or water bodies with high levels of bacteria where people often swim.

Medium priority: Includes impairments where multiple beneficial uses are no longer supported and there is known recreation. These water bodies also often have high public interest as they draw in tourism and recreation.

Low priority: The water body may be ephemeral and only supports a few beneficial uses over a short time or is an isolated water body and does not add significant discharge to receiving waters. These water bodies are still important and must be addressed due to the Integrated Report process, but staff recommends the listings in the high and medium priority categories addressed first due to their more significant impacts.

Figure 1, below, provides a visual representation of the binning and prioritization process. It is a dynamic process, where listings in Bin 3 can move to Bin 2 or Bin 4 as new information is gathered. Also, although Bin 1 and 4 will not result in the development of a regulatory program or TMDL, other programmatic efforts will be necessary. For Bin 1 where the impairment is being addressed, TMDL staff will track progress towards meeting water quality targets and implementation measures, and may revisit objectives and implementation measures in the future. For Bin 4 where staff proposes no regulatory action or the development of a TMDL, staff supports two approaches: (1) the development of a natural source exclusion policy so these water bodies are not listed on the 303(d) List; and (2) the development of appropriate new water quality objectives that are based on criteria to protect beneficial uses. Please refer to *Appendix A* Table 2 for how this is applied to the 2012 303(d) List.

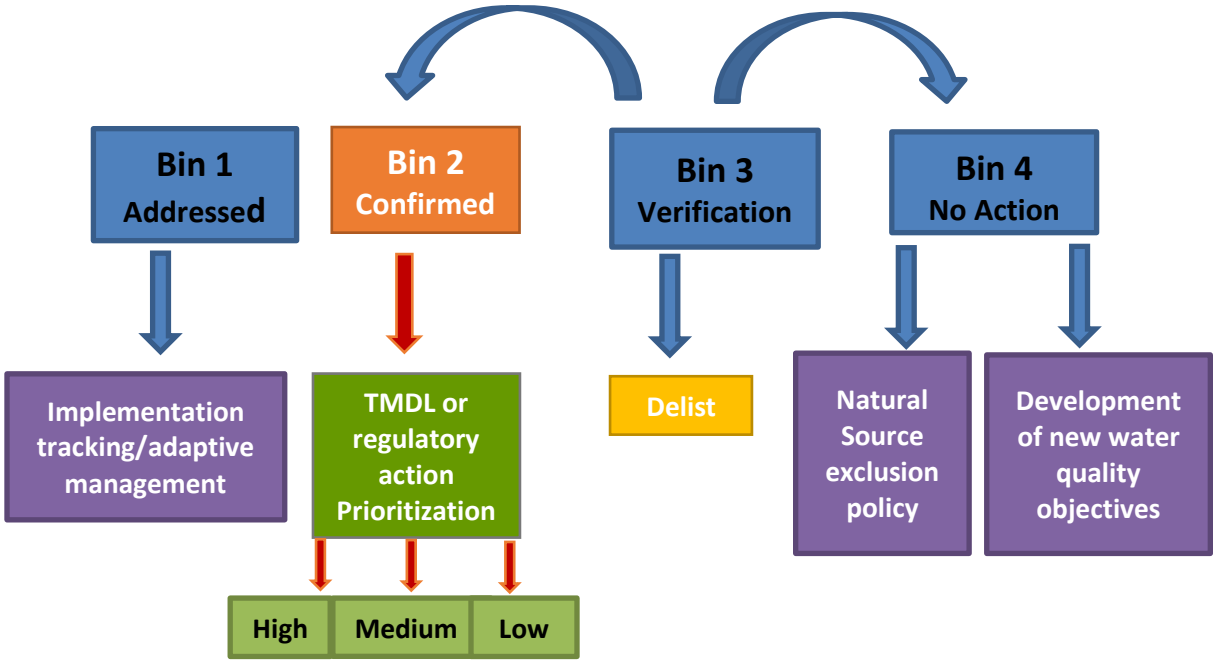


**Figure 1: Prioritization schematic**

## IMPLEMENTATION

*Workplanning*

The process of binning and prioritizing different listings is useful in preparing staff workplans. The system provides a uniform process for evaluating future listings on the Lahontan 303(d) List so they can then be incorporated into workplans based on the priority. Water bodies with the potential to directly impact human health trump all other listings. Having a prioritization process in place ensures impairments with the most harmful impacts are of highest priority and incorporated in staff workplans.

Through the workplanning process for programs, tasks and deliverables must be determined months before the start of the fiscal year. Having this system in place provides clear direction on how to determine workplan priorities. With this process, staff can re-evaluate 303(d) listings each year in concurrence with the development of the workplans. This will ensure the highest priorities are included in staff workplans.

*Grants / Contract Proposals*

Through the vetting process of prioritizing listings, staff can better develop TMDL discretionary contract ideas and potential grant proposals. Having a system in place where staff can prioritize and re-evaluate on an annual basis will provide potential direction on new contract or grant proposals based on the prioritization system of high to low priority. It may also provide guidance for proposals to evaluate listings in Bin 3, where additional verification is necessary to confirm

impairment. It will help streamline the process and provide annual information to inform contract and grant proposals.

### *Monitoring / Further Evaluation*

The water body impairments that fit into Bin 3 will need further evaluation/monitoring to verify impairment. Bin 3 listings could have the potential: (1) to be delisted; (2) to move to Bin 4 due to inappropriate evaluation or the water quality objective may reflect conditions of high quality waters rather than the protection of beneficial uses; or (3) to move to Bin 2 because the impairment is confirmed. Before staff can determine if the water body is impaired, further evaluation or monitoring is necessary. Water body impairments that are in Bin 3 should be included in staff workplans when feasible to verify impairment.

For Fiscal Year 14-15, TMDL unit staff began monthly sampling at Mammoth Creek, Rock Creek, East Walker River, and the Susan River to verify impairments. The original listings were based on a limited data set for water quality objectives based on annual averages. The data used to list was often based on 2-4 samples for a few years. To accurately represent ambient conditions, samples should be taken at least monthly. Staff plans on sampling these water bodies monthly for one year to verify the impairment so they can be binned appropriately.

### *Revisiting Frequency (Adaptive Management)*

This process will be updated with each adopted 303(d) List to be inclusive of additional listings, including the adoption of the 2012 303(d) List. During the programmatic workplanning process, efforts by TMDL unit staff the preceding year will be considered to inform the next year's workplan. It is a fluid process that will incorporate any new knowledge with the potential of updating binning and prioritization tier criteria to best inform TMDL unit staff work priorities.

# Table 1. Bin 1: Impairment Confirmed - Addressed

| Waterbody | Pollutant | Category | Bin | Staff Comments | Year Listed |
|---|---|---|---|---|---|
| Truckee River | Sedimentation/Siltation | 4A | 1 | TMDL approved by USEPA in September 2009. | 1996 |
| Bronco Creek | Sedimentation/Siltation | 4A | 1 | TMDL approved by USEPA in September 2009. | 1996 |
| Gray Creek (Nevada County) | Sedimentation/Siltation | 4A | 1 | TMDL approved by USEPA in September 2009. | 1996 |
| Squaw Creek | Sedimentation/Siltation | 4A | 1 | TMDL approved by USEPA in July 2007. | 1998 |
| Lake Tahoe | Sedimentation/Siltation | 4A | 1 | TMDL approved by USEPA in August 2011. | 2006 |
| Lake Tahoe | Nitrogen | 4A | 1 | TMDL approved by USEPA in August 2011. | 2002 |
| Lake Tahoe | Phosphorus | 4A | 1 | TMDL approved by USEPA in August 2011. | 2002 |
| Blackwood Creek | Sedimentation/Siltation | 5B | 1 | TMDL approved by USEPA in July 2008. | 1996 |
| Blackwood Creek | Nitrogen | 5B | 1 | For the 2012 listing cycle, staff recommended that this listing change categories to "being addressed by a TMDL" with the adoption of the Lake Tahoe TMDL in August 2011. State Board has approved this change with their approval of the 2012 Integrated Report. | 2002 |
| Blackwood Creek | Phosphorus | 5B | 1 | For the 2012 listing cycle, staff recommended that this listing change categories to "being addressed by a TMDL" with the adoption of the Lake Tahoe TMDL in August 2011. State Board has approved this change with their approval of the 2012 Integrated Report. | 2002 |
| Cold Creek | Total Nitrogen as N | 4B | 1 | The affected segment is on formerly private land acquired by the USFS. The USFS has begun a watershed restoration project to mitigate the impacts of past hydromodification and livestock grazing. Restoration to a more natural wet meadow and riparian conditions will increase the uptake of nitrogen in the watershed to attain the water quality objective. | 2008 |

