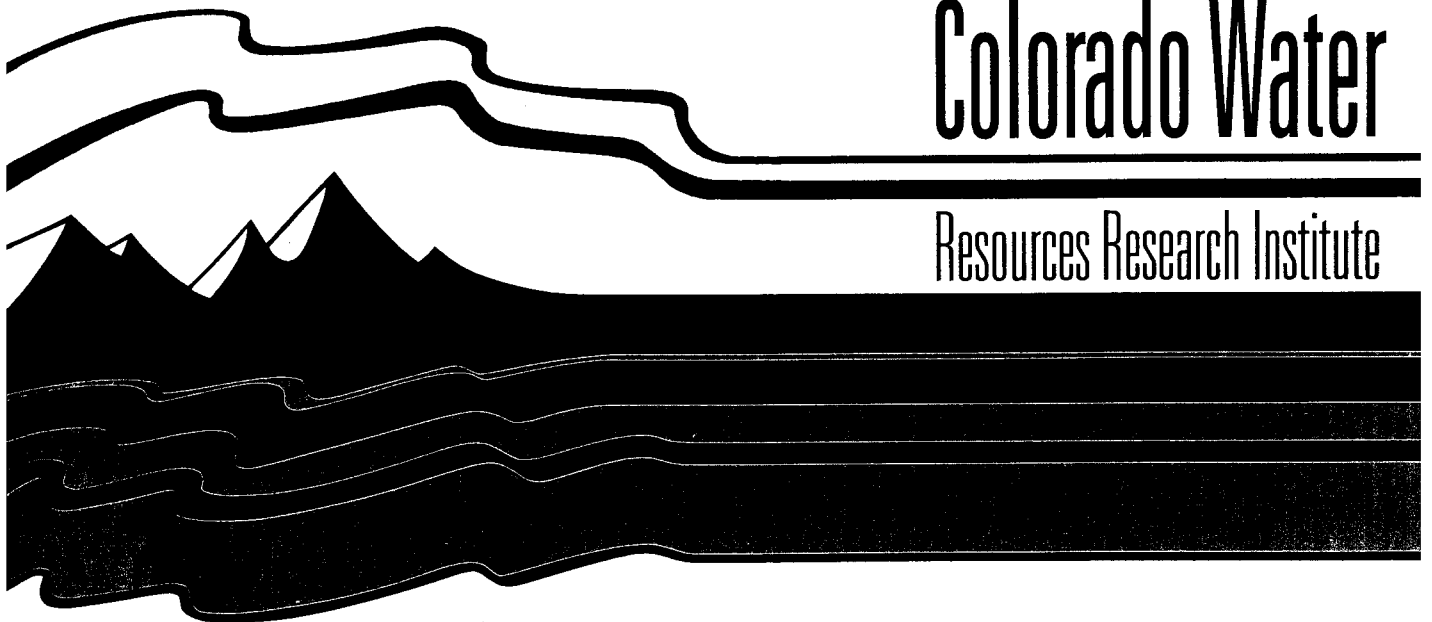


Windy Gap: Transmountain Water Diversion and the Environmental Movement

by
Gregory M. Silkensen

August 1994

Technical Report No. 61



Colorado Water

Resources Research Institute

Colorado
State
University

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AND THE
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PREFACE

Windy Gap is the most recent major transmountain water diversion project constructed in the state of Colorado. It diverts water from the Colorado River basin eastward across the continental divide to the Front Range and East Slope. The history of transmountain water diversion in the state stretches back to 1860 when gold miners first constructed a small diversion near Fairplay for placer operations. As Colorado grew, additional diversions were built to supply water for irrigated agriculture and more recently urban population growth. Today nearly forty transmountain water diversion projects operate within the state.

The idea for Windy Gap developed out of a 1950s U.S. Bureau of Reclamation report on the Colorado–Big Thompson project, but it was not until the 1960s that construction of Windy Gap was seriously considered. By late in the decade, however, major water development projects were being increasingly questioned and criticized. The modern environmental movement was one source of this early opposition. It manifested itself in part through federal legislation such as the National Environmental Policy Act, the Endangered Species Act, and many others. These environmental statutes and regulations joined forces with historic West Slope opposition to transmountain water diversion in Colorado and led to lengthy delays for Windy Gap. Legal challenges at each step added millions of dollars to the cost of the project and pushed its completion date to

1985, a full twenty years after the process began.

Water project development in Colorado has undergone monumental change over the last three decades. Prior to 1960, proposed projects regularly received federal funding and approval. Opposition, if it did exist, was concentrated in western Colorado and focused on the East Slope's "theft" of West Slope water. Today, resistance to further transmountain water diversion projects in Colorado is a multidimensional force consisting of environmentalists, traditional West Slope opponents, increasing demand for municipal water supplies in western Colorado, and escalating interstate pressures in the Colorado River basin.

Windy Gap was planned, pursued, and constructed during a time of monumental change in American society. Thus, it is a reflection of these times and the difficulty of building a modern transmountain water diversion project. The contemporary U.S. democratic process has many more participants than fifty years ago when the CBT project was planned and constructed. Environmentalism, feminism, ethnic issues, and social upheaval have combined with startling technological advances to make Colorado, the United States, and even the world a much smaller and different place. The completion of Windy Gap during this period of history is remarkable considering the clash of values and ideas which has occurred.

This report is not a comprehensive history of Windy Gap. Instead, its purpose is to examine some of the issues surrounding the practice of transmountain water diversion — West Slope opposition to such diversions, historic growth patterns in Colorado, the modern environmental movement, and changing public needs and perceptions of water — and to place Windy Gap in that context. The difficulties Windy Gap proponents

encountered in pursuing this project are but one barometer for the future of transmountain water diversion in Colorado, and may represent "storm clouds" on the future horizon.

Hopefully, this research will help shed light on the historical practice of transmountain water diversion in Colorado and the factors which could make Windy Gap the last project of its kind to be constructed.

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CHAPTER I | THE SETTING

Water has played a major role in the history and development of the entire southwestern United States. Large portions of the region are either arid or semi-arid, receiving less than twenty inches of precipitation annually.¹ Throughout the region this shortage has necessitated irrigation to grow crops and the construction of large and intricate water diversion and storage projects to supply agricultural, municipal, and industrial needs. During the last century the region's population centers of Denver, Los Angeles, Phoenix, Salt Lake City, and San Francisco have all grown and developed due to major water diversions. This is also the case for irrigated agriculture in California's Central and Imperial valleys, west of Utah's Wasatch mountains, and along Colorado's Front Range and eastern plains.

Colorado has historically played a pivotal role in the hydrology of the Southwest; geography and climate patterns in part explain this importance. The state's topography can be roughly divided into thirds, with the eastern portion consisting of high plains, the middle of high mountains and valleys, and the western third of largely plateaus, mesas, and lower valleys. Colorado is the highest state in the Union, with more than fifty mountain peaks over 14,000 feet and a mean elevation of over 6,800 feet.² Four major river systems originate in Colorado's mountains — the Platte, Arkansas, Colorado, and Rio Grande. Prevailing westerly winds of the mid-latitudes carry Pacific moisture east to Colorado where the mountains act as an orographic barrier, forcing the moisture to rise and literally wringing

precipitation from the atmosphere. Thus, the state is a major water catchment basin for the entire Southwest.

This moisture, however, is not distributed evenly across the state. The windward or West Slope receives the bulk of precipitation, while the leeward or East Slope lies in a rainshadow and generally receives much less. The rivers which arise and flow from Colorado illuminate this imbalance. The Colorado River and its tributaries on the West Slope drain approximately one third of the entire state, but receive nearly 70 percent of the state's total precipitation. The Arkansas and Platte river systems together drain the entire eastern half of the state, yet receive only a third of Colorado's moisture. As a result, the average annual flow of the Arkansas and South Platte rivers is less than half of the Colorado River and its instate tributaries.³

In addition to this precipitation imbalance, Colorado's demographics have accentuated the role of water in state history. More than 80 percent of the state's population is concentrated along the eastern slope of the Rockies — the Front Range.⁴ In addition, large and important areas of irrigated agriculture are located in the South Platte and Arkansas River valleys even though the bulk of Colorado's water supply lies on the West Slope. This situation has historically led to major conflicts over use of water in Colorado.

The history of permanent Anglo settlement in the state stretches back to 1858, when gold was discovered by three brothers from Georgia on Dry Creek near present-day Denver.⁵ Prior to this, the eastern plains of Colorado were generally considered uninhabitable by easterners, due in part to Stephen Long's reference to the area as the "Great American Desert" during his exploration of the region in the 1820s. But in 1859 as word of gold spread, thousands of miners, prospectors, and opportunists began arriving along the Front Range. And almost immediately these new residents began to develop and institutionalize the

water infrastructure (physical and organizational) Colorado utilizes today. Earlier Spanish residents in southern Colorado and the San Luis Valley had diverted water for irrigation and developed legal systems for the distribution of water. These Spanish methods of water diversion and distribution have influenced subsequent water development in Colorado, but it was the influx of Anglos into Colorado beginning in 1858 that initiated the unprecedented growth in water use and legal developments which have occurred over the last 130 years.

Colorado's legal framework for water is based on the Prior Appropriation Doctrine, also known as the First-In-Time, First-In-Right Doctrine. This framework incorporates a system of priorities, whereby the first or "senior" diverter (appropriator) of water along a stream or water body has a prior right over subsequent or "junior" diverters. In order to appropriate water legally, it must be diverted from a stream and put to "beneficial use."⁶ Beneficial use typically refers to use of water in a reasonable and efficient manner, and can include agricultural, municipal, industrial, and recreational uses in Colorado.

A conditional decree is the first legal definition of a water right before it has been diverted and put to beneficial use.⁷ A conditional decree preserves a "priority date" during the development and planning of a water project. Without this safeguard, development of a project would be far more risky for the appropriator. During development and planning the appropriator must demonstrate due diligence towards diversion and beneficial use of the water to perfect a conditional decree. In other words, the diverter must make progress towards physically diverting and utilizing the water. Once this occurs, the conditional decree becomes absolute and is adjudicated in the legal system of priorities, with a date of priority, a specified amount of water, and conditions under which the water may be used.⁸ All of this is established in one of Colorado's seven water courts. Thus, a system of priorities exists whereby a junior appropriator can be legally required to cease diverting water if a senior

appropriator is not receiving his full quota.

A water right under the Prior Appropriation Doctrine in Colorado is recognized as being an appropriation for a specific quantity of water and is a vested and real property right. It is usufructuary in nature — that is, the diverter has "the right to enjoy the use of [the water], the property of which is vested in [the state of Colorado]."⁹ According to the Colorado Constitution:

The water of every natural stream not heretofore appropriated, within the State of Colorado, is hereby declared to be the property of the public, and the same is dedicated to the use of the people of the state, subject to appropriation as hereinafter provided.¹⁰

In Colorado, land ownership is not required to appropriate water, and water may be transferred out of its basin-of-origin, sold, and inherited. A claim to a new water right can be made if unappropriated water exists. However, today most streams and water bodies in Colorado are overappropriated (not enough water to satisfy all existing water rights claims during most years), and existing water rights must be purchased by parties interested in obtaining a valid and usable water decree.¹¹

In contrast to Colorado and most of the Southwest, the eastern United States adheres to the "Common Law" or Riparian Doctrine. This system is primarily characterized by granting land owners adjacent to a water body an equitable right to the use of the water, without diminishing its quantity or impairing its quality. The Riparian Doctrine has since been interpreted as the "Reasonable Use Theory," and requires that each riparian water user refrain from unreasonable use of water and harm to other water users.¹² Under the riparian system, water is not considered a separate property right, but is generally tied to the land adjacent to the water body.

Little of the original, English Riparian Doctrine remains in use within the United States. The early "Mill Acts," New England legal precedents which date to colonial times,

regulated riparian water users in a similar fashion to the Prior Appropriation Doctrine. For example, under a particular act the owner of a mill dam was given a superior right to a flow of a river over upstream users, and protection from dam builders downstream who could otherwise back up the river and impede mill operations.¹³ Thus, in this instance the Mill Acts injected a priority into the system of riparian rights existing on the river. Colorado's first Session Laws of 1861 originally stipulated the Riparian Doctrine form of water rights for Colorado Territory, but by statehood (1876) subsequent statutes, laws, and legal cases recognized only the Prior Appropriation Doctrine.¹⁴

Miners were the first to develop this appropriation framework for water rights in Colorado. According to Colorado State University professor George Radosevich, the appropriation doctrine has its origins in the 1849 California gold rush.¹⁵ Another hypothesis is that much of the influence for development of the Prior Appropriation Doctrine came from the Riparian Doctrine and the common laws of New England.¹⁶ Regardless of the source, miners in the West diverted water from streams for use in ore processing and applied their rules for mining claims to the diversion and use of water. When gold was discovered in Colorado in 1858, thousands of miners left California's gold rush country for Colorado and brought their ideas about water allocation with them. Within the first year of mining in the state, irrigated agriculture also began to develop on the Front Range — along Clear Creek, St. Vrain and Lefthand creeks, the Cache La Poudre River, and on the main stem of the South Platte.¹⁷

Colorado's unique topography — its high mountains and continental divide running north-south roughly through the center of the state — and human settlement patterns which occurred after 1859 are largely responsible for the transmountain diversion of water. The highest demand for water has occurred on the East Slope while the largest supply exists on

the West Slope. As early as the 1860s water was diverted eastward across the mountains. The first diversions were small, crude, hand-dug ditches which collected melting snow high in the mountains and transported the water via low passes along the continental divide to the East Slope. Not until construction of the Laramie-Poudre Tunnel in 1914 did underground conduits supersede these early open ditches. The first transmountain diversion of water in Colorado occurred near Fairplay in 1860. It was constructed for mining operations but was only used for a few years before being abandoned.¹⁸ In 1912, some fifty years later, the diversion was extended to provide water for the city of Denver.¹⁹

Following this first effort, nearly two decades elapsed before additional transmountain diversions of water occurred. In 1880 the Ewing Ditch began diverting water from the Eagle River to the Arkansas River basin for placer mining.²⁰ Additional diversions were constructed for irrigation rather than mining purposes. The agricultural colonies at Greeley, Fort Collins, and Longmont helped lend credibility to early irrigated agriculture and spurred its growth and demand for additional water sources. The first pioneers in Colorado clearly recognized their dependence upon irrigation for successful agriculture, and began to develop a vast network of canals and irrigation systems, which now covers the Front Range and East Slope.

The Arkansas and South Platte rivers initially provided enough water for agriculture as well as municipal needs of Denver and other small communities on the Front Range. But due to the success and expansion of irrigation and the growth of cities — in particular Denver — many of the streams and creeks along the Front Range were overappropriated (inadequate water to supply all appropriators) by the early 1880s.²¹ This problem of overappropriation occurs in part because rivers and streams in Colorado are largely fed by snowmelt. The vast majority of streamflow occurs between the months of April and July when streams and rivers

are swollen with melting snow. By mid- to late-July, most water courses contain much less water and usually cannot meet all the demands placed upon them. After 1880 the construction of Front Range reservoirs proliferated in order to catch and hold spring runoff. These reservoirs stored additional water for irrigation and extended the water supply for late summer crops. But by 1890, with the continued growth of irrigated agriculture, water supplies were once again tight. Agriculturalists along the Front Range began to look for methods to supplement the limited supply of Front Range water.²²

The headwaters of the Cache La Poudre River provided the location for the first surge of transmountain water diversion activity. The Water Supply and Storage Company (WSSC), a Fort Collins-based local mutual irrigation company, began construction of the Skyline Ditch in July of 1891 to improve diversions from the Laramie River into the Poudre basin.²³ The WSSC resulted from the reorganization of the Larimer County Ditch Company in 1891, which had already set the precedent of diverting "foreign" water from the Laramie River watershed to the Poudre basin through the Cameron Pass Ditch as early as 1881.²⁴ When extension and improvement of the Skyline Ditch was completed in time for the 1894 growing season, farmers receiving water deliveries from it prospered, while many neighboring farms without additional water suffered foreclosures.²⁵

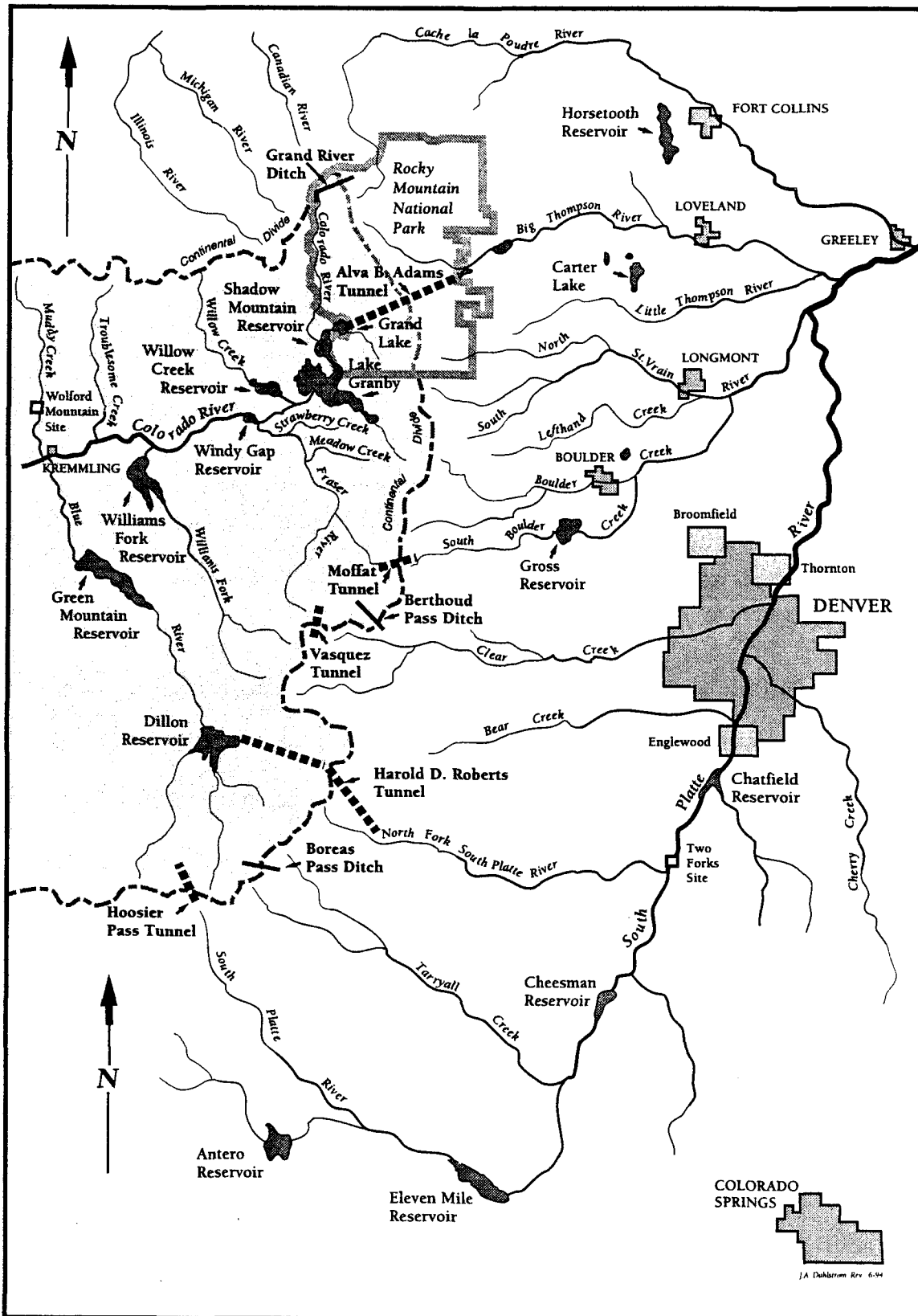
Construction of numerous other transmountain water diversion ditches in the upper Poudre basin followed. The Grand River Ditch, the oldest operating transmountain water diversion project and the largest to divert into the upper Poudre, was constructed beginning in 1890. This ditch collects high altitude runoff from the Never Summer Range in Rocky Mountain National Park and transports it from the West Slope across the continental divide via La Poudre Pass into the Poudre basin. The Grand River Ditch existed prior to the creation of Rocky Mountain National Park, and continues to operate within park boundaries.

Water was first diverted in 1892 and extension of the ditch continued until 1936.²⁶

In addition to Colorado's phenomenal late-nineteenth-century agricultural expansion, Front Range communities, particularly Denver, experienced rapid population growth during the same period. In 1870 Denver numbered approximately 5,000 residents, the same as in 1860. By 1880 the city's population had risen to 35,000 and ten years later to 107,000, fully 25 percent of the entire state's population. By 1920 a quarter of a million people resided in the Denver area.²⁷ With population growth came increasing demands for water and related problems of inadequate supply.

