

Section 3.1 Total Maximum Daily Loads (TMDLs)

The concept of TMDLs was originally developed primarily in relation to point source water quality problems. Given a stream with a variety of municipal and industrial point source discharges, a theoretical TMDL process would include a measurement and/or model of pollutant loads from each source in the watershed, and calculation of the reductions in loading from each source (with a margin of safety) necessary to ensure attainment of water quality standards. Effluent standards in NPDES permits for all point sources would then be revised to include literal "Total Maximum Daily Loads" of pollutants.

The term "TMDL" has been carried over to waters impacted by nonpoint source problems, or combinations of point and nonpoint source problems, with the recognition that control programs may be neither "total" nor "maximum" nor "daily" nor "loads". The current guidance from USEPA for nonpoint source TMDLs emphasizes development of watershed management plans which set goals for percentage reductions of pollutant loads over time through implementation of Best Management Practices (BMPs), watershed restoration programs, and/or other appropriate controls. These TMDLs may be phased, with monitoring to determine the success of initial control programs, and requirements for implementation of more stringent controls in later phases, if necessary. Phasing is desirable because accurate models of wasteloads and predictions of the success of BMPs in reducing pollutant loads are much more difficult to obtain for nonpoint than for point sources.

The USEPA currently expects California to develop TMDLs for all Section 303 (d) listed waterbodies (listed as of 1998) by 2010. Even assuming that no new waters are added to the list, this would require a massive commitment of staff and contract resources. TMDLs involving recognition of programs developed by other parties may be done with relatively small amounts of RWQCB resources. For more complex TMDLs, case studies have shown that several years of staff time and costs in the million dollar range are involved.

The RWQCB took formal action in January 2002 to recommend updates to its Section 303(d) list and its priorities for development of TMDLs. TMDL priorities are listed in Table TMDL-1.

Table TMDL-1 Regional Board TMDL Priorities as of January 2002 (Note that subsequent actions by the State Board and the USEPA are also required before the list is final)

Waterbody Name	Pollutant(s) or Stressor(s)	TMDL Priority Ranking	TMDL End Date ²	Comments
Surprise Valley HU 641.00¹				
Mill Creek	Sedimentation/Siltation	Medium	2011	Needs study to verify need for TMDL
Susanville HU 637.00				
Eagle Lake	Nitrogen	High	2008	
Eagle Lake	Phosphorus	High	2008	
Pine Creek	Sedimentation/Siltation [actual problem: Fish Habitat Alterations]	High	2011 ³	TMDL probably not needed ³
Lassen Creek	Flow Alterations	Low	2011 ³	TMDL probably not needed ³
Susan River	Unknown Toxicity	High	2007	Listed for toxic bioassay results
Honey Lake	Arsenic	Medium	2005	Natural sources plus geothermal discharges
Honey Lake	Salinity/TDS/Chlorides	Medium	2005	Natural sources plus geothermal discharges
Honey Lake Area Wetlands	Metals	Medium	2007	Natural sources plus geothermal discharges

Honey Lake Wildfowl Mgmt. Ponds	Flow Alterations	Low	2007 ³	TMDL probably not needed ³
Honey Lake Wildfowl Mgmt Ponds	Salinity/TDS/Chlorides	Medium	2007	Natural sources plus geothermal discharges
Honey Lake Wildfowl Mgmt. Ponds	Metals	Medium	2007	Natural sources plus geothermal discharges
Honey Lake Wildfowl Mgmt. Ponds	Trace Elements	Medium	2007	Natural sources plus geothermal discharges
Skedaddle Creek	High Coliform Count	Low	2006	Further study may lead to delisting
Truckee River HU 635.00				
Truckee River	Sedimentation/Siltation	High	2005	TMDL development in progress
Bear Creek	Sedimentation/Siltation	High	2005	TMDL development in progress
Bronco Creek	Sedimentation/Siltation	High	2005	TMDL development in progress
Gray Creek	Sedimentation/Siltation	High	2005	TMDL development in progress
Squaw Creek	Sedimentation/Siltation	High	2003	TMDL development in progress
Cinder Cone Springs	Nutrients	Medium	2007	Further study may lead to delisting
Cinder Cone Springs	Salinity/TDS/Chlorides	Medium	2007	Further study may lead to delisting
Lake Tahoe HU 634.00				
Lake Tahoe	Phosphorus	High	2007	TMDL development in progress
Lake Tahoe	Nitrogen	High	2007	TMDL development in progress
Lake Tahoe	Sedimentation/Siltation	High	2007	TMDL development in progress
Upper Truckee River	Iron	Medium	After 2015	Standard needs revision
Upper Truckee River	Phosphorus	High	After 2015	To be coordinated with Lake Tahoe TMDL
Upper Truckee River above Christmas Valley	Pathogens	High	After 2015	Standard for fecal coliform bacteria violated
Big Meadow Creek	Pathogens	High	After 2015	Standard for fecal coliform bacteria violated
Heavenly Valley Creek above USFS property line	Sediment	High	2001	TMDL completed 2001, awaiting final approvals
Heavenly Valley Creek below USFS property line	Sediment	Medium	After 2015	Restoration program may eliminate need for TMDL