| Waterbody | Pollutant | Category | Bin | Staff Comments | Year Listed |
|---|---|---|---|---|---|
| Heavenly Valley Creek (source to USFS boundary) | Phosphorus | 5B | 1 | For the 2012 listing cycle, staff recommended that this listing change categories to "being addressed by a TMDL" with the adoption of the Lake Tahoe TMDL in August 2011. State Board has approved this change with their approval of the 2012 Integrated Report. | 2002 |
| Heavenly Valley Creek (source to USFS boundary) | Sedimentation/Siltation | 5B | 1 | TMDL approved by USEPA in September 2002. | 2006 |
| Heavenly Valley Creek (USFS boundary to Trout Creek) | Sedimentation/Siltation | 5B | 1 | For the 2012 listing cycle, staff recommended that this listing change categories to "being addressed by a TMDL" with the adoption of the Lake Tahoe TMDL in August 2011. State Board has approved this change with their approval of the 2012 Integrated Report. | 2002 |
| Trout Creek (above HWY 50) | Nitrogen | 5B | 1 | For the 2012 listing cycle, staff recommended that this listing change categories to "being addressed by a TMDL" with the adoption of the Lake Tahoe TMDL in August 2011. State Board has approved this change with their approval of the 2012 Integrated Report. | 2002 |
| Trout Creek (above HWY 50) | Phosphorus | 5B | 1 | For the 2012 listing cycle, staff recommended that this listing change categories to "being addressed by a TMDL" with the adoption of the Lake Tahoe TMDL in August 2011. State Board has approved this change with their approval of the 2012 Integrated Report. | 2002 |
| Trout Creek (below HWY 50) | Nitrogen | 5B | 1 | For the 2012 listing cycle, staff recommended that this listing change categories to "being addressed by a TMDL" with the adoption of the Lake Tahoe TMDL in August 2011. State Board has approved this change with their approval of the 2012 Integrated Report. | 2002 |

| Waterbody | Pollutant | Category | Bin | Staff Comments | Year Listed |
|---|---|---|---|---|---|
| Trout Creek (below HWY 50) | Phosphorus | 5B | 1 | For the 2012 listing cycle, staff recommended that this listing change categories to "being addressed by a TMDL" with the adoption of the Lake Tahoe TMDL in August 2011. State Board has approved this change with their approval of the 2012 Integrated Report. | 2002 |
| Truckee River, Upper (above Christmas Valley) | Phosphorus | 5B | 1 | For the 2012 listing cycle, staff recommended that this listing change categories to "being addressed by a TMDL" with the adoption of the Lake Tahoe TMDL in August 2011. State Board has approved this change with their approval of the 2012 Integrated Report. | 2002 |
| Truckee River, Upper (below Christmas Valley) | Phosphorus | 5B | 1 | For the 2012 listing cycle, staff recommended that this listing change categories to "being addressed by a TMDL" with the adoption of the Lake Tahoe TMDL in August 2011. State Board has approved this change with their approval of the 2012 Integrated Report. | 2002 |
| Ward Creek | Nitrogen | 5B | 1 | For the 2012 listing cycle, staff recommended that this listing change categories to "being addressed by a TMDL" with the adoption of the Lake Tahoe TMDL in August 2011. State Board has approved this change with their approval of the 2012 Integrated Report. | 2002 |
| Ward Creek | Phosphorus | 5B | 1 | For the 2012 listing cycle, staff recommended that this listing change categories to "being addressed by a TMDL" with the adoption of the Lake Tahoe TMDL in August 2011. State Board has approved this change with their approval of the 2012 Integrated Report. | 2002 |

| Waterbody | Pollutant | Category | Bin | Staff Comments | Year Listed |
|---|---|---|---|---|---|
| Ward Creek | Sedimentation/Siltation | 5B | 1 | For the 2012 listing cycle, staff recommended that this listing change categories to "being addressed by a TMDL" with the adoption of the Lake Tahoe TMDL in August 2011. State Board has approved this change with their approval of the 2012 Integrated Report. | 2002 |
| Snowshoe Thompson Ditch 1 | Phosphorus | 4B | 1 | The South Tahoe Public Utility District sampled the ditch and is under Board Order No. R6T-2004-0001, which includes requirements for water quality. | unknown |
| Snowshoe Thompson Ditch 1 | Total Kjeldahl Nitrogen | 4B | 1 | The South Tahoe Public Utility District sampled the ditch and is under Board Order No. R6T-2004-0001, which includes requirements for water quality. | unknown |
| Indian Creek Reservoir | Phosphorus | 4A | 1 | TMDL approved by USEPA in 2003. | 2002 |
| Indian Creek Reservoir | Dissolved Oxygen | 4A | 1 | TMDL for Phosphorus approved by USEPA in 2003 that includes dissolved oxygen targets and implementation measures. | unknown |
| Aspen Creek | Metals | 4B | 1 | Leviathan mine is a USEPA superfund site. The impairments are being addressed via the CERCLA process. | 1992 |
| Bryant Creek | Metals | 4B | 1 | Leviathan mine is a USEPA superfund site. The impairments are being addressed via the CERCLA process. | 1992 |
| Leviathan Creek | Metals | 4B | 1 | Leviathan mine is a USEPA superfund site. The impairments are being addressed via the CERCLA process. | 1992 |
| East Walker River, above Bridgeport Reservoir | Pathogens | 4B | 1 | Currently being addressed by an action other than a TMDL with the Bridgeport Grazing Waiver. | 2002 |
| Buckeye Creek | Pathogens | 4B | 1 | Currently being addressed by an action other than a TMDL with the Bridgeport Grazing Waiver. | unknown |
| Robinson Creek (HWY 395 to Bridgeport Reservoir) | Pathogens | 4B | 1 | Currently being addressed by an action other than a TMDL with the Bridgeport Grazing Waiver. | unknown |

| Waterbody | Pollutant | Category | Bin | Staff Comments | Year Listed |
|---|---|---|---|---|---|
| Robinson Creek (Twin Lakes to HWY 395) | Pathogens | 4B | 1 | Currently being addressed by an action other than a TMDL with the Bridgeport Grazing Waiver. | unknown |
| Swauger Creek | Pathogens | 4B | 1 | Currently being addressed by an action other than a TMDL with the Bridgeport Grazing Waiver. | unknown |
| Mono Lake | Salinity/TDS/Chlorides | 4B | 1 | SWRCB water rights decision 1631 established conditions to control lake level and salt concentrations in Mono Lake. | unknown |
| Searles Lake | Salinity/TDS/Chlorides | 4B | 1 | Cleanup and Abatement Orders issued. The RWQCB has issued Cleanup and Abatement Orders to address this pollutant problem in Searles Lake (Cleanup and Abatement Order Nos. 6-00-64 and 6-00-64A1). These orders require the company to (1) describe methods implemented to significantly reduce the number of waterfowl deaths, (2) eliminate ongoing sources of contaminant concentrations to the lake, (3) implement any additional methods that are necessary to correct the problems, (4) eliminate all visible petroleum hydrocarbons from surface waters of the Lake, (5) remove or remediate to non-detect levels, all visible petroleum hydrocarbon contaminated surface soils and sediments, and (6) to periodically report on the effectiveness of remediation efforts (SWRCB, 2003). | 2006 |

| Waterbody | Pollutant | Category | Bin | Staff Comments | Year Listed |
|---|---|---|---|---|---|
| Searles Lake | Total Petroleum Hydrocarbons | 4B | 1 | Cleanup and Abatement Orders issued. The RWQCB has issued Cleanup and Abatement Orders to address this pollutant problem in Searles Lake (Cleanup and Abatement Order Nos. 6-00-64 and 6-00-64A1). These orders require the company to (1) describe methods implemented to significantly reduce the number of waterfowl deaths, (2) eliminate ongoing sources of contaminant concentrations to the lake, (3) implement any additional methods that are necessary to correct the problems, (4) eliminate all visible petroleum hydrocarbons from surface waters of the Lake, (5) remove or remediate to non-detect levels, all visible petroleum hydrocarbon contaminated surface soils and sediments, and (6) to periodically report on the effectiveness of remediation efforts (SWRCB, 2003). | 2006 |