During the 1880s and particularly the 1890s the South Platte and its tributaries in the Denver area (Cherry Creek, Bear Creek, Clear Creek) were barely able to supply the city with water and simultaneously fulfill agricultural water rights, particularly during late summer.²⁸ Denver's first attempt to stabilize its water supply was the construction of Cheesman Reservoir on the main stem of the South Platte River above Denver. Begun in 1900, the reservoir was completed in 1905 but only served as a temporary solution to the city's growth. In 1918 the city obtained voter approval to amend its charter and to establish a Board of Water Commissioners. Denver residents also approved a bond issue to purchase the private Denver Union Water Company.²⁹ To expand its South Platte River basin water rights and storage capacity, Denver acquired the Highline Canal in 1924 and Antero Reservoir on the South Platte in 1925. Finally, the city built Eleven-Mile Canyon Reservoir — also on the South Platte — in 1932. By this time the South Platte was the most heavily used and over-appropriated river in the state. City and community leaders began to realize that East Slope water would be inadequate to supply Denver's future needs.³⁰

In the early 1920s the city and its water department filed for West Slope water rights and began to study the feasibility of diverting Fraser and Williams Fork river water from the



Central Colorado and West Slope

West Slope to Denver via the Moffat Tunnel. The Moffat Railroad Tunnel was under construction during this period by the Denver and Salt Lake Railroad. Completed in 1927, part of the construction effort included a pioneer bore, smaller in diameter than the main bore and used to excavate the larger tunnel.³¹ The city signed a 99-year lease for use of the pioneer bore tunnel and enlarged and lined it between 1929 and 1936. Completion of this project again temporarily assured Denver an adequate supply of water.³² Fraser River water first reached Denver in 1936, but it was not until 1940 that an extension to the Williams Fork River added additional water to the Moffat Tunnel diversions. The system was further expanded and improved during the following two decades.³³

The Moffat Water Tunnel and the Grand River Ditch opened the floodgates to major transmountain water diversion projects in Colorado. The Moffat Tunnel was the first large-scale water diversion tunnel of its kind in Colorado, with deliveries averaging 27,000 acre-feet/year during the first ten years of operation³⁴ and 60,000 acre-feet/year between 1976 and 1985.³⁵ At present, nearly forty transmountain water diversions in Colorado have been constructed for the purpose of supplying agricultural, municipal, and industrial water to the East Slope. Most of these are small (a few hundred acre-feet). The half-dozen large-scale projects which exist in Colorado were constructed by either municipalities or water conservancy districts.³⁶

Efforts by Denver to obtain additional West Slope water from the Blue River began in 1922 when the city first filed for water rights, but construction did not begin until 1946 due to financial and planning constraints. In 1962 the Harold D. Roberts Tunnel was completed, a 23-mile-long conduit which brings approximately 60,000 acre-feet of water from Dillon Reservoir to Denver each year. Blue River water, however, did not reach Denver until 1964 following the completion of Dillon Dam.³⁷ Other major water diversions undertaken by

municipalities and water districts along the Front Range include the Homestake project which collects an average of 28,000 acre–feet of water annually from a tributary of the Eagle River and delivers it to the cities of Colorado Springs and Aurora. The Frying Pan–Arkansas project was authorized in 1962 and completed by the U.S. Bureau of Reclamation in 1982 for the Southeastern Colorado Water Conservancy District. It diverts 57,000 acre–feet of water annually, primarily for agricultural use in the Arkansas River basin.³⁸

The largest transmountain water diversion in the state is the Colorado–Big Thompson project (CBT). Unlike most other major Colorado water diversions, this project was envisioned and constructed primarily to supply supplemental irrigation water to the East Slope. The idea of diverting Colorado River water to northeastern Colorado was an old one dating back to the 1880s, but it was not until the 1930s that an opportunity appeared to pursue the project. Catalysts included the onset of the 1930s drought and dustbowl era on the high plains, a severe water shortage in northeastern Colorado, and the federal policies of President Franklin D. Roosevelt and his New Deal programs.³⁹

Constructed by the U.S. Bureau of Reclamation between 1937 and 1957, the CBT is a complex system of reservoirs, canals, tunnels, and hydropower plants which brings an average of 231,000 acre–feet of water annually from the Colorado River to the Big Thompson, Poudre, St. Vrain, Boulder, and South Platte watersheds on the East Slope.⁴⁰ The major storage reservoir for the project is Lake Granby on the West Slope. Spring runoff from melting snow is stored in Lake Granby, then pumped to Shadow Mountain Reservoir and Grand Lake, where it flows by gravity through the 13–mile–long Alva B. Adams Tunnel beneath the continental divide and Rocky Mountain National Park. Upon exiting the eastern portal of the tunnel, the water flows through a series of conduits, canals, and hydropower plants to Carter Lake and Horsetooth Reservoir, the major East Slope storage facilities for the

project. Typically, more than 75 percent of water diverted through the CBT project has been used for irrigation on the East Slope. Continued population growth along the Front Range, however, has dictated an increase in the amount of CBT water going to municipalities.⁴¹

Historically, there has been substantial opposition to the diversion of water in Colorado. One of the earliest legal cases involving transbasin diversion in Colorado and the nation was Coffin v. Left Hand Ditch Company.⁴² This 1882 case was also the first test of the Prior Appropriation Doctrine in the Colorado Supreme Court. It involved the removal of water from St. Vrain Creek by means of ditches to the Left Hand (Niwot) Creek drainage in the area south and west of Longmont. The appellants were residents in the St. Vrain drainage who had settled there after the water diversion already existed. Appellants felt they had a better and superior right to use the water than the appellees' diversion to Left Hand Creek for irrigation. They also believed that the diversion of water was illegal even though the appellees had diverted the water first. The Colorado Supreme Court disagreed, denying the appellants' assertion and concluded that the Common Law Doctrine (Riparian Doctrine) was inapplicable in Colorado.⁴³ The court's ruling read in part:

In the absence of legislation to the contrary, we think that the right to water acquired by priority of appropriation thereof is not in any way dependent upon the locus of its application to the beneficial use designed.⁴⁴

An earlier Colorado Supreme Court case, Yunker v. Nichols,⁴⁵ was the first to legally recognize the right to divert water. The court's opinion noted that the first Colorado Legislative Assembly enacted legislation granting irrigators a right-of-way over adjacent lands for the purpose of diverting water for irrigation. The court also noted that common law recognized the same type of easement when and where necessary.⁴⁶ But it was the Coffin v. Left Hand case which not only upheld the legality and enforceability of the Prior Appropriation Doctrine but also the legal right to divert water across natural drainages.

Coffin v. Left Hand involved irrigation uses of water but has since been expanded to encompass the water needs of municipal and industrial users as well.

In the 1939 case of City and County of Denver v. Sheriff,⁴⁷ Denver sought to appropriate West Slope water from the Fraser and Williams Fork rivers and divert it through the Moffat Tunnel. Those opposed to the diversion wanted special restrictions placed on Denver, namely: reasonable conservation efforts; consideration of West Slope water as "supplemental" imported water; and Denver's use of existing East Slope decrees before utilizing any West Slope water. The court struck down the restrictions, recognizing the special needs of cities to secure an adequate supply of water for future growth.⁴⁸

The conflict and opposition over transmountain diversion of water has not only involved irrigators and municipalities, but has bred interstate animosity as well. One of the earliest U.S. Supreme Court cases regarding a Colorado water dispute — Wyoming v. Colorado⁴⁹ — involved diversion of water from the Laramie River watershed into the Poudre basin. The suit was brought by Wyoming against Colorado and two Colorado corporations in opposition to a proposed diversion on the Laramie River, an interstate stream, through the Laramie–Poudre Tunnel. Wyoming attempted to prevent the diversion on the grounds that the Laramie is an interstate river, that diversion of much of the flow in Colorado would not benefit Wyoming, and that Wyoming was already using much of the water in the Laramie River — a case of prior rights. The court agreed, noting the Prior Appropriation Doctrine was recognized in both states, that the total dependable flow of the river was approximately 315,000 acre–feet annually, and that existing diversions of water already claimed about 300,000 acre–feet of flow. Thus, the court placed an injunction on Colorado and the two corporations against diverting more than 15,500 acre–feet annually through the tunnel.⁵⁰

As these late nineteenth and early twentieth century cases illustrate, there were critics and opponents of early water diversions. But it was not until the plans surfaced for Denver's Moffat Tunnel diversion and the CBT project in the 1930s that West Slope critics organized and banded together. One of the earliest organizations opposed to transmountain water diversion was the Western Slope Protective Association (WSPA) which formed in June of 1933. Its stated objective was to protect western Colorado's water supplies from transmountain diversion to the East Slope or from threats to Colorado River water by diverters downstream in Arizona and California. It was the WSPA which negotiated with the proponents of the CBT project before its authorization by Congress in 1937.⁵¹

At a meeting of West and East Slope opponents in September of 1933 in Denver, both parties agreed in principle that each transmountain water diversion from the Colorado River basin would include construction of compensatory reservoirs, referred to as "replacement storage." This concept entails construction of water storage within the basin from which water is to be diverted (basin-of-origin). The reservoir's water is to be for the sole use of residents and water needs within that basin. Although Congressman Edward Taylor, a powerful and long-time U.S. Representative from the West Slope, insisted upon a "foot-for-foot" replacement (an acre-foot of storage on the West Slope for every acre-foot of water diverted to the East Slope), the principle has never been adhered to consistently.⁵²

Negotiations surrounding the CBT and Frying Pan-Arkansas projects did reward the West Slope with compensatory reservoirs, but not on a foot-for-foot basis. The Colorado Legislature, in creating conservancy districts did not initially require compensatory reservoirs. In 1943 the original legislation — the Water Conservancy District Act — was amended to require it "so as not to impair nor increase costs to existing or prospective water users within the natural basin of the Colorado River."⁵³ However, replacement storage is only required

in cases where conservancy districts divert water from the Colorado River basin, and is not on a "foot-for-foot" basis. Municipalities and irrigation companies are exempt from the legislation. Thus, the city of Denver has never been required to construct compensatory reservoirs.⁵⁴

Opposition to transmountain water diversion has had limited success in Colorado. Until relatively recently, most diversions were decided almost exclusively on the basis of the Prior Appropriation Doctrine, on the availability of water to be diverted, and on the state constitution which reads in part:

...the right to divert the unappropriated waters of any natural stream to beneficial uses shall never be denied.⁵⁵

The Colorado Constitution, more than any other document, controls the practice of transmountain water diversion. The constitution provides the legality for appropriating water on a priority basis, and supports the right to divert any unappropriated water. These provisions, joined with legal precedents such as Coffin v. Left Hand, confirm the legality of transmountain water diversion.

Following the legal establishment of transmountain water diversion, projects continued to be constructed and developed in Colorado through the early 1960s. By late in the decade, however, water development was being increasingly questioned and criticized. Pollution of the nation's air, land, and water resources was increasingly evident, and the modern environmental movement, until then in its infancy, took shape. In Colorado, part of this environmental consciousness focused on the diversion of water in the state and the consequences of de-watering West Slope rivers and streams to feed population growth on the East Slope. If transmountain diversions continued to be built, would enough water remain on the West Slope for aquatic wildlife, population growth, or economic development?

At the same time the modern environmental movement developed, the Front Range began to experience another wave of strong population growth. Three counties, in particular, had a central role in the development of Windy Gap — Boulder, Larimer, and Weld. Between 1949 and 1959 the combined populations of the three counties increased by an average of nearly 128 percent, and between 1959 and 1969 their combined population growth was over 200 percent. Boulder County was the fastest growing of the three, followed closely by Larimer and then Weld.⁵⁶ Studies projected even higher rates in the 1970s. W.D. Farr, chairman of the Greeley Water Board stated the situation succinctly in 1969:

With the fast growth of population in this area and the rapid advance of water prices during the last two years, it is becoming apparent more water is going to be needed.⁵⁷

According to a University of Colorado researcher, the single largest source of post World War II growth in Colorado can be attributed to employment immigration.⁵⁸ Within the northern Front Range, this was particularly evident during the decade of the 1960s, as major corporations located manufacturing facilities in the area. IBM opened its Boulder County plant near the small town of Niwot in 1965. Three years later the plant employed 4,000 people.⁵⁹ Eastman Kodak decided to locate a facility just outside the town of Windsor, in part due to the high quality of water in the Poudre Valley. Kodak began its Colorado operations in 1971, and had 2,300 employees by 1994.⁶⁰ Hewlett-Packard, headquartered in northern California, established its Loveland plant in 1960. Seven years later it employed 1,200, and by 1970 1,500 people.⁶¹

Between 1960 and 1970 the Front Range absorbed over 95 percent of the state's population growth. This was evident in the growth of new residential housing. In Boulder County, new housing units increased 73 percent within the decade of the 1960s. For Larimer and Weld counties, the figures are 62 percent and 19 percent, respectively. These numbers

either doubled or tripled during the 1970s.⁶² The rate of rural to urban land use transfers illustrates another dimension to the growth occurring along the Front Range. Between 1955 and 1969 over 23 square miles of rural land in Boulder, Larimer, and Weld counties was urbanized. By far the largest amount of this land was used to create residential developments and subdivisions in formerly irrigated areas of the counties.⁶³

The development and growth of rural domestic water districts was the major factor encouraging this shift in rural land use. These districts initially sprang up in the late 1950s and early 1960s to meet the domestic water needs of residents outside of city water service areas. The earliest rural domestics — as they are called — were organized when farmers, long accustomed to hauling water from town for domestic purposes, were joined by the first residents of rural subdivisions in search of a clean, reliable supply of water.⁶⁴ Many of the early rural domestic water districts in northern Colorado obtained water from the Colorado–Big Thompson project. Rural domestics first appeared in the Longmont–Boulder area, then spread north into Larimer County and finally east to Weld County, contributing to a proliferation of rural subdivisions during the 1960s.⁶⁵

As towns in the northern Front Range such as Fort Collins, Longmont, and Boulder boomed, city leaders were particularly concerned with the possibility of water shortages. Developing dependable municipal water supplies requires long–term planning and perseverance. In December of 1965 Robert Quinlan, Boulder city manager, spoke at a board meeting of the Northern Colorado Water Conservancy District, the public agency responsible for distributing CBT water in northeastern Colorado.⁶⁶ His topics included growth along the northern Front Range, Boulder’s plans for city perimeters, and the encroachment of rural domestic water districts toward city boundaries. He discussed with the Board the possibility of using water and sewer service to control growth. Although Quinlan’s dialogue with the

Board did not resolve Boulder's problems, it did mirror those of other cities in the area. The NCWCD clearly recognized the extent to which rural domestic water districts, municipalities, and irrigators were competing for limited water supplies along the northern Front Range, and was concerned with the trend.⁶⁷ Statistics had indicated to the Board the increasing amount of agricultural water being transferred to urban uses.⁶⁸ Agricultural water was the cheapest and most accessible source for cities. However, would urban growth eventually eliminate irrigated agriculture along the Front Range and in the process create an urban megalopolis stretching from Fort Collins south to Pueblo? It was against this background of Front Range growth and emerging environmentalism in the 1960s that proposals for the Windy Gap water diversion project gained momentum.

ENDNOTES

1. George E. Radosevich, Evolution and Administration of Colorado Water Law: 1876–1976 (Littleton: Water Resource Publications, 1985), 1.
2. League of Women Voters, Colorado Water (Denver: League of Women Voters, 1988), 6.
3. *Ibid.*, 8–9.
4. This figure is based on the Front Range consisting of the following 13 counties: Adams, Arapahoe, Boulder, Clear Creek, Denver, Douglas, El Paso, Gilpin, Jefferson, Larimer, Pueblo, Teller, and Weld. Department of Commerce, Bureau of the Census, 1990 Census of Population and Housing, Summary, Colorado (Washington D.C.: Government Printing Office, 1991).
5. Carl Ubbelohde, Maxine Benson, and Duane A. Smith, A Colorado History (Boulder: Pruett Publishing Company, 1988), 52.
6. In 1973 a Colorado state statute authorized the Colorado Water Conservation Board to appropriate water for instream beneficial uses such as minimum stream flows and maintenance of wildlife habitat. League, Colorado Water, 16.
7. NCWCD associate general manager Darell Zimbelman, interview by author, 23 February 1994, Loveland, Colo. There is debate regarding conditional decrees, and whether or not they represent an actual water right. Some claim that a conditional decree is only a "place holder" in the priority system and does not become a right until water is diverted and put to beneficial use.
8. Daniel Tyler, The Last Water Hole in the West (Niwot, Colo: University Press of Colorado, 1992), 474–475.
9. Radosevich, Evolution and Administration, 21.
10. Colorado Revised Statutes 1973 (Denver: Bradford Publishing Company, 1980), 407.
11. Radosevich, Evolution and Administration, 21.
12. *Ibid.*, 16–18.
13. *Ibid.*, 19.

14. Ibid., 24.
15. Ibid., 20.
16. Donald J. Pisani, "Enterprise and Equity: A Critique of Western Water Law in the Nineteenth Century," Western Historical Quarterly Vol. 18 No. 1 (Jan. 1987): 15–37.
17. Stephen Gerlek, "Water Supplies of the South Platte River Basin" (M.S. thesis, Colorado State University, 1977), 29–30.
18. Ibid., 376, 35.
19. Radosevich, Evolution and Administration, 7.
20. George Vranesh, Colorado Water Law (Boulder: Vranesh Publications, 1987), 751.
21. Gerlek, "Water Supplies," 34.
22. Ibid., 33–34. During the fall and early winter, particularly during drought periods, Front Range rivers and creeks have historically dried up entirely at ground-level.
23. James E. Hansen II, The Water Supply and Storage Company: A Century of Colorado Reclamation, 1891–1991 (Fort Collins: Water Supply and Storage Company, 1990), 13.
24. Jeffrey S. Hickey, "An Uneasy Coexistence: Rocky Mountain National Park and the Grand River Ditch" (M.A. thesis, University of Colorado, 1988), 73.
25. Hansen, Water Supply and Storage, 13–14.
26. Ibid., 6, 14. See also: "An Uneasy Coexistence: Rocky Mountain National Park and the Grand River Ditch," by Jeffrey S. Hickey, M.A. thesis, University of Colorado, 1988, a history of the Grand River Ditch and its sometimes tempestuous relationship with Rocky Mountain National Park.
27. Stephen J. Leonard and Thomas J. Noel, Denver: Mining Camp to Metropolis (Niwot, Colo: University Press of Colorado, 1990), 481.
28. Lyle W. Dorsett, The Queen City: A History of Denver (Boulder: Pruett Publishing Company, 1977), 206.
29. Vranesh, Colorado Water Law, 782.
30. Leonard, Denver, 459.
31. Duane Vandebusch and Duane E. Smith, A Land Alone: Colorado's Western Slope (Boulder: Pruett Publishing Company, 1981), 262.
32. Dorsett, Queen, 207.

33. Leroy R. Hafen and Ann W. Hafen, Colorado: A Story of the State and Its People (Denver: Old West Publishing Company, 1944), 350.

34. Gerlek, "Water Supplies," 627.

35. League, Colorado Water, 23. All League of Women Voters' water diversion totals are ten-year averages, 1976–1985. An acre-foot is a common measure of water for agricultural and domestic supplies. It is the amount of water needed to cover an acre of land to a depth of one foot and contains approximately 326,000 gallons.

36. Vranesh, Colorado Water Law, 781.

37. Vranesh, Colorado Water Law, 783; League, Colorado Water, 23.

38. Vranesh, Colorado Water Law, 751, 793; League, Colorado Water, 23.

39. Tyler, Last Water Hole, 12–13.

40. NCWCD Operation Records. This figure based on diversions between 1957 and 1992.

41. Ibid. Current ownership of CBT water allotments are: 54 percent agricultural; 46 percent municipal. In 1957 the ratio was 85 percent agricultural and 15 percent municipal. Note however, that actual usage of CBT water by agriculture has historically been consistently higher than actual ownership, as municipalities often rent shares they own to farmers for irrigation in all but the driest of years.

42. Coffin v. Left Hand Ditch Company, 6 Colo. 443 (1882).

43. Vranesh, Colorado Water Law, 753.

44. Coffin v. Left Hand Ditch Company, 6 Colo. 443 (1882).

45. Yunker v. Nichols, 1 Colo. 551 (1872).

46. Vranesh, Colorado Water Law, 166–167.

47. City and County of Denver v. Sheriff, 105 Colo. 193 (1939).

48. Vranesh, Colorado Water Law, 755.

49. Wyoming v. Colorado, 259 U.S. 419 (1922).

50. Frank J. Trelease, Water Law: Resource Use and Environmental Protection (St. Paul: West Publishing Company, 1986), 584–587.