Heavenly Valley Creek	Chloride	Low	After 2015	Standard needs revision
Heavenly Valley Creek above USFS property line	Phosphorus	High	After 2015	To be coordinated with Lake Tahoe TMDL
Hidden Valley Creek	Phosphorus	High	After 2015	To be coordinated with Lake Tahoe TMDL
Hidden Valley Creek	Chloride	Low	After 2015	Standard needs revision
Trout Creek	Phosphorus	High	After 2015	To be coordinated with Lake Tahoe TMDL
Trout Creek	Iron	Medium	After 2015	Standard needs revision
Trout Creek	Nitrogen	High	After 2015	To be coordinated with Lake Tahoe TMDL
Trout Creek below Hwy 50 in S. Lake Tahoe	Pathogens	High	After 2015	Standard for fecal coliform bacteria violated
Tallac Creek below Hwy 89	Pathogens	High	After 2015	Standard for fecal coliform bacteria violated
Ward Creek	Sedimentation/Siltation	High	2007	To be coordinated with Lake Tahoe TMDL
Ward Creek	Phosphorus	High	After 2015	To be coordinated with Lake Tahoe TMDL
Ward Creek	Nitrogen	High	After 2015	To be coordinated with Lake Tahoe TMDL
Ward Creek	Iron	Medium	After 2015	Standard needs revision
General Creek	Phosphorus	High	After 2015	To be coordinated with Lake Tahoe TMDL
General Creek	Iron	Medium	After 2015	Standard needs revision
Blackwood Creek	Sedimentation/Siltation	High	2007	TMDL development in progress
Blackwood Creek	Phosphorus	High	After 2015	To be coordinated with Lake Tahoe TMDL
Blackwood Creek	Nitrogen	High	After 2015	To be coordinated with Lake Tahoe TMDL
Blackwood Creek	Iron	Medium	After 2015	Standard needs revision
West Fork Carson River HU 633.00				
West Fork Carson R., headwaters to Woodfords	Phosphorus	High	After 2015	
West Fork Carson R., headwaters to Woodfords	Percent Sodium	Medium	After 2015	Standard needs revision
West Fork Carson R., headwaters to Woodfords	Nitrogen	High	After 2015	
West Fork Carson R., Woodfords to	Percent Sodium	Medium	After 2015	Standard needs revision

Paynesville				
West Fork Carson R., Woodfords to Paynesville	Nitrogen	High	After 2015	
West Fork Carson R., Woodfords to State Line	Pathogens	Medium	After 2015	Standard for fecal coliform bacteria violated
East Fork Carson River HU 632.00				
Indian Creek Reservoir	Nutrients	High	2002 ⁴	
Indian Creek	Habitat Alterations	Low	2011 ³	TMDL probably not needed ³
Indian Creek	Pathogens	Medium	After 2015	Standard for fecal coliform bacteria violated
Monitor Creek	Iron	High	2011	TMDL to be coordinated with CERCLA remediation
Monitor Creek	Silver	High	2011	TMDL to be coordinated with CERCLA remediation
Monitor Creek	Aluminum	High	2011	TMDL to be coordinated with CERCLA remediation
Monitor Creek	Manganese	High	2011	TMDL to be coordinated with CERCLA remediation
Monitor Creek	Sulfate	High	After 2015	TMDL to be coordinated with CERCLA remediation
Monitor Creek	Total Dissolved Solids	High	After 2015	TMDL to be coordinated with CERCLA remediation
Wolf Creek	Sedimentation/Siltation	High	2011	
Aspen Creek	Metals	High	2011	TMDL to be coordinated with CERCLA remediation
Bryant Creek	Metals	High	2011	TMDL to be coordinated with CERCLA remediation
Leviathan Creek, at and below Leviathan Mine	Metals	High	2011	TMDL to be coordinated with CERCLA remediation
West Walker River HU 631.00				
Topaz Lake	Sedimentation/Siltation	High	2007	
West Walker River	Sedimentation/Siltation	High	2009	
East Walker River HU 630.00				
Bridgeport Reservoir	Nitrogen	High	2005	TMDL development in progress
Bridgeport Reservoir	Phosphorus	High	2005	TMDL development in progress
Bridgeport Reservoir	Sedimentation/Siltation	High	2005	TMDL development in progress
East Walker River above Bridgeport Reservoir	Pathogens	Medium	After 2015	Standard for fecal coliform bacteria violated
East Walker River below Bridgeport Reservoir	Nitrogen	High	After 2015	To be coordinated with TMDL for Bridgeport Res.
East Walker River below Bridgeport Reservoir	Phosphorus	High	After 2015	To be coordinated with TMDL for Bridgeport Res.