# Table 2. Bin 2: Impairment Confirmed – Not Addressed

| Waterbody | Pollutant | Category | Bin | Priority | Staff Comments | Year Listed |
|---|---|---|---|---|---|---|
| Eagle Lake | Nitrogen | 5A | 2 | Medium | Data evaluated for listing was prior to an administrative record (data not available to evaluate). Staff knowledge of impairment. Staff currently developing language for a TMDL. | 2002 |
| Eagle Lake | Phosphorus | 5A | 2 | Medium | Data evaluated for listing was prior to an administrative record (data not available to evaluate). Staff knowledge of impairment. Staff currently developing language for a TMDL. | 2002 |
| Donner Lake | Priority Organics | 5A | 2 | High | OEHHA developed a health advisory and safe eating guidelines in January 2011. The source of contaminants is unknown, but an implementation plan to lower contamination is needed. | 2006 |
| Donner Lake | Chlordane | 5A | 2 | High | Data was collected in 2002, 2005, and 2006. Zero of the samples exceeded the criteria for COLD beneficial use but 4 of 5 samples exceeded the criteria for COMM beneficial use. | 2012 |
| Donner Lake | Arsenic | 5A | 2 | High | Data was collected in 2002, 2005, and 2006. Three of 3 samples exceeded the OEHHA fish contaminant goal for arsenic. | 2012 |
| Heavenly Valley Creek (USFS boundary to Trout Creek) | Chloride | 5A | 2 | High | The data is collected through the Heavenly Ski Resort permit. There have been over 700 exceedances from 1983-2014. | 2002 |
| Bijou Park Creek | Iron | 5A | 2 | Medium | Listed as impaired in the 2012 Listing cycle. Samples were collected as part of WDR R6T-2003-0032 at Bijou Park Creek below the parking lot of Heavenly Ski Resort Cal-Lodge. Additional efforts are currently underway by the Ski Resort to better capture runoff from the parking lot. | 2012 |

| Waterbody | Pollutant | Category | Bin | Priority | Staff Comments | Year Listed |
|---|---|---|---|---|---|---|
| Bijou Park Creek | Oil and grease | 5A | 2 | Medium | Listed as impaired in the 2012 Listing cycle. Samples were collected as part of WDR R6T-2003-0032 at Bijou Park Creek below the parking lot of Heavenly Ski Resort Cal-Lodge. Additional efforts are currently underway by the Ski Resort to better capture runoff from the parking lot. | 2012 |
| Bijou Park Creek | Phosphorus | 5A | 2 | Medium | Listed as impaired in the 2012 Listing cycle. Samples were collected as part of WDR R6T-2003-0032 at Bijou Park Creek below the parking lot of Heavenly Ski Resort Cal-Lodge. Additional efforts are currently underway by the Ski Resort to better capture runoff from the parking lot. | 2012 |
| Bijou Park Creek | Total Nitrogen as N | 5A | 2 | Medium | Listed as impaired in the 2012 Listing cycle. Samples were collected as part of WDR R6T-2003-0032 at Bijou Park Creek below the parking lot of Heavenly Ski Resort Cal-Lodge. Additional efforts are currently underway by the Ski Resort to better capture runoff from the parking lot. | 2012 |
| Bijou Park Creek | Turbidity | 5A | 2 | Medium | Listed as impaired in the 2012 Listing cycle. Samples were collected as part of WDR R6T-2003-0032 at Bijou Park Creek below the parking lot of Heavenly Ski Resort Cal-Lodge. Additional efforts are currently underway by the Ski Resort to better capture runoff from the parking lot. | 2012 |
| Carson River, West Fork (Headwaters to Woodfords) | Nitrogen | 5A | 2 | Medium | The South Tahoe Public Utility District (STPUD) collects the data. A total of 102 samples were collected and expressed as a annual mean of monthly means. STPUD continues to collect data as part of their permit. | 2006 |
| Carson River, West Fork (Headwaters to Woodfords) | Phosphorus | 5A | 2 | Medium | The South Tahoe Public Utility District (STPUD) collects the data. A total of 102 samples were collected and expressed as a annual mean of monthly means. STPUD continues to collect data as part of their permit. | 2012 |

| Waterbody | Pollutant | Category | Bin | Priority | Staff Comments | Year Listed |
|---|---|---|---|---|---|---|
| Carson River, West Fork (Headwaters to Woodfords) | Chloride | 5A | 2 | Medium | The South Tahoe Public Utility District has collected this data for 30 years (1980-2010). There were 22 of 30 exceedances (annual averages). | 2012 |
| Carson River, West Fork (Headwaters to Woodfords) | Sulfate | 5A | 2 | Medium | The South Tahoe Public Utility District has collected this data for 28 years (1983-2010). There were 22 of 28 exceedances (mean of monthly means). | 2012 |
| Carson River, West Fork (Headwaters to Woodfords) | Turbidity | 5A | 2 | Medium | The South Tahoe Public Utility District has collected this data for 31 years (1980-2010). Samples are analyzed as a mean of monthly means with 7 exceedances of 31 samples. | 2012 |
| Carson River, West Fork (Woodfords to Paynesville) | Pathogens | 5A | 2 | Medium | The South Tahoe Public Utility District (STPUD) collects this data. There were many exceedances and STPUD will continue to monitor for fecal coliform and E. coli with the updated permit. | 2000 |
| Carson River, West Fork (Woodfords to Paynesville) | Chloride | 5A | 2 | Medium | The South Tahoe Public Utility District has collected this data for 30 years (1980-2010). Samples are analyzed as a mean of monthly means with 28 exceedances of 30 samples. | 2012 |
| Carson River, West Fork (Woodfords to Paynesville) | Nitrate | 5A | 2 | Medium | The South Tahoe Public Utility District collected data monthly from January 2002-June 2010. Three out of 9 annual mean of monthly means exceeded the objective. A total of 137 samples were collected from the site. | 2012 |
| Carson River, West Fork (Woodfords to Paynesville) | Sulfate | 5A | 2 | Medium | The South Tahoe Public Utility District has collected this data for 28 years (1983-2010). Samples are analyzed as a mean of monthly means with 27 exceedances of 28 samples. | 2012 |
| Carson River, West Fork (Woodfords to Paynesville) | Turbidity | 5A | 2 | Medium | The South Tahoe Public Utility District has collected this data for 30 years (1980-2010). Samples are analyzed as a mean of monthly means with 13 exceedances of 30 samples. | 2012 |

