EXECUTIVE SUMMARY

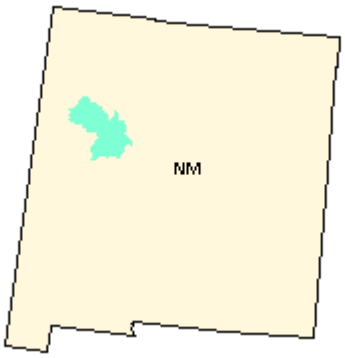
Section 303(d) of the Federal Clean Water Act requires states to develop Total Maximum Daily Load (TMDL) management plans for waterbodies determined to be water quality limited. A TMDL documents the amount of a pollutant a waterbody can assimilate without violating a state's water quality standard. It also allocates the load capacity to known point sources and nonpoint sources at a given flow. Total maximum daily loads are defined in 40 Code of Federal Regulations Part 130 as the sum of the individual Waste Load Allocations (WLAs) for point sources and Load Allocations (LAs) for nonpoint sources and background conditions, and includes a Margin of Safety (MOS).

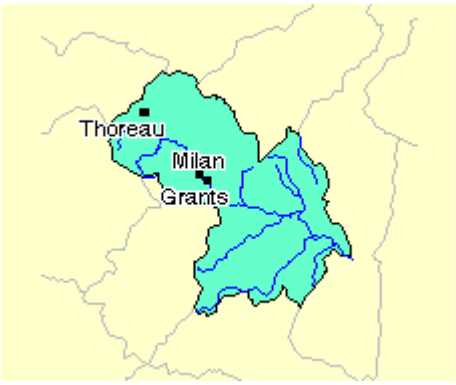
The Río Puerco (from its confluence with the Río Grande), together with its tributaries and headwaters, define the Río Puerco Watershed. The Surface Water Quality Bureau (SWQB) held a pre-survey public meeting in Cuba, NM and conducted an intensive surface water quality survey of the Río Puerco watershed in 2004. Sampling stations were established along the streams in the watershed to evaluate the impact of tributary streams and to work toward establishing background conditions. As a result of assessing data generated during this monitoring effort, SWQB staff documented impairments of New Mexico water quality standards for nutrients and temperature for both Bluewater Creek (Bluewater Reservoir to headwaters) and Bluewater Creek (non-tribal Rio San Jose to Bluewater Reservoir), aluminum on La Jara Creek (perennial reaches above Arroyo San Jose), temperature and nutrient on Rio Moquino (Laguna Pueblo to Seboyettia Creek), and nutrient and aluminum on Rio Puerco (Arroyo Chijuilla to northern boundary Cuba). This TMDL document addresses the above noted impairments as summarized in the tables below. The data used to develop this TMDL were collected during the 2004 survey and 2006. TMDLs for assessment units in these watersheds not included in this document are discussed in the individual watershed sections.

The 2004 Río Puerco Watershed study also identified other potential water quality impairments in this watershed which are not addressed in this document. Additional data needs for verification of those impairments are being identified and data collection will follow. Subsequent TMDLs will be prepared in the near future in a separate TMDL document.

Additional water quality data will be collected by New Mexico Environment Department during the standard rotational period for intensive stream surveys. As a result, targets will be re-examined and potentially revised as this document is considered to be an evolving management plan. In the event that new data indicate that the targets used in this analysis are not appropriate and/or if new standards are adopted, the load capacity will be adjusted accordingly. When water quality standards have been achieved, the reach will be moved to the appropriate attainment category on the Clean Water Act Integrated §303(d)/§305(b) list of waters (NMED/SWQB 2007).

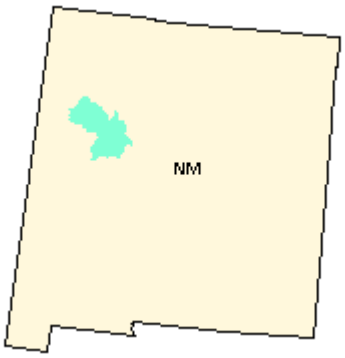
TOTAL MAXIMUM DAILY LOAD FOR NUTRIENTS AND TEMPERATURE
BLUEWATER CREEK (BLUEWATER RESERVOIR TO HEADWATERS)