51. Tyler, Last Water Hole, 62.

52. Unidentified 1933 Newsclipping, 1933 Newsclipping Book, NCWCDA.

53. Vranesh, Colorado Water Law, 759.
54. Conservancy districts are established by court decree under the 1937 Water Conservancy District Act and can: contract with the federal government for construction of a project; assume indebtedness; utilize limited taxing authority; administer and operate a project; and conserve, allocate, or distribute water supplies. Mutual irrigation companies are typically private, owner-operated and -financed irrigation companies distribute water according to the ownership of shares in the company.
55. Colorado. Revised Statutes (1973), 411.
56. Department of Commerce, Bureau of Census, 1990 Census, 2.
57. Greeley Tribune, 13 December 1969.
58. David E. Monarchi, Colorado Division of Planning: Colorado County Population Estimates: 1970-1980 — Methods and Results (Boulder: University of Colorado, Graduate School of Business Administration, n.d.), 1.
59. IBM communications program manager Bill Praeter, interview by author, 7 February 1994, via phone, Loveland, Colo.
60. Eastman Kodak director of communications and public affairs Ellie Natividad, interview by author, 3 February 1994, via phone, Loveland, Colo.
61. Hewlett-Packard public relations spokesman Jim Willard, interview by author, 12 January 1994, via phone, Loveland, Colo.
62. John M. Snyder, "An Evaluation of Colorado's Attempts to Cope With Rapid Growth" (Ph.D. thesis, Colorado State University, 1982), 97.
63. Department of Commerce, Bureau of Census, 1990 Census, 5.
64. Tyler, Last Water Hole, 267-268.
65. Department of Commerce, Bureau of Census, 1990 Census, 8.
66. See Chap. II for a more detailed explanation of the NCWCD.
67. Minutes, NCWCD, December 10, 1965, August 12, 1966.
68. Tyler, Last Water Hole, 267.

Windy Gap refers to a "gap" or opening in a mountain ridge through which the Colorado River flows in Middle Park just west of Granby, Colorado. Frequent westerly winds blow through this opening year-round, creating both a natural wind tunnel and the source of the area's name. The south-facing slopes of the region are covered with sage brush, while the wetter north slopes include a blend of evergreens and aspen. It is both a beautiful and rugged spot — typical of western Colorado. This site is today the location of the Windy Gap project, a water diversion scheme which transports Fraser River water to the East Slope via the Colorado-Big Thompson project.

The existence of a water project at Windy Gap is in part a result of the construction of the Colorado-Big Thompson project, for without the CBT, Windy Gap might never have been built. Windy Gap is somewhat analogous to a "piggy-back" water project, in that it uses the facilities of the CBT to store and transport water to the East Slope. The Northern Colorado Water Conservancy District (NCWCD or District) is the public agency or entity which originally contracted with the federal government for construction of the CBT. It also negotiated a repayment contract to reimburse the federal government for a portion of the construction costs. The NCWCD was established in 1937 pursuant to the Water Conservancy District Act and is a quasi-municipal corporation with taxing authority within District

boundaries.¹ The NCWCD's borders encompass most irrigated areas of the northern Front Range — from north of Fort Collins south to Broomfield in Boulder County, from the foothills of the Front Range east to Greeley in Weld County, and along the floodplain and irrigated areas of the South Platte River valley east to the Nebraska line. Located within the District boundaries are all or part of Boulder, Weld, Larimer, Morgan, Washington, Logan, and Sedgwick counties, and cities such as Fort Collins, Loveland, Greeley, Longmont, Estes Park, Boulder, and Broomfield.

The NCWCD is responsible for the distribution of CBT water principally via releases from project storage facilities on the East Slope — Carter Lake and Horsetooth Reservoir. Actual operation of the CBT project was historically the joint responsibility of the U.S. Bureau of Reclamation (Bureau or USBR) and the District, with the District initially only responsible for water distribution. In recent years, however, the District has assumed additional operation and maintenance responsibilities — in particular the Granby Pump Plant on the West Slope and Carter Lake and Horsetooth Reservoir on the East Slope. The District is governed by a board of directors (Board) appointed by a group of district court judges. According to historian Daniel Tyler, the authors of the Water Conservancy District Act opted for an appointment process rather than elections in an attempt to insulate board members from politics.² The current Board has twelve members, three each from Boulder, Weld, and Larimer counties, one each from Logan and Sedgwick counties, and one representing both Morgan and Washington counties.

In addition to the CBT repayment contract, Senate Document 80 is one of the most significant legal records regarding construction and operation of the CBT project. This document outlines the plan of development, operation, and cost estimates for the project. It is often referred to as the "Bible" of the CBT.³ Written in 1937 largely by the Bureau, Senate

Document 80 includes agreements arduously hammered out between the West and East slopes before project construction began. Senate Document 80 stipulates the maximum amount of water which may be legally diverted to the East Slope — an average of 310,000 acre–feet annually.⁴ Thus, all CBT facilities, from collection reservoirs and pumping plants on the West Slope, to canals, conduits, tunnels, power plants, and storage facilities on the East Slope were designed for 310,000 acre–feet of water. Finally, and perhaps most significantly, Senate Document 80 stipulates the construction of Green Mountain Reservoir on the Blue River to fulfill the replacement storage requirement dictated by the Water Conservancy District Act.⁵

In 1957 CBT construction was completed after nearly twenty years of effort. Even before the project began full operation, it was apparent that in most "average" years it would be unable to fully supply the anticipated 310,000 acre–feet of diverted water. In fact, annual diversions of water from the West Slope have averaged only 231,000 acre–feet between 1957 and 1992.⁶ There are two identifiable reasons for this. First, hydrology studies completed in the 1930s were overly optimistic due to limited data that overemphasized climatic records from abundantly wet years. Second, the Bureau had made numerous changes to the original construction plans, including the decision not to divert water from Strawberry and Meadow creeks in the Fraser River basin into Lake Granby. Diversion from the two creeks was proposed in the original 1937 Bureau report. Reanalysis by the USBR following World War II, however, concluded that yields from the creeks would be small (less than 10,000 acre–feet) if existing water rights were fully utilized.⁷ Plans to divert the creeks were permanently discarded when it was discovered that Denver and Englewood had filed on water rights in the area.⁸ Thus, the project has only rarely been able to divert the full 310,000 acre–feet stipulated by Senate Document 80. The District was never entirely satisfied with this situation and shared its displeasure with the Bureau.⁹

In response, the USBR studied means of supplementing the CBT water supply on the West Slope. In December of 1957 the Bureau published a study entitled "Reconnaissance Report on the West Slope Extension, Colorado-Big Thompson Project, Colorado." The report stated that the original climate data used to determine the 310,000 acre-feet figure had been based on a 1900-1936 study period. Subsequent studies indicated a maximum water yield closer to 258,000 acre-feet annually based on climatic data from 1920 to 1947. The report thus demonstrated the need for additional water within the District boundaries and proposed a West Slope extension project to increase the yield of the CBT.¹⁰

The proposed project was to be located at Windy Gap. As described, the project would capture "excess" or spring flood flows from the Fraser River in a small dam or forebay on the Colorado River 0.7 miles below the confluence of the Colorado and Fraser rivers. The collected water would not be stored at the Windy Gap dam but pumped immediately through a conduit to Willow Creek Reservoir (part of the CBT system) and thereby become part of the CBT project water yield. The West Slope Extension, as it was called, would reportedly produce an average of 31,500 acre-feet of additional water annually for the CBT project. The estimated cost of this project was \$8.4 million.¹¹

The Bureau's demonstrated need for additional water on the East Slope was twofold. First, irrigated cropland within the District boundaries was overdeveloped in relation to the available water supply. Second, the Bureau recognized the impending need for additional municipal and industrial water supplies along the northern Front Range (i.e., future urban growth). In 1957 only about 15 percent of CBT water was used by municipalities; the balance (85 percent) was used by agriculture. However, the report identified nine cities within the District boundaries which received at least a portion of their water supply from the CBT project. It also noted the potential for rapid growth in all nine cities.¹² The Bureau's

assessment of the water supply situation in northern Colorado was prophetic. The report recommended project approval and federal funding. But the cost of developing the water for irrigation was too high, and with no immediate municipal need for the water no action was taken at that time.¹³

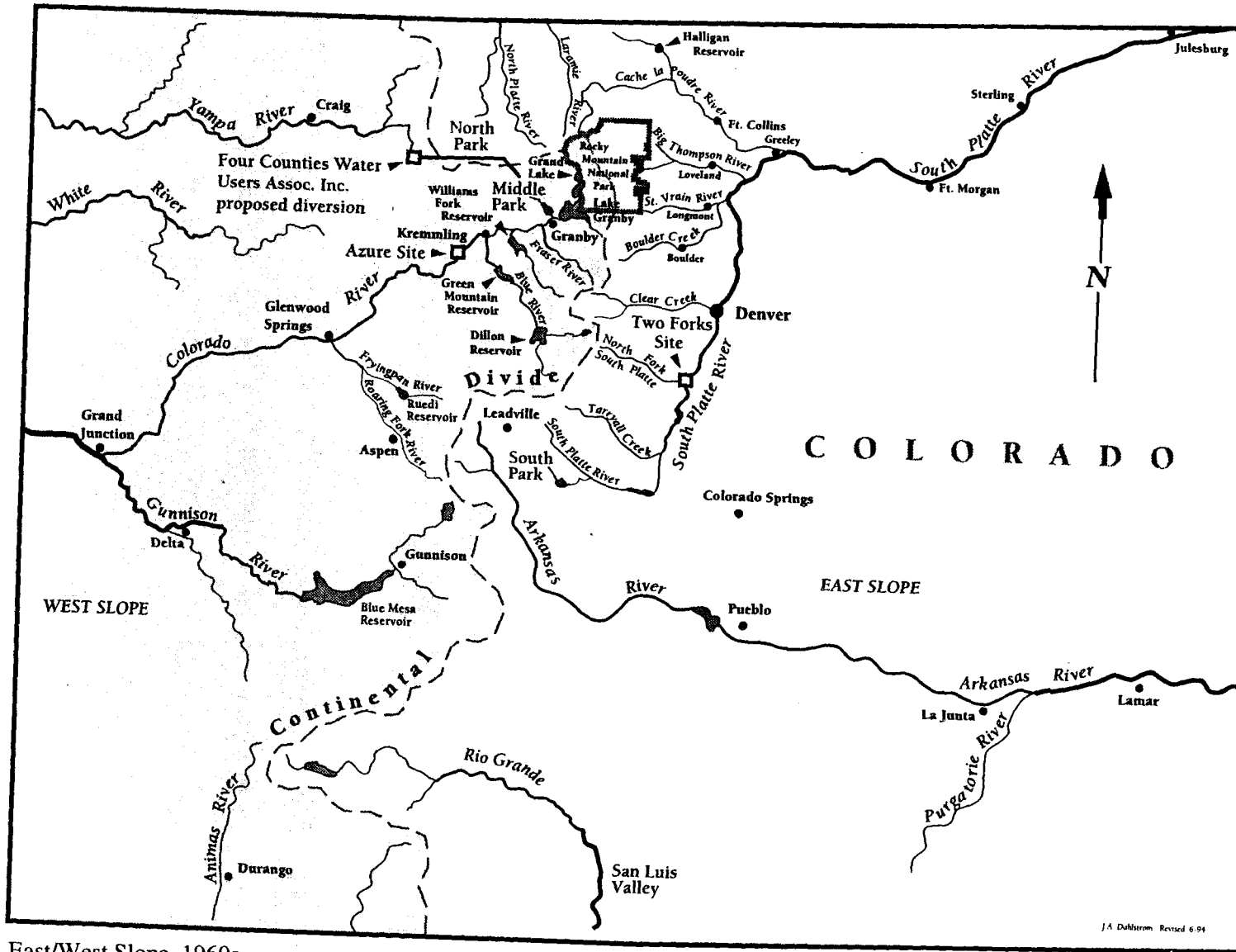
Shortly after completion of the Bureau's West Slope Extension project study, NCWCD general manager Bob Barkley received a letter from consulting engineer John P. Elliott, president of the private Four Counties Water Association. Elliott and the association proposed using the CBT's excess capacity and the Adams Tunnel to transport Yampa River water to cities located on the East Slope.¹⁴ The Yampa River system is located on Colorado's West Slope and drains much of northwestern Colorado. It is a tributary of the Green River and constitutes part of the Colorado River watershed. Elliott's plan interested the District which had never been satisfied with the CBT's unused capacity and the Bureau's disinterest in finding a remedy, but the board of directors was wary. Elliott's proposal would allow the CBT facilities to be used for private profit — a practice tax-paying citizens of the District would likely reject.

After a two-year period of silence, Elliott contacted Barkley again in 1960. His plan was to transport Yampa River water via a series of exchanges involving the Big Grizzly and Illinois rivers to the Willow Creek watershed and thereby into the CBT system. This was all predicated on Elliott's ability to secure conditional decrees on the Yampa River. Barkley indicated some type of cost-sharing would be necessary to cover the costs of pumping and wear on the system if a "carriage contract" for use of the Adams Tunnel and other District facilities materialized.¹⁵

In a related matter, the city of Englewood, a Denver suburb, had purchased water rights on several tributaries of the Fraser River, and was searching for a way to transport the

water to the East Slope. Two obvious choices were the Moffat and Adams tunnels. Englewood first approached Denver about use of its Moffat Tunnel system, but the Denver Water Board responded by proposing excessive rates to transport the water. Englewood then turned to the District to discuss use of the Adams Tunnel, indicating it would construct the necessary conduits to transport the water to Lake Granby if the District would deliver the water to the East Slope. The NCWCD agreed to study the plan while the Bureau determined the legality, feasibility, and costs of the proposal. The Englewood plan had one important advantage over Elliott's: municipal need rather than financial gain. Although the District realized the Englewood plan would probably prove unfeasible, a successfully-negotiated carriage contract would pressure the Denver Water Board to lower its asking-price to transport Englewood's water — something the District favored.¹⁶

There are a number of pertinent reasons why the NCWCD wanted to pressure Denver. First, the District and the Denver Water Board were long-time competitors who had historically battled over West Slope water. Denver's Dillon Reservoir and the CBT's Green Mountain Reservoir are both located in the Blue River drainage. Green Mountain Reservoir lies downstream from Dillon Reservoir but has a senior storage right. Even so, Denver has on occasion refused to honor Green Mountain's senior call for water. Second, the District sympathized with the West Slope view that Denver and other major water diverters should also be subject to West Slope compensatory storage requirements. Under the *Water Conservancy District Act* only water districts in Colorado are required to meet this obligation. Finally, Barkley and the District felt the city of Denver and its suburbs should more fully cooperate in coordinating metropolitan water supplies. Barkley, in particular, was critical of the Denver Water Board and its practices, having witnessed firsthand Denver's attempts to hinder Englewood's claims to water in the Fraser River basin during the 1950s.¹⁷



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In July of 1961 the Secretary of the Interior approved the carriage contract with Englewood in final form. A month later the District Board and the Englewood city council passed formal resolutions in favor of it.¹⁸ Given these circumstances, the Denver Water Board promptly agreed that Englewood could use South Platte River water in exchange for Englewood's Fraser River water rights.¹⁹ The Moffat Tunnel was logistically a better choice for Englewood because it diverts water into the South Boulder Creek drainage — much closer geographically to Englewood than the Adams Tunnel.

Encouraged by Englewood's success, Elliott continued to pursue a carriage contract with the District. In the summer of 1961, however, the District refused his request for a number of reasons. First, Elliott and his Four Counties Water Association intended to transport water outside District boundaries, a practice prohibited by Senate Document 80. Englewood had previously agreed it might be necessary to become part of the District. Second, the District and the Board were well aware that implied support of Elliott and his company would raise the ire of the West Slope about increasing transmountain diversions. And as predicted, the West Slope did protest the Elliott plan. The Colorado River Water Conservation District (CRWCD) informed the Secretary of the Interior that a carriage contract between the Bureau and Elliott would violate a Colorado Water Conservation Board resolution opposing further *federally funded* (emphasis added) transmountain water diversions until West Slope water needs had been assessed and protected.²⁰

Elliott persisted, however, and two years later again met with the District Board to present his position. He indicated that Boulder and Fort Collins were interested in the possibility of Yampa River water and that he still hoped to gain conditional decrees and divert the water to Lake Granby. Again the Board was unsympathetic. Elliott had no firm contracts with any of the cities for water, and his attempt to acquire the decrees had been denied by the

district court. Additionally, Board policy since 1961 held that priority for the excess capacity in the CBT system would go first to municipalities already within District boundaries. As mentioned, the Board was also leery of setting a precedent whereby the CBT's public facilities would be used for private profit.²¹

The issues surrounding Yampa River diversions and the Four Counties Water Association did not disappear entirely. But strong opposition from the West Slope and the unexpected death of Elliott in the spring of 1966 momentarily terminated the plan.²² What is significant historically are the precedents set by the Elliott and Englewood plans, and the Bureau's CBT West Slope extension studies in the 1950s. Elliott and Englewood blazed the trail for a carriage contract to transport additional water through the Adams Tunnel. Negotiations with the District established a framework for future talks. Moreover, Englewood's successful contract paved the way for a future Windy Gap agreement. Finally, the Bureau's Windy Gap studies in the 1950s provided the growing northern Front Range with a possible remedy for its water supply woes in the 1960s. All of these events were instrumental in setting the stage for a future water project at Windy Gap.

As early as 1965 five cities along the northern Front Range gathered to discuss forming an organization to focus on water supply problems in the area. What took shape informally was the Northern Conference Water Committee, consisting of Boulder, Longmont, Loveland, Fort Collins, and Greeley. The group gathered at a "Five-City Water Meeting" February 26, 1966, in the Longmont city council chambers. Topics of discussion included available capacity in the Adams Tunnel and the Elliott proposal for Yampa River water. The group met in Loveland again in June of 1966, but no firm decisions were made.²³

During the winter months of 1966-1967 representatives from the cities of Boulder, Longmont, Loveland, Estes Park, and Fort Collins met with the USBR to discuss possible

water importation schemes through the CBT system.²⁴ Combined population projections for the cities showed an estimated addition of over 250,000 residents between 1970 and 1990.²⁵ All five cities were concerned with growth issues and related water shortages along the Front Range. The previous summer members of the group had met with representatives of the Four Counties Water Association, which had recently won a Colorado Supreme Court appeal on the Yampa River conditional decrees. The cities briefly considered acquiring the Four Counties Water Association water rights, but cost constraints and other difficulties associated with Yampa River water diversion soon put an end to that idea.²⁶

Another option was further development of local Front Range water supplies, but this approach also posed a number of difficulties. Most streams and water sources in the area were already overappropriated. The few sources which theoretically could be developed were prohibitively expensive. Continued or accelerated conversion of agricultural water rights to urban use was another possibility, but this had drawbacks as well. Much of northeastern Colorado had an important stake in a viable agricultural sector based on irrigation. The District opposed accelerated conversions of allotments from agricultural to municipal use, and the five cities concurred.²⁷ A healthy, vibrant agricultural sector in northern Colorado was important economically and provided aesthetic open space and separation between the cities.²⁸

A transmountain water diversion project located at Windy Gap appeared to be the most acceptable and least expensive option. It quickly became the focus for both the cities and the District. James Knights, USBR South Platte Project Manager, believed a joint effort by the cities and the federal government to construct a project at Windy Gap would work best.²⁹ Estimates based on the 1957 USBR study indicated the project could obtain approximately 30,000 acre-feet of water and that a total cost for development and diversion

to the East Slope would be in the neighborhood of \$30/acre-foot/year — within financial reach of the cities.³⁰

The five cities' water requirements and a plan for financing the project became important considerations as discussions between the Bureau and the municipalities continued into the spring of 1967. The cities agreed to summarize their potential needs for additional water and to forward that information to the Bureau for review. Once each city's need was quantified, a proposal to Congress through Representative Wayne Aspinall for federal financing could be made.³¹ The topic of federal financing, however, was politically delicate. In 1967 Representative Aspinall was marshalling support for the Upper Colorado River Basin Bill in Congress. This bill included five West Slope projects in Colorado which would theoretically utilize all of the state's share of Colorado River water under the 1922 Colorado River Compact. Aspinall could not simultaneously support the Colorado River Basin Bill and federal funding for the Windy Gap project. Other Colorado River basin states would certainly oppose Colorado's attempts to overutilize its share of the river.³² In addition, the West Slope would try to block any federal financing of the project. The Colorado Water Conservation Board had passed a resolution opposing additional federally funded projects until West Slope water needs — present and future — had been assessed and protected.