| Waterbody | Pollutant | Category | Bin | Priority | Staff Comments | Year Listed |
|---|---|---|---|---|---|---|
| Carson River, West Fork (Paynesville to state line) | Pathogens | 5A | 2 | Medium | Data evaluated for listing was prior to an administrative record (data not available to evaluate). Staff is aware that there is no access to sample at the stateline and plans on re-segmenting the West Fork Carson River for evaluation purposes. Staff has been sampling at Paynesville, where an impairment has been verified. | unknown |
| Indian Creek (Alpine County) | Pathogens | 5A | 2 | Medium | Data shows impairment. 124 of 183 samples exceeded the fecal coliform objective. Indian Creek is often dry starting in the early summer season and predominately flows through private property. | 2002 |
| Indian Creek (Alpine County) | Chloride | 5A | 2 | Low | The South Tahoe Public Utility District has collected this data for 30 years (1980-2010). There were 571 exceedances in 824 samples. Indian Creek is often dry starting in the early summer season and predominately flows through private property. | unknown |
| Indian Creek (Alpine County) | Dissolved Oxygen | 5A | 2 | Low | The South Tahoe Public Utility District has collected this data for 30 years (1980-2010). There were 264 exceedances in 864 samples. Indian Creek is often dry starting in the early summer season and predominately flows through private property. | unknown |
| Topaz Lake | Mercury | 5A | 2 | High | Samples were collected through the Bioaccumulation Oversight Group screening effort (2007-2008). Sample composites were generated from 2 species: rainbow trout (1 composite – 5 fish per composite) and sacramento sucker (2 composites – 5 fish per composite). There was 1 exceedance of 3 samples, but data from NDEP collected on 2011, showed 5 exceedances of 5 samples for smallmouth bass. Collectively, these samples meeting Listing Policy requirements for listing. | 2012 |

| Waterbody | Pollutant | Category | Bin | Priority | Staff Comments | Year Listed |
|---|---|---|---|---|---|---|
| Twin Lake, Upper | Mercury | 5A | 2 | High | Samples were collected through the Bioaccumulation Oversight Group screening effort (2007-2008). Samples included 2 composites: brown trout (1 composite-5 fish) and Sacramento sucker (2 composites- 5 fish). Further sampling is necessary to develop an OEHHA fish consumption advisory. | unknown |
| Bodie Creek | Mercury | 5A | 2 | Low | 4 sites were sampled at Bodie Creek: upstream and downstream of major historic mining sites. Bodie Creek flows through Bodie State Park and there has been a proposal of the State Park (hindered currently due to funding) to perform projects to reduce tailings in the creek. Creek is also often dry, especially during tourist season with no known fishing. | unknown |
| Mammoth Creek (Twin Lakes outlet to Old Mammoth Road) | Mercury | 5A | 2 | High | Original data used during assessment demonstrated impairment (2 of 3 samples exceeded fish composite evaluation guidelines [only brown trout collected]). This data was applied to all 3 segments of Mammoth Creek for impairment. Additional sampling through a 319(h) grant confirmed the impairment. The USFS hired a consultant for a preliminary investigation/site assessment of the headwaters segment. The draft report was completed in October 2014. | unknown |
| Little Rock Reservoir | Mercury | 5A | 2 | High | After the Bioaccumulation Oversight Group screening effort (2007-2008), SWAMP secured funding for additional sampling for an OEHHA fish tissue advisory. The advisory was completed in March 2014 to provide safe fish eating guidelines. | unknown |
| Little Rock Reservoir | Polychlorinated biphenyls (PCBs) | 5A | 2 | High | After the Bioaccumulation Oversight Group screening effort (2007-2008), SWAMP secured funding for additional sampling for an OEHHA fish tissue advisory. The advisory was completed in March 2014 to provide safe fish eating guidelines. | unknown |

| Waterbody | Pollutant | Category | Bin | Priority | Staff Comments | Year Listed |
|---|---|---|---|---|---|---|
| Silverwood Lake | Mercury | 5A | 2 | High | After the Bioaccumulation Oversight Group screening effort (2007-2008), SWAMP secured funding for additional sampling for an OEHHA fish tissue advisory. The advisory was completed in August 2013 to provide safe fish eating guidelines. | unknown |
| Silverwood Lake | Polychlorinated biphenyls (PCBs) | 5A | 2 | High | After the Bioaccumulation Oversight Group screening effort (2007-2008), SWAMP secured funding for additional sampling for an OEHHA fish tissue advisory. The advisory was completed in August 2013 to provide safe fish eating guidelines. | unknown |
| Lake Arrowhead | Mercury | 5A | 2 | High | Lake Arrowhead is a private lake with little public access. Staff has met with the lake managers to inform them of the mercury impairment. Staff also provided them a draft monitoring plan to create safe eating guidelines with cost estimates. Currently, it is still an internal discussion with their Board on how to proceed. | unknown |
| Lake Gregory | Mercury | 5A | 2 | High | Samples were collected through the Bioaccumulation Oversight Group screening effort (2007-2008). Two species were collected: common carp (2 composites of 5 fish each) and largemouth bass (11 individuals). Further sampling is necessary to develop an OEHHA fish consumption advisory. | unknown |

# Table 3. Bin 3: Impairment verification

| Waterbody | Pollutant | Category | Bin | Staff Comments | Year Listed |
|---|---|---|---|---|---|
| Mill Creek (Modoc County) | Total Dissolved Solids | 5A | 3 | Data shows 5 of 5 exceedances. Fourteen samples were collected over 5 years (2 to 4 samples/year, between 2001 and 2005) at a single station. Quarterly (or less frequent) does not capture the full range of seasonal and annual variability for an objective based on an annual average. Staff did not recommend listing in 2010 listing cycle, but was added at the State Board level. The current objective may also not be an appropriate measure for protection of beneficial uses and need to be amended. | unknown |
| Bidwell Creek | Total Dissolved Solids | 5A | 3 | Data shows 5 of 5 exceedances. Fifteen samples were collected over 5 years (2-4 samples/year, between 2001-2005) at a single station. Quarterly (or less frequent) does not capture the full range of seasonal and annual variability for an objective based on an annual average. Staff did not recommend listing in 2010 listing cycle, but was added at the State Board level. The current objective may also not be an appropriate measure for protection of beneficial uses and need to be amended. | unknown |
| Susan River (Headwaters to Susanville) | Unknown toxicity | 5A | 3 | UC Davis Aquatic Toxicology Laboratory sampled the Susan River monthly between May 2003 and August 2004, testing each sample with three different organisms. Four of 12 samples showed a toxic response. Toxicity testing has evolved and additional sampling is recommended since the data is over 10 years antiquated. The SWAMP program hopes to perform a follow-up study. | unknown |
| Susan River (Headwaters to Susanville) | Mercury | 5A | 3 | Additional sampling of the headwater was performed by the USFS in 2012 and 2013. Staff acquired TMDL discretionary funds to perform additional sampling in the lower two segments to verify impairment beginning in spring 2015. | unknown |

| Waterbody | Pollutant | Category | Bin | Staff Comments | Year Listed |
|---|---|---|---|---|---|
| Susan River (Headwaters to Susanville) | Total Dissolved Solids | 5A | 3 | Data shows 5 of 5 exceedances. Fourteen samples were collected over 5 years (2 to 4 samples/year, between 2001 and 2005) at a single station. Quarterly (or less frequent) does not capture the full range of seasonal and annual variability for an objective based on an annual average. Staff did not recommend listing in 2010 listing cycle, but was added at the State Board level. Staff is currently collecting monthly samples (November 2014-November 2105) to have a more robust data set in determining an annual average to verify impairment. The current objective may also not be an appropriate measure for protection of beneficial uses and need to be amended. | unknown |
| Susan River (Headwaters to Susanville) | Total Nitrogen as N | 5A | 3 | Data shows 3 of 5 exceedances. Sixteen samples were collected over 5 years (2 of 5 annual averages were estimates). Staff is currently collecting monthly samples (November 2014-November 2105) to have a more robust data set in determining an annual average to verify impairment. | unknown |
| Susan River (Susanville to Litchfield) | Unknown toxicity | 5A | 3 | UC Davis Aquatic Toxicology Laboratory sampled the Susan River monthly between May 2003 and August 2004, testing each sample with three different organisms. Four of 12 samples showed a toxic response. Toxicity testing has evolved and additional sampling is recommended since the data is over 10 years antiquated. The SWAMP program hopes to perform a follow-up study. | unknown |
| Susan River (Susanville to Litchfield) | Mercury | 5A | 3 | Additional sampling of the headwater was performed by the USFS in 2012 and 2013. Staff acquired TMDL discretionary funds to perform additional sampling in the lower two segments to verify impairment beginning in spring 2015. | unknown |