East Walker River below Bridgeport Reservoir	Sedimentation/Siltation	High	2009	
Robinson Creek, Hwy 395 to Bridgeport Res.	Nitrogen	High	After 2015	To be coordinated with TMDL for Bridgeport Res.
Robinson Creek, Twin Lakes to Bridgeport Res.	Pathogens	Medium	After 2015	Standard for fecal coliform bacteria violated
Swauger Creek	Pathogens	Medium	After 2015	Standard for fecal coliform bacteria violated
Swauger Creek	Phosphorus	High	After 2015	To be coordinated with TMDL for Bridgeport Res.
Buckeye Creek	Pathogens	Medium	After 2015	Standard for fecal coliform bacteria violated
Buckeye Creek	Phosphorus	High	After 2015	To be coordinated with TMDL for Bridgeport Res.
Virginia Creek	Pathogens	Medium	After 2015	Standard for fecal coliform bacteria violated
Green Creek	Habitat Alterations	Low	2011 ³	TMDL probably not needed ³
Rough Creek	Habitat Alterations	Low	2011 ³	TMDL probably not needed ³
Aurora Canyon Creek	Habitat Alterations	Low	2011 ³	TMDL probably not needed ³
Hot Springs Canyon Creek	Sedimentation/Siltation	Medium	2005	Needs study to verify need for TMDL
Clark Canyon Creek	Habitat Alterations	Low	2011 ³	TMDL probably not needed ³
Clearwater Creek	Sedimentation/Siltation	Medium	2005	Needs study to verify need for TMDL
Bodie Creek	Metals	High	2004	Impairment probably related to past mining activity
Mono HU 601.00				
Lee Vining Creek	Flow Alterations	Low	2011 ³	TMDL probably not needed ³
Mill Creek	Flow Alterations	Low	2011 ³	TMDL probably not needed ³
Owens HU 603.00				
Haiwee Reservoir	Copper	Low	2003	TMDL development in progress
Mammoth Creek	Metals	High	2008	Needs study to verify need for TMDL
Twin Lakes (Mammoth)	Nitrogen	Low	2008	Needs study to verify need for TMDL
Twin Lakes (Mammoth)	Phosphorus	Low	2008	Needs study to verify need for TMDL
Owens River (Long HA)	Habitat Alterations	Low	2011 ³	TMDL probably not needed ³
Owens River (Upper)	Habitat Alterations	Low	2011 ³	TMDL probably not needed ³
Owens River (Lower)	Habitat Alterations	Low	2011 ³	TMDL probably not needed ³
Crowley Lake	Nitrogen	High	2005	Nutrient loading currently under study

Crowley Lake	Phosphorus	High	2005	Nutrient loading currently under study
Tinemaha Reservoir	Metals [Copper]	Low	2004	Copper from algicide application
Pleasant Valley Reservoir	Nitrogen	High	2006	
Pleasant Valley Reservoir	Phosphorus	High	2006	
Tuttle Creek	Habitat Alterations	Low	2011 ³	TMDL probably not needed ³
Goodale Creek	Sedimentation/Siltation	Low	2009	Further study may lead to delisting
Cottonwood Creek below LADWP diversion	Water/Flow Variability	Low	2011 ³	TMDL probably not needed ³
Trona HU 621.00				
Searles Lake	Petroleum Hydrocarbons	Low	After 2015	Documented bird kills from industrial pollutants
Mojave HU 628.00				
Horseshoe Lake	Sedimentation/Siltation	Low	2007	Further study may lead to delisting
Green Valley Lake Creek	Priority Organics	Low	2006	Further study may lead to delisting

¹ TMDL end dates are the estimated years for Regional Board adoption of Basin Plan amendments. Plan amendments incorporating TMDLs will not take effect unless and until they receive further approvals from the California State Water Resources Control Board, the California Office of Administrative Law, and the U.S. Environmental Protection Agency.

² Water bodies are grouped by watersheds in north-to-south order. Watershed (Hydrologic Unit or HU) numbers are Department of Water Resources numbers used in the maps in the Lahontan Basin Plan, and do not run in north-to-south order.

³ Pending revisions to federal regulations for the implementation of Section 303(d) of the Clean Water Act would clarify that TMDLs are not required for waters impaired by flow alterations, water/flow variability and habitat alterations, unless specific "pollutants" are also involved. (Load calculations are not feasible in cases where there are no pollutants.) Under the proposed new regulations, waters impaired by habitat or flow alterations, or by flow variability, would be placed on a separate list of impaired waters to highlight the need for control strategies other than TMDLs.

⁴ Regional Board staff completed draft Basin Plan amendments incorporating a phosphorus TMDL for Indian Creek Reservoir in November 2000. The Regional Board has been unable to act on these amendments due to lack of a quorum for a vote.