The city of Greeley rejoined the other five municipalities at the end of May 1967, prompting an unofficial name change to the "Six Cities Water Committee" (SCWC or Committee).³³ Officials from the cities immediately made a trip to Washington D.C. for further discussions with the USBR,³⁴ where they were advised to file jointly on West Slope water rights as soon as possible.³⁵ Accordingly, mayor Ralph Price, Longmont's trustee to the SCWC and an enthusiastic proponent of the Windy Gap scheme, traveled to Water District 58 in Hot Sulphur Springs on July 17, 1967, to file for conditional decrees on 30,000 acre-

feet of Colorado River water at Windy Gap.³⁶ At the NCWCD board meeting in July, manager Barkley reported that six municipalities were interested in constructing a project at Windy Gap and negotiating a carriage contract with the District and the Bureau. He also told the Board that the municipalities had not decided whether to ask for federal assistance under reclamation law or to finance and construct the project independently. Additionally, the cities had yet to decide on cooperating to form a municipal subdistrict (MSD or Subdistrict) under the 1937 Water Conservancy District Act.³⁷

The 1937 Water Conservancy District Act had anticipated and made provisions for creation of subdistricts. It required that petitions be circulated to all owners of irrigated and non-irrigated lands served by a city's water department, both in and outside the city's corporate limits. Signatures were required of 5 percent of owners of property inside corporate limits, 5 percent of non-irrigated property owners in the water service area outside of corporate limits, and 25 percent of irrigated landowners in the water service area outside of corporate limits.³⁸

Establishing a MSD would provide the cities with certain advantages. First, the MSD and District would be legally able to transport additional water through the CBT system. Senate Document 80 had stipulated that a full 310,000 acre-feet of water could be diverted. Compensatory storage for the West Slope had been provided for at Green Mountain Reservoir on the Blue River. Second, the CBT system had been built to carry a full 310,000 acre-feet and the plans for Windy Gap fit in well with the CBT system operations. Third, formation of a subdistrict would enable the six cities to construct the project independent of the federal government and allow for funding of the project through issuance of municipal bonds. The District Board anticipated opposition from the West Slope, but told manager Barkley to proceed.³⁹

Formal organization of the Six Cities Water Committee occurred on February 24, 1969. Each municipality had two representatives who attended monthly meetings. Early challenges included deciding whether or not to form a MSD, determining how to share costs and water in the organization, and ascertaining how to finance any proposed water project. The group began by agreeing to form a MSD. All costs would initially be equally shared between the six cities with adjustments made retroactive depending upon the amount of water each city ultimately received.⁴⁰

An important initial assignment for the SCWC was the employment of an engineering firm to conduct feasibility studies for Windy Gap construction. The SCWC invited proposals from seventeen companies in the Rocky Mountain area in the spring of 1969. Eleven responded and four were chosen for interviews. In June the SCWC contracted with Engineering Consultants Incorporated of Denver (ECI) to conduct a two-phase study of Windy Gap; the first to consist of hydrology studies, the second to include preliminary design, cost estimates, and operating recommendations.⁴¹

Phase I was completed by November 1969. Stream modeling and existing and conditional water decree investigations proved that water was available for a Windy Gap project and could be claimed under certain conditions. The Shoshone Power Plant, owned by the Public Service Company of Colorado and located downstream of the Windy Gap site, held the major senior decree in the watershed. Three other major conditional rights filed after 1954 required consideration: Denver's right to enlarge its collection system on the Fraser River to 90,000 acre-feet for Moffat Tunnel diversions; the Iron Mountain Reservoir storage right of 50,000 acre-feet; and the Azure Reservoir right of 80,000 acre-feet for storage and 1,000 cubic feet per second (cfs) flow for power.⁴²

ECI concluded that water available for Windy Gap diversion would be negligible if all these conditional rights were fully developed. Of greatest concern was the Azure project.⁴³ The Azure dam site is located in Gore Canyon on the Colorado River downstream of both the Windy Gap site and the town of Kremmling. As of 1969 the Colorado River Water Conservation District (CRWCD or River District) held a conditional decree for approximately 80,000 acre-feet of water at Azure. The problem with the site, however, was the location of the Denver and Rio Grande Railroad right-of-way and tracks through the canyon. The cost of relocating the tracks had thus far effectively precluded construction of Azure. If the project was built, Azure's water requirements and senior decree could make Windy Gap construction unfeasible. On the other hand, ECI found in 1969 that if Azure was never developed or if its conditional decrees were adjudicated junior to Windy Gap, approximately 63,000 acre-feet of water could potentially be diverted at Windy Gap.⁴⁴

In early spring of 1969 the SCWC decided to pursue a water project at Windy Gap. The Committee requested that the District prepare a draft petition which the cities could use for formation of the proposed Subdistrict. Following approval of the draft petition in August, the cities began the lengthy, tedious job of describing all the land to which they each provided water. By November the petitions for creation of the Subdistrict had been completed and were being circulated in all six cities. By the end of the year the petition process was virtually complete in Estes Park, Fort Collins, and Loveland.⁴⁵ The process took longer in Greeley and Longmont, but in May of 1970, when no protests had been filed in District Water Court 1 in Greeley, Weld County District Court Judge Donald Carpenter signed the decree creating a municipal subdistrict of the NCWCD.⁴⁶ The Subdistrict became a legal entity on July 6, 1970. The Subdistrict's function was:

to represent the six cities in matters of planning, construction, and ultimate operation of the facilities needed to utilize [Windy Gap] water.⁴⁷

The municipal subdistrict of the NCWCD held its first organizational meeting on July 10, 1970. The board of directors of the NCWCD, or "parent district," became directors of the MSD pursuant to the Water Conservancy District Act directives and the MSD became a political subdivision of the state with the same powers as a public or municipal corporation. Formation of the MSD did not supplant the SCWC. The Committee continued to exist, meeting once a month to discuss Windy Gap progress and to officially represent the six cities in all dealings with the MSD. The Subdistrict acted as the agent attempting to secure and deliver Windy Gap water to the six cities.⁴⁸

Once the Subdistrict had formed, one of the most pressing tasks was to secure a carriage contract with the federal government to carry Windy Gap water through the CBT facilities to the East Slope. Without a carriage contract the six cities would be unable to transport or utilize Windy Gap water. For this reason, pursuit of a carriage contract with the USBR became a top priority. The MSD staff went to work immediately. It was anticipated that this agreement would be closely patterned after the Englewood contract.⁴⁹ West Slope interests opposed to Windy Gap protested against carriage contract negotiations as early as 1972. The Bureau replied that discussions between the District, Subdistrict, and USBR "were not of contractual concern to the [West Slope]." The Bureau's view, however, did not accurately predict future events.⁵⁰ Although the West Slope was eventually denied the right to intervene in the carriage contract, it did succeed in its efforts to influence the progress and outcome of Windy Gap.

The MSD submitted a draft of a carriage contract to the Bureau in late fall 1970 but had heard nothing in response by April of 1971. In June District manager Barkley learned the USBR was undergoing reorganization and that the Bureau was hesitant to act on the carriage contract. Barkley related this information at a SCWC meeting and agreed to contact USBR

Assistant Commissioner Gil Stamm regarding the delay.⁵¹ Criticism of water projects by environmentalists and the Bureau's sensitivity to this disapproval added to the agency's inaction. Between 1971 and 1973 the carriage contract went through numerous drafts and revisions, with the USBR initially requiring, among other things, submittal of an environmental impact statement (EIS).⁵² By December of 1972, more than two years after initial submission of the draft carriage contract to the Bureau, the Subdistrict had still heard nothing from Washington D.C. Some SCWC members began to have reservations about the project.⁵³

In June of 1973 Charles Hallenbeck, SCWC chairman and one of Boulder's representatives to the Committee, wrote to Colorado U.S. Congressman Donald Brotzman regarding the SCWC's frustration with carriage contract negotiations. In the letter Hallenbeck reviewed the benefits of utilizing the existing CBT facilities versus constructing an entirely new transmountain water diversion project. He also emphasized that no federal appropriation from Congress was being requested for construction of Windy Gap. Hallenbeck wryly concluded by stating:

I feel it would be most appropriate for Congress to tell the Bureau that it need ask for no more new project money until its officials can bring themselves to contract for the more efficient and beneficial utilization of an existing [water] project.⁵⁴

Perhaps Hallenbeck's letter provided the needed political leverage. In any event, by September an agreement was at last reached between the MSD and regional offices of the USBR in Denver. Signed by MSD officials and forwarded to Washington D.C., it proceeded through the proper channels. Finally, after more than three full years of frustration and delay, a carriage contract was finalized and executed between the District, MSD, and the federal government in October of 1973.⁵⁵

Carriage contract negotiations were not the only obstacle to Windy Gap progress. A search for possible funding sources proved equally frustrating. At a meeting in late 1970 MSD officials decided to request a grant through the "Federal Assistance for Public Works and Facility Type Projects," a program administered by the Department of Housing and Urban Development (HUD). The Subdistrict sought \$1.5 million for ECI's Phase I study, which was projected to cost \$3.5 million. According to HUD, \$1.5 million was the maximum grant allowed any one city under the program, but the possibility existed for the six cities to request additional money.⁵⁶

In early 1971 HUD representatives notified the SCWC and the MSD that federal funding through the department would require approval of Windy Gap by the Denver Regional Council of Governments (DRCOG), and possibly other local planning agencies. DRCOG approval came in August, but by October the NCWCD's new planning coordinator Larry Simpson reported that a Larimer and Weld Planning Commission endorsement would also be necessary. Additionally, HUD officials required completion and submittal of an EIS. The entire plan for a HUD grant collapsed when it was learned the following spring that the MSD proposal would consume fully one quarter of HUD's six-state allocation for this type of project. It seemed unlikely the agency would agree to such an arrangement.⁵⁷ The option of financing Windy Gap through municipal bonds looked increasingly appealing in light of the HUD situation and the Colorado Water Conservation Board's resolution concerning federal funding of water projects.

While the Subdistrict searched for funding, it simultaneously pursued adjudication of the Windy Gap conditional decrees. As previously mentioned, Colorado's legal framework for water is based on the Prior Appropriation Doctrine. The first step necessary to obtain a legal water right is the filing of a conditional decree. Ralph Price fulfilled this requirement in

1967 when he filed for conditional rights for Windy Gap water in Hot Sulphur Springs. Once the filing was complete, the SCWC and the Subdistrict focused on the requirement of demonstrating due diligence (making progress towards utilizing the water). This was accomplished when ECI began work on hydrology studies for Windy Gap. What followed was the adjudication process — the judicial procedure for perfecting water right decrees. Adjudication would confirm the existence of an appropriation and its priority date relative to other water rights in the same watershed. It is important to note that this process and the resulting decrees are always subject to appeal to the Colorado Supreme Court before they become final.⁵⁸

When Ralph Price died suddenly in mid-1969, the SCWC lost a valuable and enthusiastic proponent of the Windy Gap project. As a result the court had to determine the legal heirs to the conditional decrees he had filed for in 1967. Since Price had been officially representing the predecessor of the SCWC at the time he filed for the decrees, the SCWC (and subsequently the Subdistrict) was considered his heir and legally entitled to the decrees.⁵⁹ Also in 1969 the state of Colorado enacted the Water Right Determination and Administration Act,⁶⁰ which divided the state into seven water divisions and placed adjudication of the Windy Gap conditional decrees in a special water court. Thus, jurisdiction over the Windy Gap case moved from Grand County District Court in Hot Sulphur Springs to Division 5 Water Court in Glenwood Springs.⁶¹

Conditional decree adjudication hearings were set and continued throughout 1971, pending the outcome of what became known as the "Eagle County Case" in the U.S. Supreme Court. Simultaneous to the Windy Gap filings, the federal government had filed numerous claims to reserved water rights on federal lands in Colorado. The pivotal question of this case was whether water rights should be subject to adjudication in federal or state court.⁶² The

result was the consolidation of all pending claims into one proceeding. The Colorado Supreme Court then appointed a water referee to handle all factual matters of the hearings. This process was extensive and lasted more than three years.⁶³ Not surprisingly, primary opposition to Windy Gap came from the West Slope which claimed a federal court should have jurisdiction over the adjudication hearings and that replacement storage plans for the West Slope were inadequate.⁶⁴ Perhaps the West Slope believed a change of venue to federal court would even the playing field. Battling transmountain water diversions in state court was certainly a difficult proposition.

By 1972 SCWC members were worried about the financial feasibility of Windy Gap and requested the MSD take no action on any of the major project components, including pump and storage facilities, until conditional water decrees were adjudicated. This request and other signs of faltering by the SCWC in July of 1972 concerned MSD attorney John M. Sayre. He realized the Committee was disturbed with escalating cost estimates for the project, the need for funding right-of-way surveys, legal fees, and the unpredictable adjudication process. But Sayre reiterated the need for continuing these tasks in order to avoid jeopardizing an early priority date for Windy Gap water.⁶⁵ By spring of 1973, with the adjudication process still hung up in court, the cities finally agreed that a conditional decree was not necessary to fund and pursue right-of-way surveys and the other activities Sayre recommended to prove due diligence.⁶⁶

Nevertheless the SCWC could not ignore the escalating legal costs as pursuit of the conditional decrees dragged on month after month. In 1973 each of the six cities submitted \$6,000 to the MSD budget. This money, however, was to prove woefully inadequate to cover the legal, engineering, and other Subdistrict expenses. By the end of the year MSD planning coordinator Simpson indicated the cost per acre-foot of Windy Gap water had risen to \$37 for

twenty years if construction began immediately.⁶⁷ This was an increase of \$7/acre-foot over the 1967 estimates. Simpson saw the cost of Windy Gap construction escalating approximately \$2.8 million/year, but he still believed the water would be cost-competitive when compared with other options.⁶⁸

Inevitably the solidarity of the SCWC began to weaken as progress slowed. By early 1974 both Fort Collins and Longmont were hesitant to continue pursuing Windy Gap. The Fort Collins Water Board recommended to the city council that Windy Gap be given a low development priority for the city. At that time Fort Collins was contemplating a \$5 million enlargement of Joe Wright Reservoir in the upper Poudre drainage to approximately 6,600 acre-feet of storage.⁶⁹ The city decided pursuit of Joe Wright Reservoir was its first priority and that it would make no firm commitments to Windy Gap at that time.⁷⁰ More emphatically, Longmont's city manager Charles Klarich indicated in a letter to SCWC chairman Hallenbeck that Longmont was no longer interested in participating in the Windy Gap project.⁷¹

Longmont's doubts about Windy Gap can be traced to April of 1970, prior to formation of the Subdistrict. At that time Mayor Al Zlaten was critical of ECI's feasibility study which did not include the costs necessary to pump and transport the water to the East Slope. Additionally, the city had recently completed construction of Button Rock Dam on the north fork of the St. Vrain River. Many, including city council member Wade Gaddis could not justify "spending \$100,000 a year for water we can't use for the next 10 or 15 years."⁷² By April of 1970 Longmont was the only SCWC member that had failed to complete and file the necessary petitions to create the Subdistrict. The petitions would not be submitted until the question of Longmont's continued participation was resolved.

The municipality's public works director Pete Humphrey felt Longmont had sufficient water to accommodate three times its 1970 population; the city, he believed, was being pressured to participate. Boulder, in particular, wanted Longmont's involvement.⁷³ But city attorney David Miller did not want to see Longmont miss out on acquiring additional water. He recommended to the city council that Windy Gap cost estimates be reviewed by the city engineering staff. He also warned the council that Boulder had initially been uninterested in inclusion within NCWCD boundaries and later faced high costs to do so retroactively. Finally, Miller cautioned that the city could not expect to fill Button Rock each year.⁷⁴

At a special city council meeting in late April, Longmont decided to join the MSD under certain conditions. First, the Subdistrict must agree not to levy a one mill property tax — something initially considered by the MSD but later dropped. Second, the city would not have to participate in any project it found objectionable.⁷⁵ Three of the five city Water Advisory Board members expressed opposition. Charlie Klarich opposed participation, predicting Windy Gap could never be completed by 1972, the target date set by ECI. He realized the adjudication process would be protracted and contentious, accurately predicting: "There will be years and years of messing around."⁷⁶

Longmont hesitated again in 1973 when the city council elected to withhold a \$6,000 payment to the MSD and voted by a 4–3 margin to boycott the project. When the council met for a workshop session in early 1974, sentiments had not changed.⁷⁷ With an August deadline for a solid commitment to Windy Gap approaching, editorials appeared in the Longmont Times-Call supporting SCWC participation. The paper argued that Windy Gap might be the last opportunity for transmountain water diversion, noted the additional hydroelectric power benefits of the project, and predicted a decline in transfer of agricultural water rights as a result of construction. By early June sentiments regarding Windy Gap had

changed. The city council voted 5-2 to resume participation, largely on the judgement that \$6,000/year was a good investment to keep the city's options open and its "chips in the game."⁷⁸ In August Longmont made a payment of \$12,000 to the MSD, half of which included its 1973 dues.⁷⁹ Evidently, the city's concern over future growth and possible water shortages overrode any other considerations.

Soon after the six cities alliance had formed, some members recognized the financial difficulty of subscribing to their full one-sixth share of the costs for Windy Gap. The cities continued to participate, however, because of the need for additional water. They hoped that a method could be found to reduce their financial burden sometime in the future. The answer came in the form of an alliance between Estes Park, Loveland, Fort Collins, and Longmont early in the 1970s. The four cities formed the Platte River Power Authority (PRPA) to jointly develop additional electrical power generation.⁸⁰ By 1974 PRPA was planning a power plant to meet the future electrical requirements of the four cities and anticipated the need for 15,000 acre-feet of cooling water by 1982. When PRPA learned of the six cities' plans, it was initially only interested in return flows from Windy Gap water or the unused portions of any participant. But as the cost estimates rose and Fort Collins, Estes Park, and Loveland all expressed an interest in reducing their financial obligation in the project, PRPA became more interested in obtaining allotments of Windy Gap water.⁸¹

PRPA participation in the project appeared to be the answer to the three cities' problems, but legal and political difficulties soon developed. First, the cities wished to assign their water allotments to PRPA, something that Subdistrict attorneys believed might be legally problematic. Fort Collins, in particular, wanted to transfer its "preferential right" for water directly to PRPA. Otherwise, the city would be required by its charter to hold an election to dispose of the allotted water. Much discussion occurred over how to accomplish the transfer

and if power production would be an "appropriate" use of the water. All six cities agreed they should be free to use the water for whatever purpose was deemed necessary.⁸² In addition, other participating cities — namely Boulder and Greeley — were concerned with this sudden change in plans. Boulder was troubled with expanding project participation to non-municipal entities. Finally, West Slope opposition developed over use of the water for power generation rather than intended municipal use. These critics were outraged that Fraser River water might be diverted to the East Slope simply for power plant cooling requirements.⁸³

The allotment process, like many of the other tasks necessary to construct Windy Gap, was time-consuming and contentious. Allotments were based on each city having a one-sixth share of the total water yield of the project — now estimated at 48,000 acre-feet annually.⁸⁴ Thus, each city's allotment was 8,000 acre-feet, or eighty units, with one unit representing one hundred acre-feet (480 units total). To avoid the legal problems feared by Sayre, the MSD and the SCWC agreed that each city would first take possession of its full share of Windy Gap water and then be free to transfer any percentage it wished to PRPA or another entity within the MSD boundaries. Others interested in Windy Gap water included the towns of Erie, Louisville, Lafayette, Windsor, Fort Lupton, and numerous non-municipal entities.⁸⁵ Allotments were formally assigned to each city in July of 1975. Immediately afterwards Estes Park and Loveland each transferred half of their shares to PRPA and Fort Collins transferred its entire eighty-unit share to PRPA.⁸⁶

Questions soon arose as to the future of the SCWC. Should PRPA become a voting member? What structural changes were necessary? The Committee decided PRPA would become a voting member of the SCWC and that the remaining five cities (Fort Collins was no longer a member of the group) and PRPA would have equal voting rights.⁸⁷ Second, the

SCWC wanted legislation passed amending the Water Conservancy District Act to allow Windy Gap water to be delivered and utilized anywhere within NCWCD boundaries. As things stood, the water could only be used within the six cities' water delivery areas. This change would allow the cities to lease or sell any excess water until it was needed. State Senator Fred Anderson of Loveland sponsored the necessary legislation (S.B. 106), which was signed into law in 1977.⁸⁸ This measure eventually allowed Windy Gap water to be used for irrigation purposes in the District, further provoking criticism from West Slope opponents who assumed that Windy Gap water would be diverted for municipal needs only.

With a successfully-negotiated carriage contract in hand and allotment contracts finalized, further progress hinged on a favorable adjudication decision. It came in April of 1974 when the court-appointed water referee submitted a finding in favor of adjudicating the Windy Gap conditional decrees. A final hearing was set for May 10, 1974. Protestors had until the sixth of May to file objections.⁸⁹ Finally, nearly seven years after the decrees were originally filed, a decision was at hand.