| Waterbody | Pollutant | Category | Bin | Staff Comments | Year Listed |
|---|---|---|---|---|---|
| Susan River (Susanville to Litchfield) | Total Dissolved Solids | 5A | 3 | Data shows 5 of 5 exceedances. Fourteen samples were collected over 5 years (2 to 4 samples/year, between 2001 and 2005) at a single station. Quarterly (or less frequent) does not capture the full range of seasonal and annual variability for an objective based on an annual average. Staff is currently collecting monthly samples (November 2014-November 2105) to have a more robust data set in determining an annual average to verify impairment. The current objective may also not be an appropriate measure for protection of beneficial uses and need to be amended. | unknown |
| Susan River (Susanville to Litchfield) | Turbidity | 5A | 3 | Data shows 10 of 12 exceedances over 4 years. The range was from 0.6 to 33 NTU. Staff is currently measuring turbidity monthly (November 2104-November 2015) at all three segments to have a more representative dataset to verify impairment. | unknown |
| Susan River (Litchfield to Honey Lake) | Unknown toxicity | 5A | 3 | UC Davis Aquatic Toxicology Laboratory sampled the Susan River monthly between May 2003 and August 2004, testing each sample with three different organisms. Four of 12 samples showed a toxic response. Toxicity testing has evolved and additional sampling is recommended since the data is over 10 years antiquated. The SWAMP program hopes to perform a follow-up study. | unknown |
| Susan River (Litchfield to Honey Lake) | Mercury | 5A | 3 | Additional sampling of the headwater was performed by the USFS in 2012 and 2013. Staff acquired TMDL discretionary funds to perform additional sampling in the lower two segments to verify impairment beginning in spring 2015. | unknown |
| Blackwood Creek | Iron | 5A | 3 | Data evaluated for listing was prior to an administrative record (data not available to evaluate). Creek needs additional sampling to either verify impairment or determine appropriateness of objective for protection of beneficial uses. | 2002 |

| Waterbody | Pollutant | Category | Bin | Staff Comments | Year Listed |
|---|---|---|---|---|---|
| General Creek | Iron | 5A | 3 | Data evaluated for listing was prior to an administrative record (data not available to evaluate). Creek needs additional sampling to determine appropriateness of objective for protection of beneficial uses since this creek is representative of reference conditions. | 2002 |
| General Creek | Phosphorus | 5A | 3 | Data evaluated for listing was prior to an administrative record (data not available to evaluate). Creek needs additional sampling to determine appropriateness of objective for protection of beneficial uses since this creek is representative of reference conditions. | 2002 |
| Heavenly Valley Creek (source to USFS boundary) | Chloride | 5A | 3 | Data shows 2 of 2 exceedances. Samples were collected through the Heavenly Ski Resort permit with one sample used to collect the annual average in 2008 and three samples to calculate the annual average for 2009. Due to the limited samples used to determine impairment, staff wants to evaluate additional data submitted with the annual reports as part of the permit requirements to verify impairment. | 2002 |
| Tallac Creek | Pathogens | 5A | 3 | Fecal indicator and microbial source tracking data has been collected by staff for multiple years as staff speculates the impairment is from natural sources. | 2002 |
| Trout Creek (above HWY 50) | Iron | 5A | 3 | Data evaluated for listing was prior to an administrative record (data not available to evaluate). Creek needs additional sampling to either verify impairment or determine appropriateness of objective for protection of beneficial uses. | 2002 |
| Trout Creek (above HWY 50) | Pathogens | 5A | 3 | Fecal indicator and microbial source tracking data has been collected by staff for multiple years as staff speculates the impairment is from natural sources. | 2002 |
| Trout Creek (below HWY 50) | Iron | 5A | 3 | Data evaluated for listing was prior to an administrative record (data not available to evaluate). Creek needs additional sampling to either verify impairment or determine appropriateness of objective for protection of beneficial uses. | 2002 |

| Waterbody | Pollutant | Category | Bin | Staff Comments | Year Listed |
|---|---|---|---|---|---|
| Trout Creek (below HWY 50) | Pathogens | 5A | 3 | Fecal indicator and microbial source tracking data has been collected by staff for multiple years as staff speculates the impairment is from natural sources. | 2002 |
| Tahoe Keys Sailing Lagoon | pH | 5A | 3 | Staff did not recommend listing for the 2012 IR cycle, but State Board included the listing with the approval at their Board. Samples were collected at 4 sites on 2 separate occasions: 7/20/2006 and 8/17/2006. Staff did not recommend listing as the data is limited to 2 sampling events and the objective for Lake Tahoe was applied to the lagoon although not applicable. | unknown |
| Truckee River, Upper (above Christmas Valley) | Iron | 5A | 3 | Data evaluated for listing was prior to an administrative record (data not available to evaluate). River needs additional sampling to either verify impairment or determine appropriateness of objective for protection of beneficial uses. | 2002 |
| Truckee River, Upper (below Christmas Valley) | Iron | 5A | 3 | Data evaluated for listing was prior to an administrative record (data not available to evaluate). River needs additional sampling to either verify impairment or determine appropriateness of objective for protection of beneficial uses. | 2002 |
| Ward Creek | Iron | 5A | 3 | Data evaluated for listing was prior to an administrative record (data not available to evaluate). Creek needs additional sampling to either verify impairment or determine appropriateness of objective for protection of beneficial uses. | 2002 |
| Carson River, West Fork (Headwaters to Woodfords) | Nitrate | 5A | 3 | The South Tahoe Public Utility District (STPUD) collects the data. The objective is expressed as an annual mean of monthly means and for years 2000 and 2003-2005, the data was very close to meeting the objective. STPUD continues to collect data as part of their permit and staff will evaluate next listing cycle to verify impairment. | 2006 |

| Waterbody | Pollutant | Category | Bin | Staff Comments | Year Listed |
|---|---|---|---|---|---|
| Carson River, West Fork (Headwaters to Woodfords) | Total Dissolved Solids | 5A | 3 | The South Tahoe Public Utility District has collected this data for 31 years (1980-2010). Samples are analyzed as a mean of monthly means with 8 exceedances of 31 samples. Staff may reconsider objective as it may not be an appropriate measure for protection of beneficial uses. | 2012 |
| Carson River, West Fork (Woodfords to Paynesville) | Nitrogen | 5A | 3 | Data evaluated for listing was prior to an administrative record (data not available to evaluate). Additional data necessary to verify impairment. | 2006 |
| Carson River, West Fork (Woodfords to Paynesville) | Total Dissolved Solids | 5A | 3 | The South Tahoe Public Utility District has collected this data for 30 years (1980-2010). Samples are analyzed as a mean of monthly means with 23 exceedances of 30 samples. Staff may reconsider objective as it may not be an appropriate measure for protection of beneficial uses. | 2012 |
| Carson River, East Fork | Total Dissolved Solids | 5A | 3 | Data shows 5 of 5 exceedances between 2002-2005 (16 samples taken total reported as annual averages). An additional 6 samples were collected in 2003 and 2004 and concentrations in 4 of the samples were below the detection limit and then concentrations in the remaining samples were below the objective. For the 2010 listing cycle, staff did not recommend listing based on the limited data set. Additional data is necessary to verify impairment and/or to determine the appropriateness of the objective in protecting beneficial uses. | unknown |
| Carson River, East Fork | Boron | 5A | 3 | Staff did not recommend listing for the 2010 or 2012 IR cycle, but State Board included the listing with the approval at their Board both cycles. Staff did not recommend listing due to the limited data set to calculate the annual average (3 years), which may not be temporally representative. | unknown |

