EAST CANYON RESERVOIR AND EAST CANYON CREEK

TOTAL MAXIMUM DAILY LOAD (TMDL)

May 7, 2006, Toastforbrekkie. Public Photo Flickr.com 2009

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Utah Department of Environmental Quality
Division of Water Quality TMDL Section

East Canyon Reservoir TMDL

EPA Approval Date:

Waterbody ID	16020102
Location	Summit and Morgan counties, northern Utah
Pollutants of Concern	Low dissolved oxygen (DO) Excess total phosphorus (TP)
Designated Beneficial Uses	Domestic water use (1C) Primary contact recreation (2A) Secondary contact recreation (2B) Cold water game fish (3A) Agricultural water supply (4)
Impaired Beneficial Uses	Class 3A: Protected for cold water species of game fish and other cold water aquatic life, including the necessary aquatic organisms in their food chain.
Current Load **Loading Capacity (TMDL)** **Margin of Safety (MOS)**	3,350 kgTP/year (9.2 kgTP/day) 2,619 kgTP/year (7.2 kgTP/day) 262 kgTP/year (0.7 kgTP/day)
Defined Targets/Endpoints	Trophic Status and Algae - In-reservoir mean seasonal chlorophyll *a* of 8 µg/L - Nuisance algal threshold of 30 µg/L not to be exceeded >10% of the season - Algal dominance other than blue-green species Dissolved Oxygen (DO) - Mixed reservoir periods: 4.0 mg/L DO throughout at least 50% of the water column - Stratified reservoir periods: 2-m layer throughout the reservoir in which DO is maintained above 4 mg/L and temperature below 20°C Phosphorus - Mean total phosphorus concentration of 0.031 mg/L - Mean dissolved phosphorus concentration of 0.021 mg/L
Wasteload Allocation **Load Allocation**	895 kgTP/year 1,462 kgTP/year - Nonpoint sources load allocation: 1,067 kgTP/year - Internal Reservoir load allocation: 395 kgTP/year
Regulated Point Sources	East Canyon Water Reclamation Facility
Watershed Nonpoint Sources	Spring melt runoff from ski resorts and urban areas Stormwater runoff from construction sites and Park City Streambank erosion Agricultural land uses Natural background sources including phosphatic shales

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East Canyon Creek TMDL

EPA Approval Date:

Waterbody ID	16020102
Location	Summit and Morgan counties, northern Utah
Pollutants of Concern	Low dissolved oxygen (DO) associated with physical stream characteristics causing light and temperature pollution
Designated Beneficial Uses	Domestic water use (1C) Primary contact recreation (2A) Secondary contact recreation (2B) Cold water game fish (3A) Agricultural water supply (4)
Impaired Beneficial Uses	Class 3A: Protected for cold water species of game fish and other cold water aquatic life, including the necessary aquatic organisms in their food chain.
TMDL	Impairment in East Canyon Creek determined to be related to light and temperature pollution and low flow, associated with physical stream characteristics.
Defined Targets/Endpoints	Macrophyte biomass of 6.3 mg/cm^2 (Ash-free biomass) Minimum DO no less than 4.0 mg/L
Factors Contributing to Impairment	Lack of shade and riparian vegetation along stream Channel widening resulting in shallow reaches Low stream velocity and flow during summer months

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Foreword

This document represents the revised TMDL analysis for East Canyon Reservoir and East Canyon Creek in north-central Utah. The overall goal of the TMDL process is to restore and maintain water quality in East Canyon Reservoir to a level that protects and supports the designated beneficial uses (domestic water use, primary contact recreation, secondary contact recreation, cold water game fish, and agricultural water supply).

This study includes the following components: watershed characterization, beneficial use assessment, and the total maximum daily load analysis. The Watershed Characterization (Chapters 1 and 2) summarizes the physical, biological, and cultural characteristics of the East Canyon Reservoir watershed. The beneficial use assessment identifies in-reservoir water quality concerns, applicable water quality criteria and standards, available data and data sources, potential sources of pollutant loading, indicators of impairment, and an impairment assessment specific to the reservoir's designated uses (Chapter 3). Research related to the impairment in East Canyon Creek in addition to scenario modeling results are described in Chapter 4. The reservoir modeling component of the TMDL process describes the development and use of a reservoir model to describe reservoir dynamics and predict reservoir response under varying climatic and reservoir management conditions (Chapters 5). The source identification and Total Maximum Daily Load (TMDL) analysis quantifies current and projected load to the reservoir, identifies water quality objectives for the reservoir, and negotiated load allocations and reductions required to meet water quality standards (Chapters 6 and 7). Implementation and monitoring plans for East Canyon Creek (Chapter 8) and East Canyon Reservoir watershed (Chapter 9) describe recommended measures and priorities to attain the TMDL. It is important to note that even if water quality in East Canyon Reservoir is found to be impaired and steps are taken to improve it, correction of water quality problems will require successful implementation of a final water quality management plan that will require a coordinated effort of planning and implementation of best management practices between concerned government agencies and landowners in the watershed.

This TMDL was developed by SWCA Environmental Consultants under the direction of the Utah Department of Environmental Quality, Division of Water Quality, and is consistent with Utah Code Title 19, Chapter 5, Water Quality Act, 19-5-104 (powers and duties of board), which identifies the requirement for the development and implementation of TMDLs and/or equivalent processes.

Acknowledgments

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