The elation felt by the SCWC and the Subdistrict over the ruling was short-lived. *Objections to the water referee's findings were filed by the Colorado River Water Conservation District, which protested Subdistrict claims that unappropriated water existed at Windy Gap. The River District also insisted that a plan to protect Colorado River basin water users must be developed pursuant to the 1937 Water Conservancy District Act.*⁹⁰ Sayre reported that a lawsuit had been filed in U.S. District Court by the CRWCD against the federal government — namely the USBR — to halt Windy Gap. The court challenge was leveled against federal approval of the carriage contract based upon failure to comply with the Federal Administration Procedures Act, failure to file an EIS as required by the U.S. Environmental Protection Agency, and failure to comply with Senate Document 80 regarding

compensatory reservoir storage for the West Slope. In addition, the Subdistrict learned later that summer that Denver, Aurora, and Colorado Springs had each filed motions to intervene in the suit regarding Senate Document 80.⁹¹ Obviously, adjudication of the Windy Gap decrees would consume more time and money than either the SCWC or the Subdistrict had envisioned.

While the Subdistrict had anticipated West Slope legal opposition to Windy Gap and knew there would be moderate project delays, it was less prepared for the overwhelming impact the modern environmental movement would have on Windy Gap. The deluge of new federal laws, statutes, regulations, and agencies which grew out of the environmental movement fundamentally and permanently altered the development of transmountain water diversion projects in Colorado. Perhaps more than any other factor, environmental regulations promulgated during the late 1960s and early 1970s delayed and further complicated completion of Windy Gap.

ENDNOTES

1. Vranesh, Colorado Water Law, 758–759.
2. Tyler, Last Water Hole, 61.
3. Ibid., 482.
4. Ibid., 72, 351.
5. John M. Sayre, "The Windy Gap Project: A Case Study," paper presented at shortcourse, Natural Resources Law Center, University of Colorado, Boulder, Colo., December 18, 1982.
6. NCWCD Operation Records.
7. Tyler, Last Water Hole, 351.
8. Department of the Interior, Bureau of Reclamation, Reconnaissance Report on the West Slope Extension, Colorado–Big Thompson Project, Colorado (Denver: Bureau of Reclamation, Region 7, Dec. 1956), 32–33.
9. Tyler, Last Water Hole, 351.
10. Department of Interior, Reconnaissance Report, 1.
11. Ibid., 2, 3.
12. Raymond L. Anderson, Urbanization of Rural Lands in the Northern Colorado Front Range (Fort Collins: Colorado State University Cooperative Extension Service, in cooperation with the U.S. Department of Agriculture, 1978), 11, 13.
13. Tyler, Last Water Hole, 352.
14. Minutes, NCWCD, April 11, 1958.
15. Ibid., May 13, 1960.
16. Tyler, Last Water Hole, 299.
17. Ibid., 214. Full cooperation and coordination of water supplies between Denver and its suburbs has yet to be attained nearly thirty years later.

18. Contract No. 14-06-700-3123, approved by Board resolution on August 11, 1961; Ordinance No. 23, passed by Englewood city council on August 7, 1961.
19. Tyler, Last Water Hole, 300.
20. Ibid, 300, 542n71. Elliott's planned diversion was approximately nine times the amount of water Englewood intended to divert.
21. Minutes, NCWCD, March 11, 1966.
22. Tyler, Last Water Hole, 300.
23. Minutes, Five City Water Committee Meetings, 1965, 1966.
24. Note that Greeley, for unknown reasons, temporarily left the original five cities water group. Estes Park, meanwhile, joined in the search for additional water supplies.
25. Loveland Reporter-Herald, 27 October 1970.
26. Minutes, NCWCD, June 10, 1966.
27. Windy Gap File Report, no date.
28. Charles C. Hallenbeck, report to SCWC, February 27, 1973.
29. Tyler, Last Water Hole, 353.
30. Minutes, NCWCD, February 10, 1967.
31. Ibid. Wayne Aspinall was chairman of the powerful House Interior and Insular Affairs Committee. Any federal funding for water projects had to pass through this committee.
32. Ibid., June 9, 1967.
33. Minutes, SCWC, February 24, 1969. It was not until February of 1969 that the six cities agreed to formally organize and begin action to form a municipal subdistrict.
34. Longmont Daily Times-Call, 17 July 1967.
35. Minutes, Six City Steering Committee, May 24, 1967.
36. Tyler, Last Water Hole, 353. Although this was later increased to 54,000 acre-feet, the final decree was for 48,000 acre-feet based on the most recent hydrology studies.
37. Minutes, NCWCD, July 14, 1967; Colorado. Water Conservancy District Act 1937, Revised Statutes (1973) 37-45-101.
38. Minutes, SCWC, April 28, 1969.

39. Minutes, NCWCD, July 14, 1967.
40. Minutes, SCWC, February 24, 1969.
41. Ibid., May 26, 1969, July 28, 1969.
42. Ibid., September 29, 1969.
43. Ibid., November 2, 1969.
44. Minutes, NCWCD, December 12, 1969.
45. Minutes, NCWCD, August 8, 1969, November 14, 1969; Minutes, SCWC, December 29, 1969.
46. Fort Collins Coloradoan, 6 July 1970.
47. NCWCD, Annual Report, Fiscal Year 1969–1970, 19.
48. Tyler, Last Water Hole, 355.
49. Charles C. Hallenbeck, letter to SCWC, 27 February 1973.
50. Minutes, MSD, April 7, 1972.
51. Ibid., April 2, 1971, June 11, 1971.
52. Tyler, Last Water Hole, 358. An EIS was never completed before the carriage contract was executed. The CRWCD filed suit over this issue, and in 1976 U.S. District Court Judge Fred Winner ruled that an EIS was not necessary prior to execution of the contract, however, one would have to eventually file. See Chap. III for a more detailed explanation and discussion of the EIS requirement.
53. Minutes, MSD, December 8, 1972.
54. Charles C. Hallenbeck, letter to Representative D. Brozman, 25 June 1973.
55. Minutes, SCWC, September 10, 1973; Tyler, Last Water Hole, 358. The carriage contract stipulated among many things: the volume of water to be diverted; which entity's water would be spilled first if necessary; costs for use of CBT facilities; compliance with NEPA requirements during the construction phase; and other concerns such as power production.
56. Minutes, MSD, October 9, 1970; Minutes, SCWC, April 26, 1971, August 12, 1971.
57. Minutes, MSD, April 2, 1971, October 8, 1971, April 7, 1972.
58. Tyler, Last Water Hole, 473.
59. John M. Sayre, memo to Charles C. Hallenbeck, 11 August 1971.

60. Colorado. Water Right Determination and Administration Act 1969, Revised Statutes (1973) 37-92-101.

61. Sayre, "Case Study."

62. Minutes, MSD, February 12, 1971, February 11, 1972.

63. Sayre, "Case Study."

64. Minutes, SCWC, June 7, 1972, September 10, 1973.

65. Minutes, MSD, July 14, 1972.

66. Minutes, SCWC, April 23, 1973.

67. Ibid., April 23, 1973, December 17, 1973.

68. Ibid., March 25, 1974.

69. Minutes, MSD, March 8, 1974.

70. Ibid., January 11, 1974, February 8, 1974, March 8, 1974.

71. Charles Klarich, letter to Charles C. Hallenbeck, 27 June 1973.

72. Loveland Reporter-Herald, 7 April 1970.

73. Longmont Daily Times-Call, 7 April 1970.

74. Ibid., 8 April 1970.

75. Both of these provisions can be found in the SCWC agreement forming the MSD. Longmont water rates had been escalating along with population growth, so it was politically wise for the city to protest the one mill property tax proposal.

76. Longmont Daily Times-Call, 24 April 1970.

77. Ibid., 21 January 1974.

78. Ibid., 12 June 1974.

79. Minutes, SCWC, August 6, 1974.

80. Ward H. Fisher, memo to MSD Board, August 1, 1974.

81. Tyler, Last Water Hole, 361.

82. Minutes, MSD, August 9, 1974.

83. Minutes, SCWC, March 25, 1974.

84. Further hydrology studies indicated an additional 18,000 acre-feet (above the initial 30,000 acre-feet estimate) of water could be diverted at Windy Gap.

85. Minutes, MSD, January 11, 1974. Other interested parties included: Central Weld County Water District, Kodak, Little Thompson Valley Water District, Public Service Company, East Larimer County Water District, and Left Hand Water Supply Company.

86. Estes Park Trail-Gazette, 24 July 1974; Loveland Reporter-Herald, 30 July 1974; Tyler, Last Water Hole, 361.

87. Minutes, SCWC, July 28, 1975, August 24, 1975, February 23, 1976.

88. Minutes, MSD, November 5, 1976, March 11, 1977, June 10, 1977.

89. Minutes, SCWC, April 29, 1974.

90. Ibid, June 24, 1974. Section 37-45-118(b)(II) of the Water Conservancy District Act reads in part:

Any works or facilities planned and designed for the exportation of water from the natural basin of the Colorado River and its tributaries in Colorado . . . shall be designed, constructed, and operated in such a manner that . . . present [and] prospective uses of water . . . within the natural basin of the Colorado River from which the water is exported shall not be impaired.

91. Ibid., August 6, 1974.

The history of the contemporary environmental movement in the United States is often traced to the progressive era of the late nineteenth and early twentieth centuries. The progressive movement (1890–1920) encompassed the ideals of social change and progress, including the concepts of land conservation and preservation. The early movement was neither a grass-roots effort nor a broad political statement. Instead, support for conservation and preservation was based in the upper class of American society and arose from the scientific fields of forestry, biology, geology, hydrology, and anthropology.¹

Proponents of conservation and preservation, including President Theodore Roosevelt, were also responding to the reckless and unchecked exploitation of natural resources visible around them. In the West, for example, hydraulic ore-mining did vast amounts of damage to major watersheds like the Sacramento River basin. This was made possible in part by the advent of the Industrial Revolution during the early nineteenth century. The invention of the steam engine and other technological advances permitted resource extraction and land disturbance on a much greater scale than was previously possible. The resulting environmental degradation in turn helped spawn the conservation and preservation movements in the United States.

The ethos of conservation and preservation appears on the surface to have had many similarities. Both movements emphasized retention of federal lands, a radical departure from

previous federal goals of land disposal. With the reservation of forest lands and designation of national parks (particularly in western states) federal focus shifted from land disposal to retention and management.² However, conservation and preservation occasionally — some would say often — conflicted. Land conservation is perhaps best typified by the concept of multiple-use, which implies the notion that land should be managed for grazing, wood products, watershed protection, mineral extraction, and other purposes.³ In contrast, preservation embodies the notion of non-intervention on the part of humans — that some land should be preserved in its natural state and not subjected to exploitation. The conservation and preservation movements were not always in opposition. They did cooperate occasionally, joining forces to pass legislation creating national parks and federal agencies such as the U.S. Forest Service.⁴

Gifford Pinchot, a professional forester trained in Europe, spearheaded the conservation movement in the United States. One of the most knowledgeable U.S. foresters of that period, he was appointed director of the Division of Forestry in the Department of Agriculture in 1898 and headed the U.S. Forest Service upon its creation in 1907. Pinchot felt the only choice to be made regarding public lands was between intervention by way of uncontrolled private development and rational, sustained use guided by the federal government. He saw preservation of the land as a non-option and foolish.⁵ Pinchot was the author of the adage: "Wilderness is waste!"⁶

Pinchot's nemesis, John Muir, is probably best known as the father of the national park system. A strong advocate of preservation, he did not share Pinchot's conservationist approach to nature.⁷ Although Muir and Pinchot were both fond of nature, Muir's feeling was all-embracing. To Muir, destruction of anything in nature was profane. A key figure in the preservation movement, Muir campaigned for designation of the Yosemite Valley as a

national park and founded the Sierra Club in 1892.⁸

If the Industrial Revolution and the resulting technological advances were in part responsible for the advent of the conservation and preservation movements, they also contributed to the perpetuation of these movements. Just as technology had made mining both more efficient and destructive, it also led to the invention of the automobile, the construction of better roads, and eventually the growth of the middle-class in early twentieth-century America. All of these were, in turn, important components of early twentieth-century tourism. Perhaps more than anything else it was the growth of this industry (tourism) which made national parks and forest reserves vacation destinations for many Americans, popularizing the places and ideals of conservation and preservation. During the first decade of this century over 150 million acres in the United States were reserved in national parks and forests.⁹

Following World War II, wilderness preservation emerged as the dominant factor in the environmental movement. Plans by the U.S. Bureau of Reclamation to construct two dams on the Colorado River in the Grand Canyon and another (Echo Park Dam) on the Green River near Dinosaur National Monument spearheaded this resurgence of preservation activism. Opponents to the projects charged that enough hydro-power dams had been constructed and that the remaining canyons and free-flowing stretches of the Colorado River should be preserved in their natural state. Strong public backlash against the Grand Canyon projects succeeded in defeating the proposals. Echo Park Dam was also eventually deleted from the list of Upper Colorado River Storage projects.¹⁰

Opposition to the dams and heightened public awareness of land preservation helped lead to passage of the Wilderness Act in 1964.¹¹ The act recommended that at least 5,000 contiguous acres free of roads should comprise a wilderness area. Although few, if any, areas

are completely devoid of human influence, the main thrust of the act was to allow only temporary intrusion by humans into a designated wilderness area.¹² The Wilderness Society, established in 1935, was instrumental in passage of the 1964 legislation.¹³ Despite passage of the Wilderness Act, an "environmental movement" did not yet exist in the early 1960s. Air and water degradation were evident in many areas of the country by 1960, and pollution was a growing concern among some Americans. But this type of concern was certainly not widespread. Those few who did protest against environmental degradation were usually regarded as either conservationists or freaks rather than environmentalists.¹⁴

The federal government's first attempts to address environmental pollution began in the 1950s when Congress passed the 1956 Water Pollution Control Act, authorizing federal money for water treatment plants.¹⁵ Air pollution was also dealt with in 1963 when the first Clean Air Act designated funds for air pollution control efforts.¹⁶ The Water Quality Control Act followed in 1965. It gave the federal government power to set pollution standards in the absence of state action.¹⁷

Unfortunately, it took more than federal legislation to effectively capture America's attention regarding environmental degradation. In 1962 Rachel Carson published *Silent Spring*. Her book focused national and even international attention on the ecological damage caused by deadly pesticides such as DDT.¹⁸ In 1966 eighty people died in New York City when a four-day temperature inversion concentrated air contaminants into a deadly mixture.¹⁹ National attention again focused on environmental issues in 1969 when an oil well ruptured offshore from Santa Barbara, spilling 800,000 gallons of crude oil into the Pacific Ocean. Over twenty miles of coastline were affected, killing bird and aquatic life. The disaster eventually led to restrictions on offshore drilling. More importantly, it generated debate over the environmental consequences of such actions. Perhaps less damaging than the

oil spill, a second event that same year even more dramatically reflected the extent of America's pollution dilemma. Ohio's Cuyahoga River, which flows through Cleveland, was so severely polluted it actually caught fire, making national headlines.²⁰ The image of a burning river shocked America, jarring its complacency over environmental degradation.

In addition to enactment of federal legislation dealing with air and water pollution between 1955 and 1965, Congress passed the epic National Environmental Policy Act (NEPA) in 1969.²¹ NEPA was adopted in direct response to environmental degradation. It directed the federal government to "use all practicable means...to create and maintain conditions in which man and nature can exist in productive harmony." This act was the first general environmental protection law to *require* (emphasis added) the government to consider environmental protection when making decisions regarding major federal actions impacting the environment. NEPA requires an environmental impact statement (EIS) to be filed for any such federal action, including any water project utilizing federal funding. The EIS must accompany the project through the review process and be available for public use and comment.²² An EIS is typically an extensive study which evaluates the environmental effects — both positive and negative — of a proposed project and suggests ways to mitigate the effects, including alternatives to the proposed project. NEPA does not require a federal agency to block a project which might harm the environment, nor is an agency required to ensure environmental harm does not occur. Other federal laws and agencies, however, do often take this action.²³

The passage of NEPA in 1969 signalled the full emergence of the modern environmental movement. In addition to the dramatic environmental disasters already mentioned, other factors combined to make environmentalism a permanent force in American culture. These forces included the activism of the 1960s, scientific and technological

advances, expanded media coverage, growing interest in outdoor recreation, and organizations such as the Sierra Club and the Environmental Defense Fund. While a few of these organizations were well established, for the first time they received large donations from a cross section of the American public. The environmental movement also coincided with the creation of new federal agencies such as the Environmental Protection Agency (EPA), the Council on Environmental Quality (CEQ), and the 1973 Endangered Species Act.²⁴ The dawn of the environmental movement as a national force occurred in April of 1970 with the first annual celebration of Earth Day, an annual festival which calls upon people to "nurture nature."²⁵

For Windy Gap the repercussions of the environmental movement were enormous. The onslaught of environmental laws and regulations delayed and dramatically complicated the project, but they also mandated certain precautions and conditions designed to protect the environment. Earlier water projects had — albeit sometimes unintentionally — destroyed wetlands and dewatered streams. Historically, engineers and others lacked understanding and knowledge of the environmental consequences of water projects. Fifty years ago, for example, municipalities believed nature would "naturally" treat wastewater discharges.²⁶ But with the advent of the modern environmental movement new statutory requirements changed the status-quo regarding water projects. Windy Gap was the first transmountain water diversion project to face the full brunt of these new legal, financial, and physical implications.

As early as August of 1971, the SCWC realized both HUD and the Bureau of Reclamation would require EIS studies for Windy Gap. None of the cities, however, perceived how great an effect this requirement would have on the construction process.²⁷ Little environmental work was done on Windy Gap between 1971 and 1974. The SCWC and the Subdistrict were kept busy pursuing a carriage contract, water allotment contracts, sources

of funding, and adjudication of water rights.

At the end of 1974 the Subdistrict asked a number of environmental consulting firms to visit the Windy Gap site and assess it for potential environmental impacts. The conclusion of this visual inspection was that impacts of project construction on the environment would be "quite minimal."²⁸ However, anglers who frequented the Colorado River in the vicinity of the proposed Windy Gap dam were not so easily convinced. One group which leased fishing rights on private property adjacent to the river was concerned about the impact of the project on the stream segments they leased. Members questioned whether a fish ladder for the dam was needed as part of the project plans.²⁹ Other opponents of Windy Gap, largely West Slope residents, were also skeptical of the conclusions in the environmental assessment.

In early 1975 the Subdistrict searched for an environmental consulting firm to conduct the federally required studies. The Denver firm of Dames and Moore was selected and began work immediately. The company gathered data on the fish, biota, and wildlife that might be adversely affected by construction and operation of Windy Gap.³⁰ Dames and Moore completed an initial feasibility study and submitted it to the Bureau in October of 1975. In addition, the company began work on a detailed environmental assessment in November of 1975. The results of the assessment were used by the Bureau in completing an EIS for Windy Gap.³¹

In 1976 the Subdistrict experienced its first setback regarding environmental issues when it learned that an operational EIS for the entire CBT project — not just Windy Gap — would be required before construction could begin. NEPA regulations require a full EIS on any federal project undergoing a major alteration. Because Windy Gap water would be transported through the CBT system, an EIS for the entire CBT project was necessary to assess the resulting impacts.³² This requirement added to the delays and costs for Windy

Gap, impacting virtually all aspects of the project and further frustrating its proponents.