| Waterbody | Pollutant | Category | Bin | Staff Comments | Year Listed |
|---|---|---|---|---|---|
| Carson River, East Fork | Phosphorus | 5A | 3 | Data evaluated for the 2010 Listing cycle included quality assurance issues and so was not assessed to determine impairment. Data for the 2012 Listing cycle included 2 of 2 exceedances based on an annual average. Regional Board staff did not recommend listing based on the limited data set, but State Board listed it with the approval at State Board. | unknown |
| Carson River, East Fork | Sulfates | 5A | 3 | Staff did not recommend listing for the 2012 IR cycle, but State Board included the listing with the approval at their Board. Samples were collected between 2002-2005 and 2006-2007. None of the samples exceed the MCL, but exceed the site specific objective annual average. East Fork Carson River is also downstream from geothermal activity and may have natural source contribution. | unknown |
| Wolf Creek (Alpine County) | Sedimentation/ Siltation | 5A | 3 | Data evaluated for listing was prior to an administrative record (data not available to evaluate). Additional data necessary to verify impairment. | 1998 |
| Dressler Ditch | Turbidity | 5A | 3 | Staff did not recommend listing for the 2012 IR cycle, but State Board included the listing with the approval at their Board. The state of Nevada objective as a mean of monthly means was applied because of proximity to border. The samples were always collected in May during high runoff period that typically produces more turbidity. The data may be biased and not representative of annual conditions. | unknown |
| Monitor Creek | Aluminum | 5A | 3 | Restoration projects for abandoned mines may have reduced the aluminum concentrations. Because this listing is prior to 2006, no data or information is available know the extent of the impairment. | 2002 |
| Monitor Creek | Iron | 5A | 3 | Data evaluated for listing was prior to an administrative record (data not available to evaluate). Additional data necessary to verify impairment. | 2002 |

| Waterbody | Pollutant | Category | Bin | Staff Comments | Year Listed |
|---|---|---|---|---|---|
| Monitor Creek | Manganese | 5A | 3 | Data evaluated for listing was prior to an administrative record (data not available to evaluate). Additional data necessary to verify impairment. | 2002 |
| Monitor Creek | Silver | 5A | 3 | Data evaluated for listing was prior to an administrative record (data not available to evaluate). Additional data necessary to verify impairment. | 2002 |
| Monitor Creek | Sulfate | 5A | 3 | Data evaluated for listing was prior to an administrative record (data not available to evaluate). Additional data necessary to verify impairment. | 2002 |
| Monitor Creek | Total Dissolved Solids | 5A | 3 | Data evaluated for listing was prior to an administrative record (data not available to evaluate). Additional data necessary to verify impairment. | 2002 |
| East Walker River, below Bridgeport Reservoir | Sedimentation/ Siltation | 5A | 3 | Data was collected from 2001 to 2005 with 16 samples total. For the 2006 listing cycle, staff did not recommend listing based on the limited data set. Additional data is necessary to verify impairment and/or to determine the appropriateness of the evaluation criteria used. | 2002 |
| East Walker River, below Bridgeport Reservoir | Manganese | 5A | 3 | Data was collected from 2001-2002 with 4 samples total. For the 2010 listing cycle, staff did not recommend listing based on the limited data set. Additional data necessary to determine impairment. | 2010 |
| East Walker River, below Bridgeport Reservoir | Turbidity | 5A | 3 | Data was collected from 2001-2004 with 12 samples total. For the 2010 listing cycle, staff did not recommend listing based on the limited data set. Additional samples were collected between 2004 and 2005 but were evaluated as NRTU and not NTU and so could not be evaluated for meeting the MCL as expressed as NTU. Additional data necessary to determine impairment. | 2010 |

| Waterbody | Pollutant | Category | Bin | Staff Comments | Year Listed |
|---|---|---|---|---|---|
| West Walker River | Boron | 5A | 3 | Staff did not recommend listing for the 2012 IR cycle, but State Board included the listing with the approval at their Board adoption. 10 samples were collected between 2002-2005 and 5 samples from 8/2007-12/2007. The data is not temporally representative and probably comes from natural sources from the Fales Hot Springs and geothermal influence in the Antelope Valley | unknown |
| West Walker River | Chloride | 5A | 3 | Staff did not recommend listing for the 2012 IR cycle, but State Board included the listing with the approval at their Board adoption. From data from 2002-2005, large fluctuations in chloride exist in the West Walker River. Samples from 8/2007-12/2007 does not show the temporal fluctuations that exist. The West Walker River was also affected by a wildfire in 2002. , which could have contributed. | unknown |
| Bridgeport Reservoir | Nitrogen | 5A | 3 | Data evaluated for listing was prior to an administrative record (data not available to evaluate). Reservoir needs additional sampling to either verify impairment or determine appropriateness of objective for protection of beneficial uses. | unknown |
| Bridgeport Reservoir | Phosphorus | 5A | 3 | Data evaluated for listing was prior to an administrative record (data not available to evaluate). Reservoir needs additional sampling to either verify impairment or determine appropriateness of objective for protection of beneficial uses. | unknown |
| Bridgeport Reservoir | Sedimentation/ Siltation | 5A | 3 | Data evaluated for listing was prior to an administrative record (data not available to evaluate). Reservoir needs additional sampling to either verify impairment or determine appropriateness of objective for protection of beneficial uses. | unknown |
| Swauger Creek | Phosphorus | 5A | 3 | Data evaluated for listing was prior to an administrative record (data not available to evaluate). Creek needs additional sampling to either verify impairment or determine appropriateness of objective for protection of beneficial uses. | unknown |

| Waterbody | Pollutant | Category | Bin | Staff Comments | Year Listed |
|---|---|---|---|---|---|
| Mammoth Creek (Headwaters to Twin Lakes outlet) | Total Dissolved Solids | 5A | 3 | Samples were collected from 2001-2005 for 16 quarterly samples total. Staff did not recommend listing in 2010 listing cycle, but was added at the State Board level. Staff is currently collecting monthly samples (November 2014-November 2015) to have a more robust data set in determining an annual average to verify impairment. The current objective may also not be an appropriate measure for protection of beneficial uses and need to be amended. | unknown |
| Mammoth Creek (Twin Lakes outlet to Old Mammoth Road) | Manganese | 5A | 3 | Samples were collected from 2001-2005 for 12 samples total. Five of 12 samples exceeded the MCL. This data was applied to all 3 segments of Mammoth Creek for impairment. For the 2010 listing cycle, staff did not recommend listing based on the limited data set. Additional data necessary to determine impairment. | unknown |
| Mammoth Creek (Old Mammoth Road to HWY 395) | Mercury | 5A | 3 | Original data used during assessment demonstrated impairment (2 of 3 samples exceeded fish composite evaluation guidelines [only brown trout collected]). This data was applied to all 3 segments of Mammoth Creek for impairment. Additional sampling through a 319(h) grant confirmed the impairment. The USFS hired a consultant for a preliminary investigation/site assessment of the headwaters segment. The draft report was completed in October 2014. | unknown |
| Mammoth Creek (Old Mammoth Road to HWY 395) | Manganese | 5A | 3 | Samples were collected from 2001-2005 for 12 samples total. Five of 12 samples exceeded the MCL. This data was applied to all 3 segments of Mammoth Creek for impairment. For the 2010 listing cycle, staff did not recommend listing based on the limited data set. Additional data necessary to determine impairment. | unknown |

