
3.0 INDIVIDUAL WATERSHED DESCRIPTIONS

TMDLs were developed for assessment units for which constituent (or pollutant) concentrations measured during the 2001-2002 water quality survey, as combined with quality outside data, indicated impairment. Because characteristics of each subwatershed, such as geology, land use, and land ownership provide insight into probable sources of impairment, they are presented in this section for the individual subwatersheds within the VCNP. In addition, the 2004-2006 Integrated CWA §303(d)/§305(b) listings within the VCNP are discussed (NMED/SWQB 2004).

There are seven assessment units included in the 2001 survey of the VCNP. Based on land management changes at the VCNP boundary the SWQB decided the assessment units should be broken at the VCNP boundary. This change affected three of the assessment units: East Fork Jemez, Redondo Creek, and San Antonio Creek. This document includes the updated assessment unit names. Also, TMDLs were written in 2003 (based on data collected in 1998-1999) for a number of reaches included in the 2001 VCNP survey, including: East Fork Jemez (turbidity), Redondo Creek (temperature and turbidity), San Antonio Creek (temperature and turbidity), and Sulphur Creek (pH and conductivity). Many of these same reaches were found to be impaired based on the 2001 survey by the parameters for which TMDLs were written in prior to the survey. In these cases, new TMDLs were not included in this document. Additionally, a few assessment units are impaired by pH and dissolved oxygen. The completion of a nutrient TMDL for these reaches, if necessary, is pending until a full nutrient assessment is completed and area-specific criteria are developed.

3.1 East Fork Jemez Subwatershed

The headwaters of the 44 mi² East Fork Jemez subwatershed originates in the Jemez Mountains. According to available Geographic Information System (GIS) coverages, the East Fork Jemez watershed (within VCNP boundary) has an average elevation of 8911 feet above sea level and receives an average of 12.58 inches of winter precipitation a year. As presented in Figure 2.1, land uses include 50% evergreen forest, 41% grassland, 9% shrubland, and less than 1% of the land use in this watershed is deciduous forest. Land ownership is 98% VCNP, 1.3% Forest Service, and less than 1% is National Park Service and private (Figure 2.2). The geology of the East Fork Jemez watershed is predominantly comprised of Quaternary alluvium and Madera Limestone along with various volcanics, including Valles Rhyolite, silicic volcanics, basalt, and andesite (Figure 2.3).

East Fork Jemez (VCNP boundary to headwaters) is approximately 9 miles in length. SWQB established three stations along this assessment unit and deployed one thermograph (Figure 4.1) during the 2001-2002 intensive survey. Jemez River (East Fork) was included on the 2004-2006 Integrated CWA §303(d)/§305(b) list for aluminum, dissolved oxygen, pH, temperature, and turbidity. TMDLs have previously been written for turbidity. Aluminum is naturally occurring in this watershed and will not receive a TMDL. Dissolved oxygen and pH were found to be impairments for this assessment unit based on the 2001-2002 survey, but a TMDL will not be written until a full nutrient assessment is completed. The designated use of high quality coldwater aquatic life is not supported, but the designated uses of domestic water supply, fish culture, irrigation, livestock watering, secondary contact, and wildlife habitat are supported. Due to a significant management change as well as the constraints of the existing TMDLs, the East

Fork Jemez has been divided into two discrete assessment units that break at the VCNP boundary. TMDLs were developed for inclusion in this document for the following assessment unit in the East Fork Jemez subwatershed:

- **Temperature:** East Fork Jemez (VCNP boundary to headwaters)



Photo 3.1 East Fork Jemez below unnamed drainage (2001)

3.2 Jaramillo Creek Subwatershed

Jaramillo Creek originates in the Jemez Mountains. The Jaramillo Creek watershed is approximately 15 mi² and is a tributary to East Fork Jemez, which then joins the Jemez River. As presented in Figure 2.1, land use is 51% evergreen forest, 35% grassland, 13% shrubland, and less than 1% deciduous forest. Land ownership is 100% VCNP (Figure 2.2). The geology of the Jaramillo Creek watershed consists of Quaternary alluvium and numerous volcanics, including Valles Rhyolite and Neogene volcanics (Figure 2.3).

Jaramillo Creek (East Fork Jemez to headwaters) is approximately 10 miles in length. One station was established (Table 2.2, Figure 2.2) and one thermograph was deployed (Figure 4.1) in this assessment unit during the 2001-2002 intensive survey. Jaramillo Creek (East Fork Jemez to headwaters) was listed on the 2004-2006 Integrated CWA §303(d)/305(b) List of Assessed Surface Waters (NMED/SWQB 2004) for aluminum, temperature, and turbidity. No TMDLs have previously been prepared for this assessment unit. Aluminum is naturally occurring in this watershed and will not receive a TMDL. Dissolved oxygen was found to be an impairment for this assessment unit based on the 2001-2002 survey, but a TMDL will not be written until a full nutrient assessment is completed. The designated use of high quality coldwater aquatic life is not supported, but the designated uses of domestic water supply, fish culture, irrigation, livestock watering, secondary contact, and wildlife habitat are supported. The following TMDLs were developed for this watershed:

- **Temperature and Turbidity-** Jaramillo Creek (East Fork Jemez to headwaters)



Photo 3.2 Jaramillo Creek geomorphological survey (June 2001)