As Dames and Moore completed each phase of its environmental assessment, it was reviewed by the MSD staff and then submitted to the Bureau. The environmental assessment was complete by mid-March of 1977 and sent to the USBR soon afterwards. A review by the Bureau resulted in a request for additional information. The Subdistrict complied, anxious to expedite the process. First, the Bureau requested further data concerning the effluent released from the Granby sewage treatment plant into the Fraser River above the Windy Gap site that could potentially find its way into Lake Granby.³³ Second, additional hydrology and operations studies were requested. Third, the municipal members of the SCWC were asked to submit water conservation plans.³⁴ Finally, the Bureau required inclusion of a "conceptual" EIS for PRPA's Rawhide Power Plant in the Windy Gap EIS. This decision was based on PRPA's plan to use Windy Gap water for cooling purposes at its coal-fired power plant. The Subdistrict adamantly opposed this decision, arguing that even if the PRPA did not participate in Windy Gap, the water project would still proceed as planned. However, West Slope opponents insisted Rawhide be included in the Windy Gap EIS. The Bureau agreed.³⁵

The advanced draft of the EIS was submitted to the commissioner of the USBR by the regional Bureau office in December of 1977. Following a review by the commissioner's office, a rewrite was requested in late March of 1978. At this point the Subdistrict and the SCWC were extremely frustrated with the entire EIS process. The Bureau's Denver office tried to defuse the tense situation, indicating that after it received the draft EIS for PRPA's Rawhide Power Plant, it would resubmit the draft EIS to the commissioner's office as soon as possible. The Bureau finally did complete the EIS draft by late 1978. It was then submitted to the Washington D.C. office where it languished for nearly six months.³⁶

By May of 1979, some five years after the environmental assessment process had begun, the Subdistrict lost patience. It requested talks with the regional Bureau office, secretary of the Department of the Interior, and the commissioner of the USBR.³⁷ According to the Subdistrict, the cost of the delay was currently \$2.8 million/year. The land use permits from both the Bureau of Land Management and U.S. Forest Service and the Army Corps of Engineer's Section 404 permit required for construction could not be issued until the draft EIS was released. More importantly, design of the pumps which would lift the project water to Lake Granby required a 24-month lead time. None of this work could begin until the EIS was released.³⁸

Talks between the Subdistrict and the federal agencies were inconclusive. The draft EIS was under final review by the Department of the Interior and would be returned to the Bureau before printing, but no timetable was given. As a result, the SCWC turned to political leverage, requesting that each city council contact their congressional delegation in an attempt to expedite the process.³⁹ Within a month of this action the USBR released the draft EIS for public review.⁴⁰

The draft EIS contained ten chapters, nearly 300 pages in length. It examined three basic actions: (1) the change in operation of the existing CBT project; (2) the construction and operation of Windy Gap; and (3) construction and operation of the Rawhide Power Plant. The draft EIS included descriptions of the project proposal, the physical environment, environmental impacts, mitigation measures, adverse impacts, alternatives to the project, and many other factors. It underwent numerous comments and alterations before the final EIS was eventually filed with the Council on Environmental Quality in 1981.⁴¹

The first public hearings for comments on the EIS were set for August 2 and 3, 1979, in both Granby and Loveland. The heavily attended hearing in Granby attracted many

speakers opposed to the project. Concerns of those testifying included costs to ranchers downstream for diversion alterations, compensatory storage, and Windy Gap's effect on the growth potential of Grand County. One speaker questioned whether the Subdistrict would, like Denver, purchase agricultural land with senior water rights, take the land out of production and off the local tax rolls, and divert the water to the East Slope.⁴² Another speaker pointed out that the conversion of water rights from agricultural to municipal use — an issue the Front Range was quite concerned with — was also occurring on the West Slope. Finally, Richard Blodgett, speaking on behalf of the trustees for the town of Winter Park, joked half-seriously that during low-flow periods Windy Gap would become "Dusty Gap!"⁴³

The Loveland meeting was only lightly attended. The Subdistrict and PRPA both objected to the EIS's referral to PRPA as the "energy aspect" of Windy Gap. PRPA general manager Albert Hamilton pointed out that Fort Collins wastewater would be used to cool the first electrical unit at the Rawhide Plant.⁴⁴ Issues receiving the most attention at the public hearings were water quality considerations, water availability downstream from the project site, adequate water for fish habitat below the dam, PRPA'S role in Windy Gap, and increased salinity caused by the diversion of additional water. Under NEPA regulations, the Subdistrict was required to respond to the comments. The public hearing process raised a number of unanswered questions about Windy Gap. As a result, additional hydrologic studies, water quality studies, and fish habitat analyses below the dam site were undertaken, again delaying issuance of a final EIS.⁴⁵

Like NEPA, the EIS process, and other legislation dealing with environmental degradation, the 1973 Endangered Species Act (ESA)⁴⁶ grew out of the national environmental movement and proposed to:

provide a means whereby the ecosystem upon which endangered species depend may be conserved, to provide a program for the conservation of such endangered species.⁴⁷

The act prohibited the import, export, taking, or trading of any endangered species of fish or wildlife. The term endangered refers to a species in danger of extinction in all or most of its habitat. Critical habitat is in turn the area considered vital to an endangered species. The ESA has affected federal agencies in the same manner as NEPA, requiring them to take an active role in protecting the nation's natural resources, wildlife, and its habitat.⁴⁸

The full impact of the Endangered Species Act became apparent to the Subdistrict and SCWC when two endangered species of fish — the Colorado humpback chub and Colorado squawfish — were identified in the Colorado River basin below Windy Gap. Once abundant throughout the Colorado River basin, the squawfish, commonly known as the "white salmon" and capable of reaching sixty pounds in weight, was by the late 1970s limited to the upper mainstem and major tributaries of the Colorado River. The humpback chub, a much smaller fish with a more limited range than the squawfish, dwells in silty, deep canyon stretches of the Colorado River basin.⁴⁹

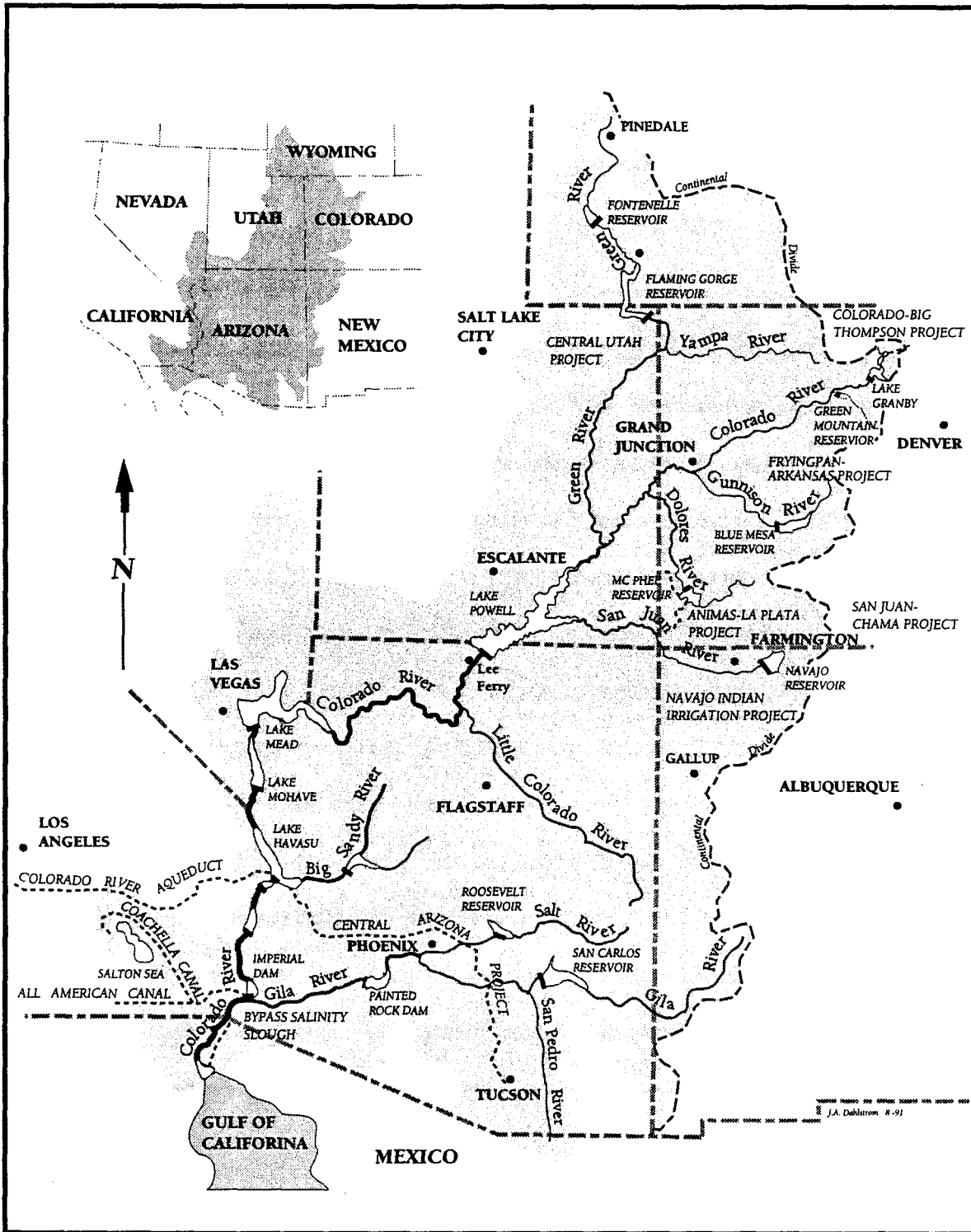
The decline of both species has been attributed to out-of-basin water diversions, construction of large dams, and the environmental consequences of these activities. However, their dwindling numbers — particularly the squawfish — also resulted from human efforts to eradicate all "trash fish" and enhance the aquatic habitat for trout and other "sport fish." The inclusion of the two fish as endangered species threatened to derail Windy Gap, and added one more item to the growing list of costly and time-consuming environmental mitigation requirements for the Subdistrict.⁵⁰

Salinity in the Colorado River basin also threatened to sidetrack or even halt Windy Gap. The Colorado River carries nine million tons of salt each year, at least half of which

occurs naturally. In Colorado, naturally-occurring sources of salinity include the mineral hot springs at Glenwood, Steamboat, and Ouray as well as precipitation runoff from West Slope soils. Mancos shale, one of the most common soil-types in western Colorado, consists of elements from an ancient sea bed naturally high in salts. In addition to natural runoff, a good portion of Colorado's western valleys are irrigated. As the land is watered salts percolate through the soil and find their way into the water table and eventually streams and rivers. In this manner irrigation adds to the salinity problem.⁵¹ Salinity readings on the Colorado River range from 50 mg/liter at the headwaters to over 800 mg/liter at Imperial Dam on the Mexican border.⁵²

A 1944 treaty between Mexico and the United States — The Mexican Water Treaty⁵³ — obligated the U.S. to deliver 1.5 million acre-feet/year of Colorado River water to Mexico. Water quality, however, was never mentioned in the treaty. Thirty years later, in August of 1974 Congress authorized the Colorado River Basin Salinity Control Act,⁵⁴ which finally set quality standards for water delivered to Mexico. The act also authorized salinity control studies in twelve areas of the Colorado River system. The major focus at the lower end of the river was construction of a multi-million dollar water desalinization plant at Yuma, Arizona, to help solve water quality problems in Mexico. Within Colorado, the program encompasses six salinity control units, most involving on-farm practices to reduce salinity caused by wasteful irrigation practices.⁵⁵

Although natural sources reportedly contribute the greatest percentage of salinity to the Colorado River, transmountain water diversions in Colorado are often linked to salinity. Over half a million acre-feet of water is diverted out of the Colorado River basin to other in-state locations each year. As the volume of transmountain water diversions has increased, the quality of water remaining in the Colorado River has been affected. With less water in the



Colorado River Basin

Colorado River to dilute salts, water quality declines as the river proceeds towards the Gulf of California.

Debate continues over the amount of salinity degradation in the Colorado River basin attributable to transmountain water diversion. West Slope and environmental proponents argue it is a substantial share. One West Slope organization has claimed that transmountain water diversions actually contribute a larger share of salinity to the river than natural sources. In contrast, the Subdistrict has consistently maintained that Windy Gap would contribute less than 1 percent to the total salinity problem of the Colorado River, using 1977 Colorado River Salinity Forum data to back its claims.⁵⁶ Salinity problems associated with water diversions can be partially mitigated by storing "excess" spring runoff in the basin for release during low flow periods. This practice, however, can cause problems for fish and other aquatic life which require high spring runoff for survival.⁵⁷

As concerns about Colorado River basin salinity persisted, the Subdistrict worried about Windy Gap's future. Although the project's expected contribution to Colorado River salinity was probably small, the EPA and other federal agencies were concerned with the *cumulative effect* (emphasis added) of all out-of-basin water diversions. During the early phases of negotiation with the West Slope, a joint storage project was considered to help moderate the effects of the proposed water diversion and resulting increase in salinity.⁵⁸ The issue took on new importance in 1978 when the Environmental Defense Fund (EDF), joined by Trout Unlimited and the Wilderness Society, filed a lawsuit against the federal government, requesting a court injunction on operation or progress of any existing or proposed water projects in the Colorado River basin.⁵⁹

In the case, *EDF v. Costle*,⁶⁰ plaintiffs claimed that federal salinity standards in the basin should be established for areas in the upper basin (Colorado, New Mexico, Utah,

Wyoming) just as they had been set for the lower basin (California, Arizona, Nevada).⁶¹

The suit stemmed in part from a 1977 Colorado River Salinity Forum Study which attributed one-third of the river's salinity to agricultural return flows and two-thirds to natural sources. The study concluded that diversion of water outside the basin was basically negligible. When the EPA adopted these findings, EDF filed suit.⁶²

The suit also requested that a comprehensive EIS be completed for the entire basin.⁶³ Windy Gap was not specifically mentioned in the injunction, but all transmountain water diversions from the Colorado River basin would be affected if the EDF suit succeeded. The NCWCD's petition to intervene in the case regarding the CBT and Windy Gap was denied by the court. However, in its 1980 decision the court disagreed with the EDF, ruling that the choice of site locations for salinity standards solely in the lower basin was consistent with a basin-wide approach to water quality.⁶⁴ Nevertheless, Colorado River salinity continued to be a major concern for Windy Gap proponents as they strove to reach the construction stage. The SCWC proceeded despite conflicting salinity data, ever-increasing costs, and further opposition.

An additional threat to the viability of Windy Gap and other proposed transmountain water diversions was the Northwest Colorado Council of Government's (NWCCOG) 208 Plan.⁶⁵ Part of the Clean Water Act, the 208 Plan sought to provide local control over management of water pollution. The initial 208 Plan called for a regional planning commission to develop an area-wide management plan on activities affecting water quality. The NWCCOG drew up a 208 Plan for Region 12 (a part of northwest Colorado which included the Windy Gap site) that required any proposed transmountain water diversion to pay an application fee, obtain a special-use permit, and incorporate items such as minimum streamflows and minimum/maximum reservoir levels into the application. In addition, fees

would be assessed to offset water quality problems attributable to the diversion, such as salinity increases. The Subdistrict adamantly opposed the 208 Plan, protesting that it was designed specifically to halt further transmountain water diversion projects. If adopted, however, the plan required review and approval by the Colorado Water Quality Control Division, and only those portions adopted by the Division would be binding.⁶⁶

In 1979 the Colorado Water Quality Control Division rejected 208 Plan provisions restricting transmountain water diversions for salinity control protection and sent it to the state Executive Committee for review.⁶⁷ By September of 1979, the 208 Plan was in litigation. The Subdistrict considered intervening in the case because Sayre felt it was probably unconstitutional, but this proved unnecessary when the Subdistrict and NWCCOG resolved the issue in an out-of-court settlement.⁶⁸ However, resolution of this issue eventually forced the Subdistrict to adopt measures to mitigate increased Colorado River salinity due Windy Gap construction and operation, once again increasing the costs and delays for Windy Gap⁶⁹.

In 1973 the Colorado legislature amended a portion of the 1969 Water Right Determination and Administration Act, adding a minimum streamflow provision to the state's statutes. Four years earlier the original act had established Colorado's water court system and corresponding water divisions. The 1973 amendment authorized the Colorado Water Conservation Board to appropriate minimum streamflows to preserve the natural aquatic environment.⁷⁰ Almost immediately the statute was legally challenged on the basis that a physical diversion of water was necessary in order for an appropriation to be made. The Colorado Supreme Court disagreed, ruling for the first time that an appropriation of water could exist *without* (emphasis added) diversion. However, only the Colorado Water Conservation Board could make an appropriation for minimum streamflows.⁷¹ The practical effect of this legislation and ruling on transmountain water diversions was to block the future

diversion of water below minimum flows established by the CWCB. Although this did not directly influence Windy Gap construction, it had the potential to severely restrict future water diversions.

Prior to 1970, environmental impact statements, endangered species, Colorado River salinity, and minimum streamflows were rarely if ever discussed in relation to the transmountain diversion of water. Windy Gap was the first major transmountain water diversion project in Colorado to face these issues and the cumulative effects of population growth, increasing East Slope water requirements, and a century of transmountain water diversion construction. The era of water project development appeared to be at an end, or at the very least, about to undergo substantial change. The Subdistrict and its proponents faced some very tough decisions about the future of Windy Gap.

Following the water referee's favorable report recommending adjudication of the Windy Gap conditional decrees in the spring of 1974, the River District filed a series of lawsuits in state and federal court. The suit filed in U.S. District Court — CRWCD v. U.S.A., et al — protested approval of the carriage contract, asking that it be voided. The River District charged it had been excluded from carriage contract negotiations and that the contract therefore violated the Federal Administration Procedures Act. The claimants also protested that the contract breached the National Environmental Policy Act because no EIS had been prepared. Finally, the CRWCD argued the carriage contract violated Senate Document 80 and its compensatory reservoir storage requirement for the West Slope. The cities of Denver, Aurora, and Colorado Springs filed motions to intervene in the suit as interested parties regarding Senate Document 80.⁷²

The Subdistrict reacted quickly. It requested that the carriage contract suit be set aside and petitioned the court for a summary judgement — a procedural device used to render

a quick decision when the facts of a case are undisputed. The federal government (USBR) joined with the Subdistrict in making this request and a hearing was set for January 14, 1975.

Two months later U.S. District Court Judge Fred Winner granted the defendants summary judgement, subject to appeal.⁷³ In making his decision, the judge found no legal reason why the CRWCD should have been included in the carriage contract negotiations. The court ruled that this was in reality a "preliminary" contract and that an EIS requirement, although necessary prior to project construction, would have been premature in 1974. Further, rather than violating Senate Document 80, the carriage contract actually pledged compliance with it. Judge Winner told River District attorney Scott Balcomb that the Subdistrict would have to violate Senate Document 80 before he could rule favorably for the CRWCD.⁷⁴ The River District eventually appealed the decision to the Tenth Circuit Court of Appeals and the U.S. Supreme Court, but the validity and legality of the carriage contract was upheld.⁷⁵

The more pivotal of the two River District suits, CRWCD v. Municipal Subdistrict, NCWCD,⁷⁶ was that filed in state water court against adjudication of the conditional decrees. The success or failure of Windy Gap depended upon these proceedings. In the case the CRWCD claimed that no unappropriated water existed to supply Windy Gap and that a plan of protection for West Slope water users must be filed pursuant to the 1937 Water Conservancy District Act. Shortly after both suits had been filed, the Subdistrict received a letter from the River District requesting negotiations to jointly construct the Azure project on the West Slope. The Subdistrict's curt reply was that the current litigious atmosphere was not conducive to negotiation.⁷⁷ At this point the Subdistrict felt confident about its legal prospects and was concerned about maintaining momentum. Each month of delay added substantially to the costs of Windy Gap. Astute observers on the West Slope, the CRWCD in

particular, realized the project would eventually be built. Recently enacted regulations would help limit the project's negative environmental effects, but were unlikely to stop the project completely. More importantly, the East Slope and the Subdistrict had legal precedent, political power, and the Colorado Constitution behind them. However, negotiations over previous projects such as the CBT and the Frying Pan–Arkansas had proven their worth to the West Slope. Two compensatory storage reservoirs — Green Mountain and Ruedi — were the result of West Slope negotiation efforts. Perhaps more than any other West Slope entity, the River District realized that construction of Windy Gap was inevitable, and that negotiations would allow at least some concessions. Continued litigation could leave the West Slope with nothing.⁷⁸

The River District again requested negotiations at the end of 1974. This time the Subdistrict agreed to meet with the CRWCD in January of 1975. The West Slope wanted the Subdistrict to participate directly or indirectly in the Azure project in a "mutually-beneficial" manner. Although the MSD felt this arrangement was unacceptable, it did propose changes to Windy Gap that would benefit those West Slope water users most affected by Windy Gap in the vicinity of Middle Park. The consensus of both sides was that negotiations should continue for sixty days. If no progress was made the Subdistrict would reluctantly return to litigation.⁷⁹

Negotiations continued in Granby during March of 1975. Discussions were reported to be very encouraging. The Middle Park Water Conservancy District — which represented West Slope residents most vulnerable to any adverse impacts of Windy Gap — participated. In fact, the MPWCD became a primary participant in the negotiations and settlement process due to its geographic proximity to Windy Gap. Another meeting was scheduled for May. One problem identified at these meetings was salinity in the Colorado River basin, with a

possible answer being joint storage for both slopes. However, what the CRWCD and the West Slope really wanted was a compensatory storage facility constructed by the MSD — specifically the Azure project. The water needs of both East and West slopes were analyzed by MSD staff, and in April the Subdistrict presented the West Slope with specific terms for a possible settlement. However, a compensatory storage reservoir was not part of the offer. When no response had been received by July, the Subdistrict concluded it was being subjected to delay tactics and decided to proceed with litigation.⁸⁰

Following the temporary collapse of negotiations the CRWCD expanded its objections to the water referee's favorable report on the Windy Gap conditional decrees. The River District also introduced new evidence in opposition to Windy Gap.⁸¹ Adding to the delay, the judge overseeing the adjudication proceedings suffered a severe stroke, necessitating a series of hearing postponements. The two sides continued to engage in intermittent negotiations, but the process broke down when the Subdistrict again refused the West Slope's request to assist in financing the Azure project.⁸²

The River District had originally filed for a conditional decree at the Azure site in 1962, pre-dating the Windy Gap filing by a full five years. However, the original filing did not include a power plant component; something the CRWCD later tried to accomplish retroactively.⁸³ Without the power aspect of the project, Azure was economically infeasible. The Subdistrict was not only opposed to helping finance Azure but also resisted the River District's attempts to amend the earlier decrees — an effort to force the West Slope into negotiations regarding Windy Gap.⁸⁴

Negotiations resumed again in March of 1977, with the River District still seeking support for Azure. The Subdistrict, however, argued that engineering evaluations of Azure indicated that the feasibility of the project was questionable at best. Later that spring the

MSD offered the West Slope \$1 million toward a West Slope storage project and 2,000 acre-feet/year of Windy Gap water for use in Middle Park. The West Slope rejected the offer, holding out for a compensatory storage facility, and it was quickly withdrawn by the Subdistrict. In July of 1977 the Subdistrict board unanimously decided it would no longer consider any type of participation in the Azure project. Both sides again became entrenched.⁸⁵

Time was becoming an increasingly critical factor for the Windy Gap project. By 1979 inflation had reached nearly 13 percent, making continued delays more expensive.⁸⁶ MSD attorney Sayre attempted to facilitate the process by contacting several Colorado Supreme Court justices about expediting the lawsuit, but to no avail. By 1977 Judge Stewart had recovered from his stroke and returned to the bench, but he faced an enormous work load related to the federal government's reserved rights case. It was unlikely a ruling on Windy Gap would be rendered anytime soon. As a result, Sayre requested the Windy Gap case be assigned to another judge.⁸⁷ In early 1978 the case was reassigned to Judge Lohr of Water District 5, and on February 23, 1978, the Subdistrict finally obtained a conditional decree, more than a decade after the original filing.⁸⁸ As expected, the River District quickly appealed the decision to the Colorado Supreme Court. Unfortunately, a decision from the court was held up for more than a full year when the water court in Glenwood Springs inexplicably lost the case records, necessitating their full re-assembly.⁸⁹

With the adjudication process again stalled, the situation appeared favorable for further negotiations. In a blow to the CRWCD during the fall of 1978, a court ruled that the Azure power plant decree had been abandoned. A new priority date would have to be sought. Although negotiations again resumed between the West Slope and the Subdistrict, no breakthrough occurred. Both sides were confident of a favorable state supreme court ruling

and were willing to wait.