| Waterbody | Pollutant | Category | Bin | Staff Comments | Year Listed |
|---|---|---|---|---|---|
| Mammoth Creek (Old Mammoth Road to HWY 395) | Total Dissolved Solids | 5A | 3 | Samples were collected form 2001-2005 for 17 samples total. Staff did not recommend listing in 2010 listing cycle, but was added at the State Board level. Staff is currently collecting monthly samples (November 2014-November 2105) to have a more rubust data set in determining an annual average to verify impairment. The current objective may also not be an appropriate measure for protection of beneficial uses and need to be amended. | unknown |
| Mammoth Creek, un-named tributary (confluence is near Old Mammoth Rd.) | Arsenic | 5A | 3 | Samples were collected from 2003-2005 for 8 samples total. There is a potential that arsenic is naturally occuring in the soils and so verification is necessary. | unknown |
| Mammoth Creek, un-named tributary (confluence is near Old Mammoth Rd.) | Mercury | 5A | 3 | Samples were collected between 2003-2005 for 8 quarterly samples of total mercury. For the 2010 listing cycle, staff did not recommend listing based on the limited data set. Additional methylmercury sampling is necessary to determine human health risk, if any. | unknown |
| Hilton Creek | Oxygen, Dissolved | 5A | 3 | Samples were collected between 2001-2005 for 15 samples total. For the 2010 listing cycle, staff did not recommend listing based on the limited data set. Additional data necessary to determine impairment. | unknown |
| Rock Creek (tributary to Owens River) | Total Dissolved Solids | 5A | 3 | Samples were collected from 2001-2005 for 16 samples total. For the 2010 listing cycle, staff did not recommend listing based on the limited data set. Additional data is necessary to verify impairment and/or to determine the appropriateness of the objective in protecting beneficial uses. | unknown |
| Crowley Lake | Ammonia | 5A | 3 | Samples were collected from 2001-2005 with a total of 16 samples. For the 2006 listing cycle, staff did not recommend listing based on the limited data set. Additional data is necessary to verify impairment and/or to determine the appropriateness of the objective in protecting beneficial uses. | 2006 |

| Waterbody | Pollutant | Category | Bin | Staff Comments | Year Listed |
|---|---|---|---|---|---|
| Crowley Lake | Dissolved Oxygen | 5A | 3 | Data was collected from 2000-2001 during the summer months. Of the 112 samples collected from various in-lake locations, 36 depth-averaged DO measurements were less than the instantaneous objective concentration. | 2006 |
| Haiwee Reservoir | Copper | 5A | 3 | Data evaluated for listing was prior to an administrative record (data not available to evaluate). Reservoir needs additional sampling to either verify impairment. | 1998 |
| Pleasant Valley Reservoir | Organic Enrichment/Low DO | 5A | 3 | Data evaluated for listing was prior to an administrative record (data not available to evaluate). Reservoir needs additional sampling to either verify impairment. | 1996 |
| Little Rock Reservoir | Manganese | 5A | 3 | Samples collected from 2001-2003 for 4 samples total. For the 2010 listing cycle, staff did not recommend listing based on the limited data set. Additional data necessary to determine impairment. | unknown |
| Holcomb Creek | Total Dissolved Solids | 5A | 3 | Samples collected from 2001-2005 for 13 samples total. For the 2010 listing cycle, staff did not recommend listing based on the limited data set. Additional data is necessary to verify impairment and/or to determine the appropriateness of the objective in protecting beneficial uses. | unknown |
| Mojave River (Upper Narrows to Lower Narrows) | Total Dissolved Solids | 5A | 3 | Samples were collected from 2001-2005 for 15 samples total. For the 2010 listing cycle, staff did not recommend listing based on the limited data set. Additional data is necessary to verify impairment and/or to determine the appropriateness of the objective in protecting beneficial uses. | unknown |
| Crab Creek | Total Dissolved Solids | 5A | 3 | Samples were collected from 2001-2005 for 11 samples total. For the 2010 listing cycle, staff did not recommend listing based on the limited data set. Additional data is necessary to verify impairment and/or to determine the appropriateness of the objective in protecting beneficial uses. | unknown |

| Waterbody | Pollutant | Category | Bin | Staff Comments | Year Listed |
|---|---|---|---|---|---|
| Sheep Creek | Nitrate | 5A | 3 | Samples were collected from 2001-2005 for a total of 12 samples analyzed for nitrite and nitrite + nitrate, both expressed as "nitrogen." The data shows estimations, which did not exceed the objective and averages that did. For the 2010 listing cycle, staff did not recommend listing based on the limited data set. Additional data is necessary to verify impairment | unknown |
| Sheep Creek | Total Dissolved Solids | 5A | 3 | Samples were collected form 2001-2005 for a total of 12 samples. For the 2010 listing cycle, staff did not recommend listing based on the limited data set. Additional data is necessary to verify impairment and/or to determine the appropriateness of the objective in protecting beneficial uses. | unknown |

# Table 4. Bin 4: No Action

| Waterbody | Pollutant | Category | Bin | Staff Comments | Year Listed |
|---|---|---|---|---|---|
| Honey Lake | Arsenic | 5A | 4 | Data evaluated for listing was prior to an administrative record (data not available to evaluate). Lake has naturally high salinity and is affected by low flows and geothermal discharges concluding it could be from natural sources. | 1998 |
| Honey Lake | Salinity/TDS/ Chlorides | 5A | 4 | Data evaluated for listing was prior to an administrative record (data not available to evaluate). Lake has naturally high salinity and is affected by low flows and geothermal discharges concluding it could be from natural sources. | 1998 |
| Honey Lake Area Wetlands | Metals | 5A | 4 | Data evaluated for listing was prior to an administrative record (data not available to evaluate). Lake has naturally high salinity and is affected by low flows and geothermal discharges concluding it could be from natural sources. | 2002 |
| Honey Lake Wildfowl Management Ponds | Metals | 5A | 4 | Data evaluated for listing was prior to an administrative record (data not available to evaluate). Lake has naturally high salinity and is affected by low flows and geothermal discharges concluding it could be from natural sources. | 1998 |
| Honey Lake Wildfowl Management Ponds | Salinity/TDS/ Chlorides | 5A | 4 | Data evaluated for listing was prior to an administrative record (data not available to evaluate). Lake has naturally high salinity and is affected by low flows and geothermal discharges concluding it could be from natural sources. | 1998 |
| Honey Lake Wildfowl Management Ponds | Trace Elements | 5A | 4 | Data evaluated used for listing was prior to an administrative record (data not available to evaluate). Lake has naturally high salinity and is affected by low flows and geothermal discharges concluding it could be from natural sources. | 1998 |
| Hidden Valley Creek | Phosphorus | 5A | 4 | Data was collected as part of WDR R6T-2003-0032 from 10/2007-9/2009. A total of 28 samples were collected with 2 of 2 annual average exceedances. Hidden Valley Creek is located in an undisturbed area and evaluated as a reference creek for determining compliance with Heavenly Ski Resort and Heavenly Valley Creek TMDL for phosphorus. | unknown |

| Waterbody | Pollutant | Category | Bin | Staff Comments | Year Listed |
|---|---|---|---|---|---|
| Amargosa River (Nevada border to Tecopa) | Arsenic | 5A | 4 | Although the California Toxics Rule standards are being exceeded for saltwater aquatic life standards, the pollutant is from natural sources and the current CTR may not be applicable for the protection of inland saline waters. | unknown |
| Amargoas River (Tecopa to Upper Canyon) | Arsenic | 5A | 4 | Although the California Toxics Rule standards are being exceeded for saltwater aquatic life standards, the pollutant is from natural sources and the current CTR may not be applicable for the protection of inland saline waters. | unknown |
| Amargosa River (Upper Canyon to Illow Creek confluence) | Arsenic | 5A | 4 | Although the California Toxics Rule standards are being exceeded for saltwater aquatic life standards, the pollutant is from natural sources and the current CTR may not be applicable for the protection of inland saline waters. | unknown |
| Mesquite Springs (Inyo County) | Arsenic | 5A | 4 | The Mesquite Springs are within the Stovepipe Wells Hydrologic sub-area of the Amargosa Hydrologic Unit. They supply drinking water to a campground. No site-specific water quality objectives apply to the springs. Chemical and radioactive constituents, including arsenic, come from natural sources. | 2008 |
| Mesquite Springs (Inyo County) | Boron | 5A | 4 | The Mesquite Springs are within the Stovepipe Wells Hydrologic sub-area of the Amargosa Hydrologic Unit. They supply drinking water to a campground. No site-specific water quality objectives apply to the springs. Chemical and radioactive constituents come from natural sources. | 2008 |
| Mojave River (Mojave Forks Reservoir outlet to Upper Narrows) | Fluoride | 5A | 4 | Samples collected from 2001-2005 for 14 samples total. The river is intermittent and surface water is present in only a few locations. Fluoride at this station probably comes from natural geothermal sources. | 2008 |
| Mojave River (Upper Narrows to Lower Narrows) | Fluoride | 5A | 4 | Samples collected from 2001-2005 for 14 samples total. The river is intermittent and surface water is present in only a few locations. Fluoride at this station probably comes from natural geothermal sources. | 2008 |

| Waterbody | Pollutant | Category | Bin | Staff Comments | Year Listed |
|---|---|---|---|---|---|
| Mojave River (Upper Narrows to Lower Narrows) | Sulfates | 5A | 4 | Samples collected from 2001-2005 with 15 samples total. Soils most prone to having high levels of sulfate formed within the last 10,000 years, after the last major sea level rise. It occurs in saline sulfate-rich groundwater. The sulfates are probably from natural sources in the Mojave River. | unknown |