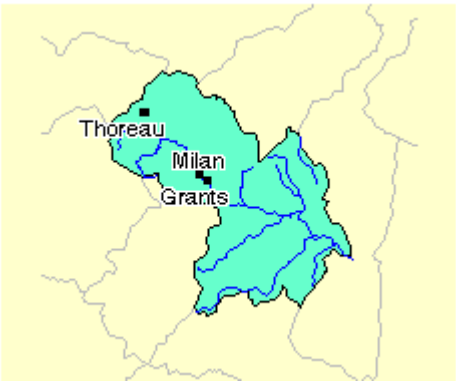




New Mexico Standards Segment	Río Grande Basin 20.6.4.109
Assessment Unit Identifier	Bluewater Creek (Bluewater Reservoir to headwaters), NM-2107.A_01 (formerly NM-MRG7-Bluewater)
Assessment Unit Length	17.8 miles
Parameters of Concern	Nutrients, temperature
Designated Uses Affected	Coldwater Aquatic Life
Geographic Location	Río San Jose USGS Hydrologic Unit Code 13020207
Scope/size of Watershed	80 square miles
Land Type	Arizona/New Mexico Mountains Ecoregion (23)
Land Use/Cover	Forest (89%), Shrubland (8%), Grassland (4%), Barren (<1%)
Probable Sources	Forest Roads (road construction and use), loss of riparian habitat, natural sources, rangeland grazing, silviculture harvesting, streambank modifications/destabilization.
Land Management	U.S. Forest Service (88%), Private (12%), State (<1%)
IR Category	5/5A
TMDL for:	**WLA + LA + MOS = TMDL**
Plant Nutrients	
Total Phosphorus	**0 + 0.0008 + 0.0002 = 0.001 lbs/day**
Total Nitrogen	**0 + 0.013 + 0.002 = 0.015 lbs/day**
Temperature	**0 + 24.8 + 2.8 = 27.6 j/m^2/sec/day**

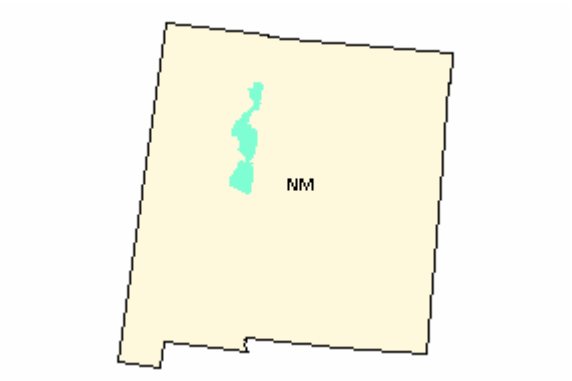
TOTAL MAXIMUM DAILY LOAD FOR NUTRIENTS AND TEMPERATURE
BLUEWATER CREEK (NON-TRIBAL RIO SAN JOSE TO BLUEWATER RSRV)





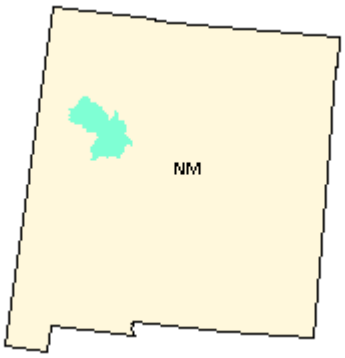
New Mexico Standards Segment	Río Grande Basin 20.6.4.109
Assessment Unit Identifier	Bluewater Creek (non-tribal Rio San Jose to Bluewater Rsrv), NM-2107.A_00 (formerly NM-MRG7-20100)
Assessment Unit Length	10.5 miles
Parameters of Concern	Nutrients, temperature
Designated Uses Affected	Coldwater Aquatic Life
Geographic Location	Río San Jose USGS Hydrologic Unit Code 13020207
Scope/size of Watershed	232 square miles
Land Type	Arizona/New Mexico Plateau Ecoregion (22)
Land Use/Cover	Forest (80%), Shrubland (15%), Grassland (4%), Barren (<1%), Water (<1%), Recreational grasses (<1%), Wetlands (<1%), Low intensity residential (<1%)
Probable Sources	Loss of riparian habitat, rangeland grazing, streambank modifications/destabilization.
Land Management	U.S. Forest Service (68%), Private (25%), State (3%), Native (2%), State Park (1%), BLM (<1%)
IR Category	5/5A
TMDL for:	**WLA + LA + MOS = TMDL**
Nutrients	
Total phosphorus	**0 + 0.029 + 0.005 = 0.034 lbs/day**
Total nitrogen	**0 + 0.256 + 0.045 = 0.301 lbs/day**
Temperature	**0 + 85.9 + 9.54 = 95.4 j/m^2/sec/day**

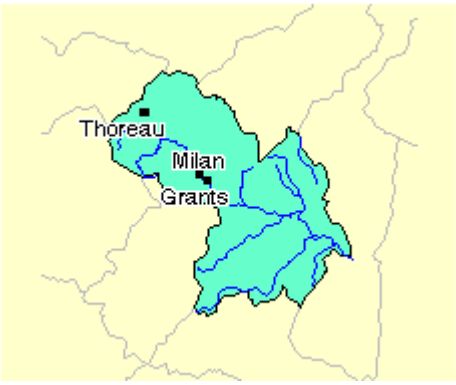
TOTAL MAXIMUM DAILY LOAD FOR ALUMINUM
LA JARA CREEK (PERENNIAL REACHES ABOVE ARROYO SAN JOSE)