The ruling came on September 17, 1979, when the Colorado Supreme Court reversed the lower court decision, noting that the Subdistrict had failed to comply with the 1937 Water Conservancy District Act to protect the water needs of the Colorado River basin. This decision rejected the Subdistrict's assumption that Green Mountain reservoir fulfilled the Water Conservancy District Act's compensatory storage requirement for Windy Gap. The court reiterated that any plan for transmountain water diversion must ensure no cost increase to West Slope water users. The case was remanded back to the lower court with directions for further proceedings. Rather than deny outright the conditional decrees granted to Windy Gap, the court stated that the plan for the project must address the water needs of the West Slope.⁹⁰

The Colorado Supreme Court's decision brought the conflict full-circle, returning again to the pivotal issue of West Slope water needs and the issue of compensatory reservoir storage. The Subdistrict and SCWC were dumbfounded. As early as 1969 the SCWC had asked Sayre if the replacement storage pool at Green Mountain reservoir could legally be used to furnish replacement water in the event additional water was diverted through the CBT system. Sayre had responded affirmatively that the studies leading up to Senate Document 80 were predicated on the full diversion of 310,000 acre-feet of water and that the Green Mountain pool would fully cover West Slope entitlements for East Slope diversions up to that amount. Sayre added that additional diversions through the CBT system up to the 310,000 acre-feet would not encroach upon present *or future* (emphasis added) water needs in the Colorado River basin — water in Green Mountain provided the necessary protection. The MSD and the NCWCD had always believed Senate Document 80 entitled the CBT to divert the full 310,000 acre-feet annually. Thus, the Colorado Supreme Court decision came as a

complete shock.⁹¹

The River District, however, had objected to the Subdistrict's interpretation of Senate Document 80's compensatory storage requirement from the beginning, insisting that increased diversions via Windy Gap must be offset by additional compensatory water storage. The disagreement had a very long history, going back to the era of West Slope congressman Ed Taylor and the inception of Senate Document 80 in 1937. In 1963, shortly after completion of the CBT project, NCWCD manager Barkley had assured the West Slope that the District would not seek to increase diversions beyond 245,000 acre-feet.⁹² Perhaps Barkley did not foresee a future need for additional water in northeastern Colorado. In any event, by the end of the 1970s, the West Slope believed the East Slope and the District and Subdistrict in particular could not be trusted.

William Nelson, associate editor of the Grand Junction Daily Sentinel, concluded that Windy Gap violated the Colorado Water Conservation Board resolution requiring a moratorium on further federally-funded transmountain water diversions until West Slope water needs had been assessed and protected. A 1971 Grand Junction Daily Sentinel editorial concurred:

Whether or not the plan [Windy Gap] violates the letter of Senate Document 80, it certainly violates the spirit.⁹³

Although Windy Gap was not to be federally financed, the West Slope had legitimate complaints. Fifty years earlier in negotiations over the CBT the West Slope had been promised its future water needs would be safeguarded. During the 1970s and early 1980s the pending oil shale boom in western Colorado had the potential to consume vast amounts of water. West Slope opponents to transmountain water diversion believed these needs as well as environmental issues and compensatory storage must be addressed prior to construction of Windy Gap. The Colorado Supreme Court agreed, forcing the Subdistrict to re-evaluate its

position and make some difficult decisions.

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26. NCWCD associate general manager Darell Zimbelman, interview by author, 12 May 1994, Loveland, Colo.
27. Minutes, SCWC, August 12, 1971.
28. Minutes, MSD, November 8, 1974.
29. *Ibid.*, April 7, 1972.
30. Minutes, SCWC, March 24, 1975.
31. Minutes, MSD, December 12, 1975.
32. *Ibid.*, June 11, 1976, July 9, 1976.
33. *Ibid.*, July 8, 1977.
34. MSD, letter to Six Cities' councils, 14 May 1979.
35. MSD, letter to Colorado Land Use Commission, 22 April, 1977; Grand County Board of Commissioners, letter to Colorado Land Use Commission, 13 May 1977.
36. Minutes, MSD, May 14, 1979.
37. *Ibid.*, May 21, 1979.
38. MSD, letter to Six Cities' councils, 14 May 1979.
39. Minutes, SCWC, May 21, 1979.

40. James C. Klein, "The Windy Gap Project, 1964–1982: A Chronological Description and Promotional Analysis," seminar paper, Public Policy, University of Colorado, Boulder, December 18, 1982.
41. Department of the Interior, Bureau of Reclamation, Draft Environmental Statement on the Colorado–Big Thompson/Windy Gap Projects, Colorado (Denver: Bureau of Reclamation, Region 7, June 1979), i, v–xii.
42. This is often referred to as "firming up" a water right.
43. Colorado–Big Thompson/Windy Gap Projects, Draft EIS Public Hearing, Reporter's Transcript, Middle Park High School, Granby, Colorado, August 2, 1979.
44. Colorado–Big Thompson/Windy Gap Projects, Draft EIS Public Hearing, Reporter's Transcript, Loveland Community Center, Loveland, Colorado, August 3, 1979.
45. Minutes, MSD, August 8, 1979, September 14, 1979, October 12, 1979.
46. The Endangered Species Act, U.S. Code, vol. 16, sec. 1531 (1973).
47. Franck, Green, 106.
48. Neil Stoloff, Regulating the Environment: An Overview of Federal Environmental Laws (Dobbs Ferry, New York: Oceana Publications, Inc., 1991), 75.
49. Longmont Times–Call, 18 February 1981.
50. FWS, memo to USBR, 13 March 1981.
51. Grand Junction Daily Sentinel, 26 April 1993.
52. Vranesh, Colorado Water Law, 816.
53. Mexican Water Treaty 1944, Statutes at Large, 59, sec. 1219, treaty series 994 (1944).
54. Colorado River Basin Salinity Control Act, U.S. Code, vol. 43, sec. 1591 (1974).
55. Grand Junction Daily Sentinel, 26 April 1993.
56. Tyler, Last Water Hole, 408–409.
57. Vranesh, Colorado Water Law, 796–799.
58. Minutes, SCWC, February 10, 1975.
59. Minutes, MSD, June 9, 1978; Loveland Reporter–Herald, 22 July 1978.
60. Environmental Defense Fund v. Costle, 449 U.S. 1112 (1980).

61. Vranesh, Colorado Water Law, 1800.
62. Tyler, Last Water Hole, 409.
63. Minutes, MSD, June 9, 1978.
64. Vranesh, Colorado Water Law, 1801.
65. NWCCOG contains six West Slope counties: Eagle, Grand, Jackson, Pitkin, Routt, and Summit.
66. Vranesh, Colorado Water Law, 829–830.
67. Minutes, MSD, March 9, 1979, April 6, 1979.
68. For a full discussion of the 1980 Windy Gap Settlement Agreement see Chap. IV.
69. Minutes, MSD, December 8, 1978.
70. Colorado. Minimum Streamflow Statute, Revised Statutes (1973) 37–90–102(3), supp. 1985.
71. Vranesh, Colorado Water Law, 793, 706.
72. Boulder Daily Camera, 2 July 1974; Minutes, MSD, June 14, 1974.
73. Minutes, MSD, June 14, 1974, September 13, 1974, December 13, 1974; Loveland Reporter–Herald, 25 March 1975.
74. Transcript of Hearing on Motion for Summary Judgement, Colorado River Water Conservation District v. U.S.A., et al, Civil No. 74–W–448, 42–49.
75. Loveland Reporter–Herald, 19 May 1977; Klein, "Chronological," 15.
76. Colorado River Water Conservation District v. Municipal Subdistrict, NCWCD, 198 Colo. 352 (1979).
77. Minutes, MSD, June 14, 1974.
78. Minutes, MSD, February 14, 1975; Grand Junction Daily Sentinel, July 21, 1976.
79. Minutes, MSD, January 10, 1975.
80. Minutes, MSD, April 4, 1975, May 9, 1975, July 11, 1975.
81. *Ibid.*, December 12, 1975.
82. *Ibid.*, January 9, 1976, April 2, 1976, September 10, 1976, August 13, 1976.

83. Ibid., October 10, 1976.
84. Tyler, Last Water Hole, 388.
85. Minutes, MSD, April 1, 1977, May 13, 1977, July 8, 1977.
86. Garraty, Nation, 920.
87. Minutes, MSD, August 12, 1977, January 13, 1978.
88. Triangle Review, 15 March 1978.
89. Minutes, SCWC, August 28, 1978.
90. Tyler, Last Water Hole, 389.
91. Davis, Graham, Stubbs, letter to SCWC, 6 October 1969.
92. Tyler, Last Water Hole, 358.
93. Grand Junction Daily Sentinel, 31 October 1971.

In light of the Colorado Supreme Court decision regarding Windy Gap, the Subdistrict and SCWC weighed their options. The Subdistrict contemplated continued litigation in Division 5 Water Court where the case had been remanded, but this alternative undoubtedly would have been protracted and costly. Another option was pursuit of further negotiations with the West Slope. The six cities also pondered re-filing for conditional water rights independent of the MSD application. Friction had occasionally marred the relationship between the SCWC and the Subdistrict over the proceeding decade. In addition the Subdistrict considered legally challenging the constitutionality of the Water Conservancy District Act's compensatory storage requirement — ironic considering that the District had been instrumental in passing the original legislation in 1937. Finally, the MSD could have abandoned the 1967 appropriation date and begun the entire process over again. However, this would have cost the Subdistrict its 1967 priority date. Ultimately the expense of further delay hastened a decision.¹

The Subdistrict Board, meeting in executive session, decided to negotiate with the West Slope perhaps because it felt the best chance for success lay in this direction. The Colorado Supreme Court decision dictated the course of action — concessions to the West Slope. Accordingly, the interests and expectations of the West Slope, Subdistrict, and SCWC

were reviewed to find areas of mutual agreement. The MSD set the following conditions for arbitration: (1) Middle Park's water needs must be specified; (2) the amount of money required by the CRWCD for a compensatory storage project must be quantified; and (3) salinity mitigation in the Colorado River basin would not be an item for negotiations. The Subdistrict believed there were too many unknowns regarding the salinity issue to include it in negotiations. Windy Gap's contribution to the problem would be, at most, incremental.²

Negotiations began in December of 1979 and continued almost daily for five months. The Colorado Supreme Court facilitated the process and allowed more time to negotiate by extending the deadline for the CRWCD to file a petition for a re-hearing. The negotiation teams met on both the East and West slopes. Early on it was evident to the MSD that the first major hurdle would be overcoming heavy local opposition in Grand County and the MPWCD. The county's Board of Supervisors had enacted land-use regulations restricting transmountain water diversions. In addition, ranchers located downstream of Windy Gap feared that the project would lower levels in the Colorado River, thereby wrecking havoc upon local water diversion structures and pumps.³

The negotiation process involved the Subdistrict, River District, Middle Park Water Conservancy District, Grand County, Hot Sulphur Springs, Granby, NWCCOG, and other interested citizens. This diverse group illustrates the complex nature of the negotiation process for Windy Gap, particularly when compared with the CBT negotiation process fifty years earlier. By January of 1980 negotiations had led to a draft agreement. A month later the proposal was in its ninth version. By March only three areas of difficulty remained: (1) water quality issues in the Three Lakes Sanitation District (Lake Granby, Shadow Mountain Reservoir, Grand Lake); (2) minimum streamflows in the Colorado River below Windy Gap; and (3) the amount of money required for a West Slope compensatory facility. The final

Windy Gap–Azure Settlement Agreement (1980 Agreement) was signed by the CRWCD April 29, 1980.⁴ The agreement’s success hinged on the acceptance of it by all Windy Gap allottees. It would have been voided without their signatures. With the 1980 Agreement finalized, the Colorado Supreme Court remanded the case back to District 5 Water Court in Glenwood Springs where Judge Gavin Litwiller approved the agreement. On October 27, 1980, the Subdistrict finally obtained the conditional decrees for Windy Gap water originally filed for by Ralph Price in 1967, more than thirteen years earlier.⁵

The 1980 Agreement included the following stipulations. First, within one year of initiating Windy Gap construction the Subdistrict agreed to: (a) pay Grand County \$25,000 for Colorado River salinity studies; (b) compensate the town of Hot Sulphur Springs for improvements to the town’s water and wastewater facilities in the amount of \$420,000; and (c) construct improvements or replacements for rancher’s water diversion structures and headgates located on the Colorado River below the Windy Gap site, or compensate ranchers who declined such improvements. Second, the Subdistrict agreed to provide 3,000 acre–feet of water annually from Lake Granby for use in Middle Park.⁶ Third, the MSD acknowledged that Green Mountain Reservoir provided no replacement storage for Windy Gap and pledged compliance with Senate Document 80. Fourth, the Subdistrict agreed to divert water only in priority, and to subordinate the Windy Gap decrees to *all present and future* (emphasis added) in–basin irrigation, domestic, and municipal — excluding industrial — uses on the Colorado and Fraser rivers and their tributaries above the Windy Gap site. Fifth, the MSD agreed to a water quality classification standard for the Three Lakes Sanitation District.⁷ Sixth, the Subdistrict pledged to contribute a proportional share of Colorado River salinity mitigation costs and provide a continuous bypass of water at Windy Gap for minimum streamflows and rancher’s diversions downstream, thereby addressing aquatic wildlife concerns. Finally, and

perhaps most importantly, the Subdistrict agreed to pursue and help the CRWCD construct the Azure project. If Azure was not built within fifteen years of the settlement or if the MSD and CRWCD mutually agreed Azure was infeasible and not worth pursuing, an alternate, compatible facility would be constructed, or a cash payment would be made to the West Slope.⁸

The 1980 Agreement undoubtedly added to the cost of Windy Gap, particularly the Subdistrict's concession to construct the Azure Project, which was estimated at \$35 million. However, even with the additional costs and work, Windy Gap water was still worth pursuing. Too much time, effort, and money had been spent to abandon the project. Water costs on the Front Range were quite high and Windy Gap water was still estimated to be cheaper than CBT water even with the additional cost of Azure.⁹

Following the settlement the MSD worked to fulfill its obligations. As early as 1978 the Subdistrict had met with ranchers in the Kremmling area along the Colorado River who were concerned about the Windy Gap project. Many of the ranchers' water diversions were pumps which had been originally installed by the USBR as part of the CBT project's Senate Document 80 requirements to the West Slope. Diverting water at Windy Gap had the potential to decrease water diversions from the Colorado River between the dam site and the town of Kremmling. The ranchers were worried that Windy Gap would adversely affect their senior rights and wanted some sort of compensation or guarantee this would not occur.¹⁰ Although this fear was unfounded, as Colorado water law protects senior diverters from harm by junior appropriators, the Subdistrict agreed to help.

Over the next several years the ranchers' diversions were analyzed by the Subdistrict. Some required modification while others did not. The Subdistrict agreed to give the ranchers a choice of either diversion improvements or a cash settlement. Most chose to have their

diversion structures or pumps modified so that each ranch could continue to divert its full entitlement during Windy Gap operation. Following the 1980 Agreement, the modification work began and was completed in May of 1983 at a total cost of approximately \$600,000.¹¹ Rancher Bill Thompson, who had the Subdistrict modify his headgate, was philosophical about Windy Gap and the practice of transmountain water diversions:

I'd hate to see a bare–minimum flow in the Colorado River [below Windy Gap], but what can you do? Change the whole state water priority system?¹²

Perhaps Thompson realized the water law system which ensured that his water decree was senior to Windy Gap was the same system which allowed for the transmountain diversion of water and construction of Windy Gap.

A major part of the 1980 Agreement concerned minimum streamflows and endangered species. The initial passage of both a minimum streamflow statute and listing of the Colorado squawfish and Colorado humpback chub as endangered species had significant repercussions for Windy Gap. As part of the negotiation process leading to the 1980 Agreement, meetings were held between the MSD, Colorado Division of Wildlife, and U.S. Fish and Wildlife Service (FWS) regarding minimum streamflows below Windy Gap.¹³ Also called bypass flows, they refer to the minimum amount of water continuously released below a dam and into a river. At first the Colorado Division of Wildlife insisted on a bypass flow of 100 cfs below Windy Gap, while the MSD's studies suggested a flow of only 85 cfs would be necessary.¹⁴ A compromise of 90 cfs was finally reached.

In February of 1981, following the 1980 Agreement, the Subdistrict met with the FWS to discuss the impact of Windy Gap on endangered species in the Colorado River basin. The issue was of vital importance to the MSD. Federal regulations required the FWS to issue an opinion on whether Windy Gap jeopardized the continued existence of the endangered Colorado squawfish and humpback chub. In addition, the Windy Gap Carriage Contract

required the Subdistrict to ensure that all NEPA requirements were met before construction began. This commitment included compliance with the ESA, and therefore necessitated a non-jeopardy opinion for Windy Gap by the FWS.¹⁵ An unfavorable opinion could have halted the project. In early March of 1981 a special MSD board meeting was held to consider measures proposed by the FWS to help mitigate the alleged adverse effects of Windy Gap on the endangered fish. An earlier FWS memo had indicated that the agency would probably issue a non-jeopardy opinion if the Subdistrict undertook the suggested measures. The approximate cost of the mitigation was \$550,000, and the Board voted to adopt the measures because its options — for example, litigation — were few.¹⁶ Once again progress hinged upon an environmental issue, and the MSD's willingness to concede or oppose it.

The FWS released a non-jeopardy opinion, stating that the minimum streamflows agreed to in the 1980 Agreement were adequate to protect the habitat of the endangered species. This settlement between the MSD and FWS also required the Subdistrict to contribute \$100,000 for a habitat manipulation project for the endangered fish, and \$450,000 over three years for field research and habitat evaluation.¹⁷ The FWS hoped that this research would help determine the optimal habitats for the fish and methods to preserve and enhance them.

Large water projects have been some of the most frequently identified factors contributing to the decline of the Colorado squawfish and humpback chub throughout the Colorado River basin. Projects such as Hoover and Glen Canyon dams have drastically altered flow patterns, water quality, and river channel characteristics, eliminating critical species habitat.¹⁸ The FWS still expected Windy Gap to speed the decline of the two species of endangered fish, but the mitigation efforts to which the Subdistrict had agreed lessened the impact enough to justify a non-jeopardy opinion. In the same fashion, the Subdistrict insisted

the settlement with the FWS did not imply MSD acknowledgement of guilt — Windy Gap, according to the Subdistrict, did not harm the endangered fish in any appreciable manner.¹⁹

In fact, it was generally agreed that Windy Gap alone posed little threat to endangered fish in the Colorado River basin. After all, the average annual water diversion of Windy Gap was anticipated to be 48,000 acre-feet — only a fraction of many larger diversion projects in the basin. What disturbed the FWS was the *cumulative effect* (emphasis added) of water diversion projects. Over half a million acre-feet of water is diverted out of the Colorado River basin annually — just in Colorado. Windy Gap happened to have the fortune — or misfortune — of being planned and developed during the modern environmental movement and was thus a logical and easy target for environmental mitigation measures.

