

Chapter III

AFFECTED ENVIRONMENT/ ENVIRONMENTAL CONSEQUENCES

Chapter III

AFFECTED ENVIRONMENT/ ENVIRONMENTAL CONSEQUENCES



- I. *Introduction*
- II. *Setting*
- III. *Affected Resources*
- IV. *Summary and Other Considerations*

I. Introduction

This chapter presents a description of the affected environment and how it may be affected by the 250/5000 and 500/5000 Alternatives and the No Action Alternative. This chapter is organized by resource topic. Under each resource is an overview which presents a summary; the overview is followed by a discussion of the affected environment, the methodology used to determine impacts, and the impacts analysis. As described in chapter II, the No Action Alternative does not represent existing conditions, but represents a continuation of conditions from 1973 to 1991 (historical period).

The Preferred Alternative will protect Colorado River Storage Project (CRSP) purposes such as flood control, irrigation, river regulation, and compact development. The Navajo Unit does not have Federal hydropower facilities; however, the City of Farmington hydropower plant at Navajo Dam will have reduced generation.

The action alternative impact analyses present long-term effects on resources. This assumes that the Animas La-Plata Project (ALP Project) is in operation and the Navajo Indian Irrigation Project (NIIP) is at full delivery. Most effects are related to changes in reservoir releases. These changes are due both to operations to meet Flow Recommendations and use of the water for development.

There will, however, be an interim period between beginning Navajo Dam re-operations and the full development of projects such as NIIP and private rights that are not currently being exercised. In this interim period additional water would be available to meet other needs. As indicated in chapter II, the use of this additional water would be determined through the Navajo Unit operations meeting process. One likely interim scenario is to use this water to maintain higher flows in the river during the irrigation season.

In both the short and long term, dam releases during the non-irrigation season would be reduced to 250 cubic feet per second (cfs) frequently under the Preferred Alternative. While long-term effects are presented in this chapter, interim effects on certain resources are also taken into account.

In this chapter, the resources described first are those potentially affected by or central to changes in the operation of Navajo Dam and Reservoir—hydrology, Indian Trust Assets (ITAs), trout and native fishes, recreation, socioeconomics, and others. Those resources determined to be minimally affected or not affected are described at the end of this chapter.

Potential measures to mitigate adverse impacts of Navajo Dam operations on fish and wildlife and other resources with statutory requirements to consider mitigation are presented and are also described in chapter IV.

II. Setting

For purposes of the impact analysis, the study area includes Navajo Reservoir in New Mexico and Colorado, and the San Juan River and its flood plain downstream from the reservoir in New Mexico, Colorado, and Utah to Lake Powell. Under some resource topics—for example, economics and social factors—the study area includes a larger geographic area in order to reflect the scope of impacts to those resources.

The entire San Juan River Basin (Basin) encompasses approximately 25,000 square miles, and the river extends 350 miles from its headwaters in the San Juan and La Plata Mountains of Colorado to Lake Powell. The river has drainages that cross the Ute Mountain Ute and Southern Ute Indian Reservations and the Navajo and Jicarilla Apache Nations. Navajo Reservoir was constructed between 1958 and 1963 and has a capacity of 1.7 million acre-feet, a surface area of 15,610 acres, and 150 miles of shoreline. The San Juan River extends approximately 225 miles from Navajo Dam to the San Juan arm of Lake Powell near Paiute Farms.

Below Navajo Dam, the San Juan River is joined by its major tributary, the Animas River, near Farmington, New Mexico. It flows west and northwest before entering Colorado near the Four Corners Monument then flows into Utah and Lake Powell within the Glen Canyon National Recreation Area.

The region south of the San Juan River is characterized by desert landscape—broad dry washes carry significant sediment loads during periodic thunderstorms. The area is semiarid to arid; the major part of the basin is less than 6000 feet in elevation and receives less than 8 inches of precipitation annually. Vegetation ranges from pinon-juniper around Navajo Reservoir to desert shrubs and grasses near the lower San Juan River. The San Juan River corridor supports riparian vegetation such as cottonwood, willow, and non-native salt cedar and Russian olive.

Towns and communities in New Mexico in the immediate study area include Farmington at the confluence of the San Juan and Animas Rivers; Bloomfield, Blanco, and Archuleta upstream; and Fruitland and Shiprock downstream from Farmington. Bluff and Mexican Hat, Utah, are located on the lower reaches of the San Juan River. Energy development, agriculture, power production, tourism, and recreation are important industries in the area. In particular, agriculture, power production, and recreation are closely related to Navajo Reservoir and its operations and resulting flow patterns in the San Juan River.

The frontispiece map shows the general project area. In the text and on the following map (figure III-1), the river is demarcated with river mile (RM) designations, starting with RM 0 at Paiute Farms and ending with RM 225 at Navajo Dam. In addition, the map identifies the approximate location of gaging stations and primary locations along the San Juan River.

III. Affected Resources

WATER USES AND WATER RESOURCES



This section addresses the potential impacts to water rights and water supplies that could result from actions associated with the modified operations of Navajo Dam and Reservoir under the alternatives considered.

Issue: How would the No Action and action alternatives affect water rights, riverflows, reservoir levels, and water use?

Overview

Scope

The scope includes Navajo Reservoir and the San Juan River to Lake Powell.

Summary of Impacts

No Action Alternative: Would not directly impact senior water rights.¹ However, there could be adverse impacts to some existing and future water development, including current or future uses for which water rights and environmental clearances² are in place, because the Flow Recommendations³ would not be met.

¹ These water rights are senior to Navajo Reservoir storage permits.

² Primarily compliance with the Endangered Species Act.

³ *Flow Recommendations for the San Juan River* (Flow Recommendations) (Holden, 1999).