# ENCLOSURE 2

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# Item No. 10

Guidance for the Prioritization of the Lahontan 303(d) List of Impaired Waters

Lahontan Water Board

July 9, 2015

Mary Fiore-Wagner and Carly Nilson
Environmental Scientists

California Water Boards

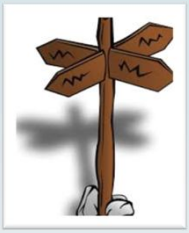
1

## Purpose

- Prioritize impairments to protect human health
- Inform workplanning
- Currently no State Board or US EPA written guidance

2

## Presentation Roadmap



- How other regions prioritize
- 303(d) List
- “Binning” of listed waterbodies
- Prioritizing confirmed impairments
- Next Steps

3

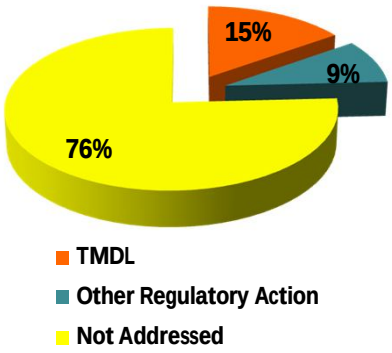
## Other Regional Board Approaches

- Do not present prioritization effort to the Board
- Develop priorities at the TMDL unit level
- Other factors


4

# 2012 303(d) Listings

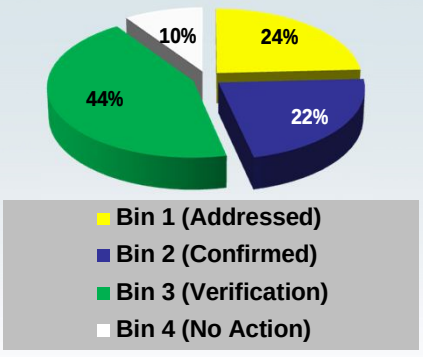
- 157 303(d) listings for the Lahontan Region
  - 24 listings are addressed through USEPA approved TMDLs
  - 14 listings are addressed through actions other than TMDLs
  - 119 listings not addressed




5

# Binning

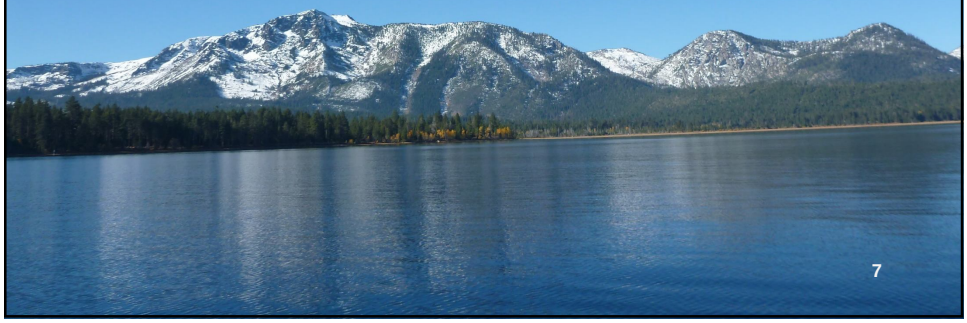
- Bin 1: Impairment addressed
- Bin 2: Impairment confirmed
- Bin 3: Impairment verification
- Bin 4: No action




6

## Bin 1: Impairment Addressed

- Addressed by a regulatory action other than a TMDL
- Addressed by a US EPA approved TMDL



7

## Bin 2: Impairment Confirmed

- Data/information available confirms impairment
- Must be prioritized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## Bin 3: Impairment Verification

- Requires further staff investigation
- No administrative record
- Limited data set
- Water quality objective may not be appropriate

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## Bin 4: No Action Needed

- Natural sources
- Current water quality objective more stringent than needed to protect beneficial uses

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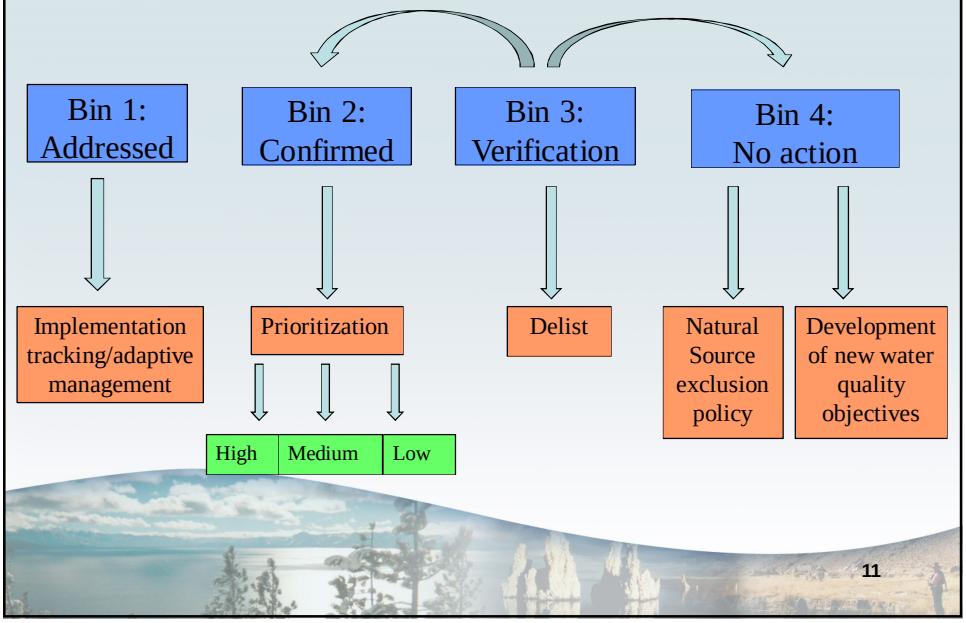
# Prioritization Schematic

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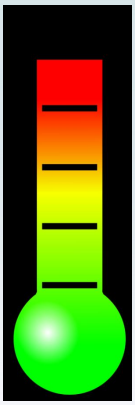
# Confirmed Impairments: Bin 2



**High**

Direct impacts to human health

**Medium**

Impacts to multiple beneficial uses and recreation

**Low**

Impacts to few beneficial uses; isolated or ephemeral

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# Other Criteria Considered

- Stakeholder input
- Economic impacts
- Proximity to the Lahontan office: ability to collect and analyze a sample within holding times
- Level of staff effort required to address impairment
- Achievability and efficiency of resources
- Type of beneficial use affected
- Level of recreation

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# Next Steps

- Staff Report with Appendix A
- Sampling Bin 3

  Currently sampling: Susan River, Mammoth Creek, E. Walker River, E. Fork Carson River, Rock Creek
- Apply prioritization to workplans
- Inform funding proposals

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Questions?
Do you concur with the
draft prioritization guidance?
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