New Mexico Standards Segment	Río Grande Basin 20.6.4.109
Assessment Unit Identifier	La Jara Creek (perennial reaches above Arroyo San Jose), NM-2107.A_46
Assessment Unit Length	8.28 miles
Parameters of Concern	Chronic aluminum
Designated Uses Affected	Coldwater Aquatic Life
Geographic Location	Río Puerco USGS Hydrologic Unit Code 13020204
Scope/size of Watershed	12.28 square miles
Land Type	Southern Rockies Ecoregion (21)
Land Use/Cover	Forest (71%), Shrubland (6%), Grassland (8%), Agriculture (14%), Developed (<1%), Barren (<1%)
Probable Sources	Unknown, Natural Sources
Land Management	U.S. Forest Service (64%), Private (32%), BLM (4%)
IR Category	5/5A
TMDL for: Chronic aluminum	**WLA + LA + MOS = TMDL** **0 + 1.33 + 0.443 = 1.77 lbs/day**

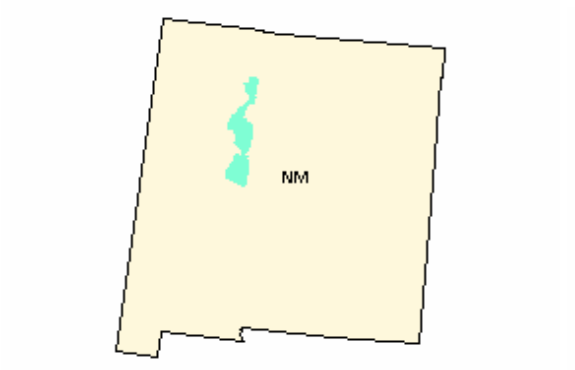
TOTAL MAXIMUM DAILY LOAD FOR NUTRIENTS AND TEMPERATURE
RÍO MOQUINO (LAGUNA PUEBLO TO SEBOYETTIA CREEK)





New Mexico Standards Segment	Río Grande Basin 20.6.4.109
Assessment Unit Identifier	Río Moquino (Laguna Pueblo to Seboyettia Creek), NM-2107.A_10 (NM-MRG7-10110)
Assessment Unit Length	3 miles
Parameters of Concern	Nutrients, temperature
Designated Uses Affected	Coldwater Aquatic Life
Geographic Location	Río San Jose USGS Hydrologic Unit Code 13020207
Scope/size of Watershed	74 square miles
Land Type	Arizona/New Mexico Mountains Ecoregion (23)
Land Use/Cover	Forest (47%), Shrubland (44%), Grassland (8%), Pasture (<1%), Barren/mines (<1%), Residental/commercial (<1%), Recreational grasses (<1%), Water (<1%)
Probable Sources	Loss of riparian habitat, mine tailings, rangeland grazing, surface mining.
Land Management	Private (96%), U.S. Forest Service (4%), Native (<1%)
IR Category	5/5A
TMDL for:	
Plant Nutrients	**WLA + LA + MOS = TMDL**
Total Phosphorus	**0 + 0.0034 + 0.0006 = 0.004 lbs/day**
Total Nitrogen	**0 + 0.44 + 0.08 = 0.052 lbs/day**
Temperature	**0 + 71.1 + 7.8 = 78.9 j/m^2/sec/day**

TOTAL MAXIMUM DAILY LOAD FOR AMMONIA, ALUMINUM, AND NUTRIENTS RÍO PUERCO (ARROYO CHIJUILLA TO NORTHERN BOUNDARY CUBA)



New Mexico Standards Segment	Río Grande Basin 20.6.4.99
Assessment Unit Identifier	Río Puerco (Arroyo Chijuilla to Northern Boundary Cuba), NM-2107.A_40 (formerly NM-MRG4-20000)
Assessment Unit Length	8.2 miles
Parameters of Concern	Chronic aluminum, nutrients
Designated Uses Affected	Aquatic Life *(existing use- Marginal Warmwater AL)*
Geographic Location	Río Puerco USGS Hydrologic Unit Code 13020204
Scope/size of Watershed	138 square miles
Land Type	Arizona/New Mexico Plateau Ecoregion (22)
Land Use/Cover	Forest (62%), Shrubland (21%), Grassland (12%), Agriculture (4.4%), Developed (0.14%), Barren (0.15%), Mining (0.04%), Water (0.01%)
Probable Sources	Highway/Road/Bridge Runoff (Non-construction related), Channelization, Rangeland Grazing, Loss of Riparian Habitat, Streambank Modification/destabilization, Natural Sources, Wildlife other than Waterfowl, Drought-related Impacts
Land Management	U.S. Forest Service (38%), Private (37%), Native (14%), BLM (10.5%), State (0.38%)
IR Category	5/5A
TMDL for:	**WLA + LA + MOS = TMDL**
Chronic Aluminum	**0 + 3.95 + 1.32 = 5.27 lbs/day**
Plant Nutrients:	
Total Phosphorus	**0.447 + 0.043 + 0.087 = 0.577 lbs/day**
Total Nitrogen	**1.357 + 1.256 + 0.461 = 3.074 lbs/day**