Other water diversion projects and large dams already in existence had not been asked for similar sacrifices by the FWS. It was this inconsistent enforcement of environmental penalties which disturbed both the Subdistrict and the SCWC. As NCWCD manager Simpson pointed out, it was largely the "Upper Colorado River Basin [which was] paying to create habitats for endangered fish while the Lower Basin [had] no similar burden."²⁰ Even though major dams and diversions existed on the lower Colorado River where the squawfish was either endangered or already extinct, only Windy Gap and the MSD were targeted for endangered fish mitigation.

By 1980 most of the additional studies required for the final Windy Gap EIS were nearly completed — in particular the minimum streamflows needed to protect the Colorado River fishery and downstream water rights. Final completion of the EIS awaited signing of the 1980 Agreement so the agreed-upon mitigation measures could be included in the final EIS. This process was delayed until 1981 when the FWS issued its non-jeopardy opinion for Windy Gap. The final EIS was filed by the Bureau with the CEQ. Following a thirty-day

waiting period the EIS became final in June of 1981. This event brought the Subdistrict into compliance with the stipulations of the carriage contract and allowed right-of-way and construction permits to be finally issued.²¹

With nearly all required permits issued, the Subdistrict planned a groundbreaking ceremony for Windy Gap construction on July 11, 1981, at the reservoir site.²² International Engineering Company (IECO) of San Francisco was chosen by the Subdistrict in 1976 to begin design of the Windy Gap project. In its final form, the project encompassed a mile-long, twenty-five foot-high dam on the Colorado River located just below the mouth of the Fraser River. With a capacity of only 320 acre-feet, the reservoir's purpose was to act as a forebay for the Windy Gap pumps rather than for water storage. During spring runoff (April-July) high flows in the river would be collected in the reservoir and pumped immediately through a concrete and steel pipeline nearly six miles to Lake Granby. Western States Construction of Loveland won the general construction contract and Johnson Brothers Corporation of Minnesota had the low bid to lay the pipeline.²³ Following the groundbreaking ceremony, Johnson Brothers began work on the pipeline, but construction soon ceased and was delayed for nearly a full year by an unexpected discovery.

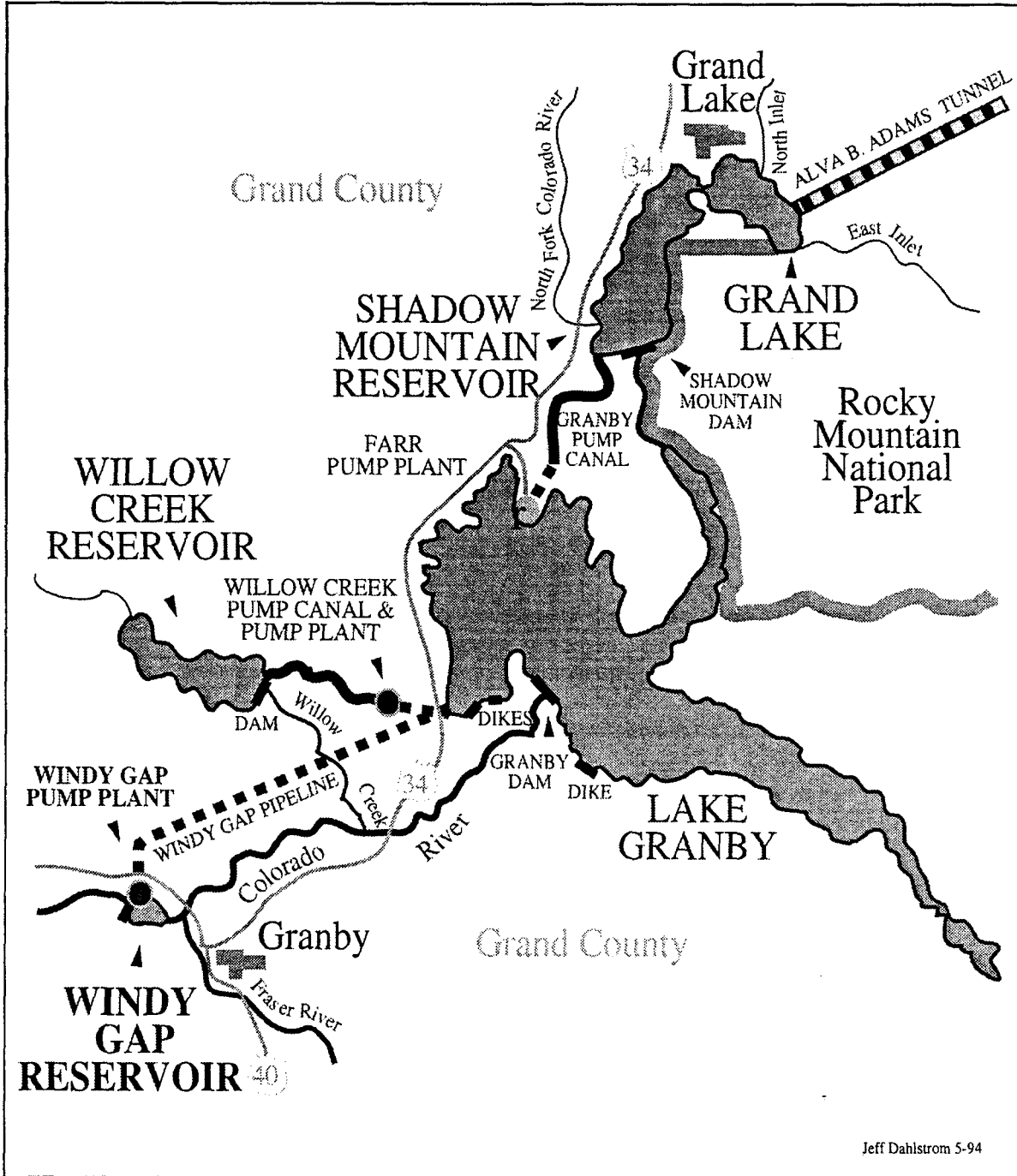
Under the requirements of NEPA, the 1966 National Historic Preservation Act,²⁴ and the carriage contract, the Subdistrict was required to conduct archeological and paleontological studies of the Windy Gap pipeline prior to construction. This stipulation ensured that any significant archeological site would not be inadvertently destroyed in the construction process. In addition, state statutes required the Subdistrict to have an archeologist on the construction site at all times.²⁵ To comply with these requirements, the Subdistrict contracted with Boulder's Western Cultural Resources Management (WCRM). By May of 1981 WCRM had identified a number of test excavation sites and had begun work. There was startling news

from the test sites within the first eight weeks of work. WCRM had unearthed a portion of what appeared to be an ancient adobe wall.²⁶

As early as 1976 the Subdistrict knew that a number of archeological sites existed in the Windy Gap vicinity and might need to be excavated.²⁷ The site of the adobe wall discovery was located along the pipeline on the privately-owned Horn Ranch. The wall was constructed out of daub, an adobe-like substance used in ancient construction of walls and shelters. Also found at the first site were a small fire pit and jasper quarry. As part of routine practice, WCRM performed a carbon-dating analysis of the wall to determine its age, expecting it to date back approximately 1,000 years. Archeologists were astonished to discover that carbon-testing dated the wall from 6,000 to 8,000 years old. Never before had an adobe (daub) wall that old been discovered.²⁸ News of the find exhilarated the archeology community. WCRM employees were particularly delighted as it was of national and even international significance.

The Subdistrict, in comparison, viewed the find with mixed emotions. Certainly it was of major importance archeologically; however, a find of this importance could only delay Windy Gap and increase its costs further. Construction on the pipeline was halted and it quickly became apparent that the entire area was of major archeological importance. WCRM continued excavating and six additional sites were discovered within a few months, quickly over-extending the Subdistrict's initial archeological budget of \$130,000.²⁹

By the end of 1981 the Subdistrict had spent nearly \$250,000 on archeological work for Windy Gap. The discovery of additional sites, some of which were eligible for placement on the National Register of Historic Places, spurred the MSD to seek alternative sources of funding. The Subdistrict began by writing to Secretary of the Interior James Watt, requesting that the Department of the Interior (DOI) help fund the work. WCRM had indicated to the



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Subdistrict Board that an additional \$500,000 would be needed to fully analyze the sites already located.³⁰ When cold temperatures and inclement weather set in and no response was received from DOI, a winterized shelter was hurriedly constructed over one of the larger sites, enabling WRCM's work to continue. In January of 1982 the Subdistrict wrote to the interior secretary again. Watt replied, explaining that because so many of the sites were on private rather than federal lands, the federal government had no jurisdiction over them and thus no source of funding.³¹ However, Watt had taken a personal interest in Windy Gap. He suggested private funding might be available through the Smithsonian Institute, National Geographic Society, National Academy of Sciences, or other sources.³²

By April of 1982 the weather had improved enough to allow construction on the pipeline to resume. The Subdistrict agreed to work with Johnson Brothers and WCRM to avoid archeological sites still being excavated. Simpson reminded the MSD Board that neither the USBR nor the DOI had jurisdiction over the Horn Ranch archeological sites and that the Board had voted earlier to resume construction if no additional funding sources could be found. Fortunately, some additional financial support did materialize — \$50,000 from the National Trust for Historical Preservation, \$30,000 from the National Geographic Society, and another \$6,000 from various sources.³³

All the additional funding was spent by July of 1982. Most of it was used to finish work on the sites deemed most valuable or located in the pipeline route and scheduled for destruction. Other sites which were not in immediate danger were marked, reburied, or otherwise preserved for future excavation. WCRM finished its site work in mid-July. Nearly one ton of daub foundation material had been removed to its Boulder laboratory for further study. Although only a representative sample of the sites along the pipeline were excavated, the knowledge gained added immeasurably to Colorado's archeological record.³⁴

In all, forty-two archeological sites were found in the vicinity of Windy Gap in Middle Park. The archeology of the area proved to be incredibly rich. In addition to the discovery of daub features, fire pits, hearths, and chipped stones, a rare feature for the Rocky Mountain region was found — wattle and daub structures at two sites. This type of construction (post and adobe) was used 4,000 to 8,000 years ago in Middle Park. Before the Windy Gap discoveries, archeologists had believed roving aboriginal groups of people inhabited the area only during warm seasons. The existence of wattle and daub construction changed this perception, as wattle and daub implies a more permanent occupancy. Thus, the site was probably occupied on a year-round basis. The wattle and daub structures discovered in Middle Park are the northern-most sites and at the highest elevation ever recorded in North America.³⁵

On August 4, 1982, pipeline construction resumed. Johnson Brothers made good progress until cold temperatures and snow shut down work for the year. While the archeological discoveries had slowed work on the pipeline, construction on the Windy Gap dam and pump plant had progressed steadily. By June of 1983 a majority of the pump plant's exterior shell was complete and work on the dam and pipeline was also progressing. The pipeline was ready for testing in November of 1983, and in the spring of 1984 the Windy Gap reservoir was filled for the first time. That fall the pumps were tested and by January of 1985 the entire system was fully operational.³⁶ While all of this construction activity transpired, another matter was competing for Subdistrict time and attention.

Following the 1980 Agreement, the CRWCD expressed its desire to handle all aspects of the Azure project, requesting that the Subdistrict simply turn over funds on an as-needed basis. Because the Subdistrict had a vital interest in pursuing Azure — Windy Gap completion was dependent upon it — the Subdistrict refused, reiterating it must be fully

involved. If the MSD failed to fulfill the requirements of the 1980 Agreement operation of Windy Gap would be jeopardized. By late 1981 the River District and the MSD had decided to jointly file the required application for a Federal Energy Regulatory Commission (FERC) permit for Azure. An FERC permit was required if the project included a hydropower component. The permit process was anticipated to take as long as three years. Environmental studies for the requisite EIS began in 1981, with initial aquatic studies reportedly complete by the end of the year.³⁷

In early 1982 the Subdistrict discovered that the Vidler Tunnel Company was also pursuing a permit for a large dam and reservoir at the Azure site, complicating matters. Sayre reminded the Subdistrict Board that the 1980 Agreement legally required the MSD to proceed with its best efforts to construct Azure or else jeopardize the entire Windy Gap settlement.³⁸ The MSD decided to forego the FERC permit application process, and pursue an FERC license application directly to save valuable time.³⁹ The feasibility of Azure, always questionable, became even more problematic as the analysis of potential dam sites began. By September of 1982 the FERC license application was nearly complete, but by then it was clear that opposition to the Azure plan had increased. River rafters and water recreationalists who valued the white water of Gore Canyon realized that construction of Azure would force them to move out of the canyon to a poorer site downstream. The cities of Aurora and Colorado Springs vocally opposed Azure, fearing somehow that it threatened their joint Homestake water project. Finally, the CRWCD decided against co-signing the FERC license application with the Subdistrict.⁴⁰

The FERC application situation was historically complex. In 1976 both the CRWCD and Vidler Tunnel Company filed permits for the Azure site. In 1979 these applications were combined into a joint application for a permit. When the Subdistrict plan was submitted the

FERC would then choose which plan best developed the water resources of the area. The Subdistrict studied various-sized projects for the site and finally opted for a pump-back storage project with a hydropower component but only two-thirds the size of the original plan.

A pumpback storage project entails construction of two reservoirs, one at a higher elevation than the other. During peak power demand water is released from the upper reservoir to the lower, in the process producing hydropower. During off power periods water is pumped from the lower facility back to the upper reservoir. This smaller version of Azure was necessitated by the Denver and Rio Grande Railroad right-of-way through Gore Canyon and the cost of re-routing the tracks. In addition the River District was dissatisfied with the smaller Azure plan. The CRWCD had plans to sell water from a larger Azure reservoir, and refused to co-sign the FERC application. Thus, the Subdistrict took action alone, submitting the application to the FERC in Washington D.C. in April of 1983.⁴¹

By late summer, however, the Subdistrict and SCWC were again quite concerned with the Azure situation. Recent studies of Azure's costs, markets for the hydropower, and environmental mitigation requirements indicated that the project's feasibility was poor. The Subdistrict was worried about spending millions of dollars in engineering, right-of-way permits, and environmental studies only to discover that the project could not be built. The MSD voiced its concerns to the CRWCD and negotiations quietly commenced. Engineering evaluations of alternate reservoir sites on Rock and Muddy creeks appeared much more favorable and cost-effective than Azure.⁴²

Then unexpectedly, the Subdistrict received a proposal from the River District in February of 1984. The CRWCD suggested a lump-sum cash settlement in lieu of Azure construction. The proposal was for a one-time payment to the CRWCD by the Subdistrict for

\$15 million. Once the payment had been made, the Subdistrict would have no further obligation to construct, operate, or maintain a West Slope water project for the benefit of the West Slope.⁴³ The Subdistrict quickly replied that negotiations should commence, countering the CRWCD proposal with an offer of \$12 million. Negotiations, sometimes contentious, continued for over a year, but by the spring of 1985 they had been successfully concluded. In a March 29, 1985, Supplemental Agreement (to the 1980 Agreement) the Subdistrict assented to pay the CRWCD the sum of \$10.2 million. In return, the Subdistrict was relieved of any further obligation to construct a compensatory facility.⁴⁴ This was a huge relief to the Subdistrict, which had seriously questioned the success of Azure. The Supplemental Agreement removed this worry and allowed the MSD's energy and attention to focus on completing Windy Gap.

With a supplemental agreement finally signed and construction complete by late spring of 1985, the Subdistrict planned a dedication ceremony for June 29, 1985, at the Windy Gap pumping plant. The event was attended by approximately 500 people, nearly half residents of the West Slope. Several dedication speeches praised the spirit of cooperation between West and East slopes and stressed the amount of time and money it had taken to complete Windy Gap. Negotiations had certainly played an important part in the ultimate success of the project, just as they had when the East Slope had pursued the CBT project nearly half a century earlier. Without this cooperation Windy Gap might never have been built. Even with the West Slope's collaboration, however, two decades elapsed between Windy Gap's inception and its completion. The price tag ballooned from a 1957 estimate of \$8.4 million to \$107 million! All of which begs the question: Could Windy Gap or any major transmountain water diversion project be built today?

ENDNOTES

1. Minutes, MSD, October 12, 1979; Minutes, SCWC, September 24, 1979.
2. Untitled, undated memo, NCWCDA.
3. Sayre, "Case Study," Minutes, MSD, December 14, 1979.
4. Minutes, MSD, January 1, 1980, February 8, 1980, March 14, 1980, April 4, 1980, April 30, 1980.
5. Ibid., June 13, 1980, November 14, 1980.
6. This water for Middle Park is the first 3,000 acre-feet pumped each year by Windy Gap. However, the provision is nullified if water is not pumped in any given year.
7. The issue of water quality in the Three Lakes Sanitation District had been a concern for years. Beginning in 1956 the EPA recorded high phosphorus and nitrogen (P&N) levels in the lakes. P&N loading had historically led to severe algae problems. With the construction of a new wastewater treatment plant at Granby, there was concern this effluent would find its way via Windy Gap into the Three Lakes system, exacerbating the water quality problem. The Granby plant was not designed to reduce P&N concentrations. NWCCOG and environmental groups suggested the Windy Gap pipeline be regulated as a point-source of pollution, thereby requiring a federal discharge permit — something which has not occurred to date. See USBR Memo, 18 April 1977, NCWCDA.
8. 1980 Windy Gap–Azure Settlement Agreement, 30 April 1980. In 1985 the MSD provided the West Slope with a cash payment in lieu of Azure construction. The CRWCD and other East and West slope entities have begun construction on Wolford Mountain Reservoir on Muddy Creek just north of Kremmling.
9. Tyler, Last Water Hole, 389.
10. Minutes, MSD, October 6, 1978, November 11, 1978.
11. Ibid., May 13 1983, April 3, 1981.
12. Middle Park Times, 8 March 1979.
13. Minutes, MSD, March 14, 1981.
14. Ibid., April 30, 1980.

15. MSD resolution, MS-94-3-81.
16. Minutes, MSD, February 13, 1981, March 3, 1981.
17. The habitat manipulation project's goal was to create alternate spawning grounds for the endangered fish that had been destroyed due to water diversions, dams, and reservoirs. Minutes, MSD, March 13, 1981, Longmont Daily Times-Call, 18 February 1981.
18. FWS, memo to USBR, 13 March 1981, 3.
19. Longmont Daily Times-Call, 18 February 1981.
20. Minutes, MSD, February 10, 1984.
21. Ibid., January 11, 1980, April 4, 1980, June 10, 1981.
22. Ibid., July 10, 1981.
23. Tyler, Last Water Hole, 392, 394.
24. National Historic Preservation Act, U.S. Code, vol. 16, sec. 470 (1966).
25. Minutes, July 10, 1981.
26. Tyler, Last Water Hole, 395.
27. Minutes, MSD, December 10, 1976.
28. Sky-Hi News, 17 September 1981.
29. Minutes, MSD, July 10, 1981.
30. Ibid., January 8, 1982.
31. Minutes, MSD, January 8, 1982, March 12, 1982; Sayre, letter to MSD, 1 March 1982. The Colorado State Historical Society could have imposed permitting requirements on the Subdistrict for archeological sites on the private Horn Ranch, but inexplicably chose not to do so.
32. Tyler, Last Water Hole, 395-96.
33. Fort Collins Coloradoan, 3 August 1982.
34. Ibid.
35. Charles W. Wheeler and Gary Martin, "The Granby Site: Early-Middle Archaic Wattle and Daub Structures," Southwestern Lore (Fall 1982): 24.
36. Minutes, MSD, June 10, 1983, November 11, 1983; Tyler, Last Water Hole, 401.

37. Minutes, MSD, August 8, 1980, October 9, 1981, November 13, 1981.
38. Ibid., January 8, 1982, May 14, 1982.
39. Larry Simpson, "The Azure Project," Speech written May 1985, 3.
40. Minutes, MSD, September 10, 1982; Tyler, Last Water Hole, 398.
41. Minutes, December 10, 1982, April 29, 1983.
42. Minutes, MSD, August 12, 1983, December 9, 1983; Tyler, Last Water Hole, 400.
43. CRWCD, letter to MSD, 3 February 1984.
44. CRWCD press release, April 4, 1985. The \$10.2 million figure was arrived at during negotiation by subtracting all of the Subdistrict's Azure expenses to date from the original \$15 million proposed by the River District.

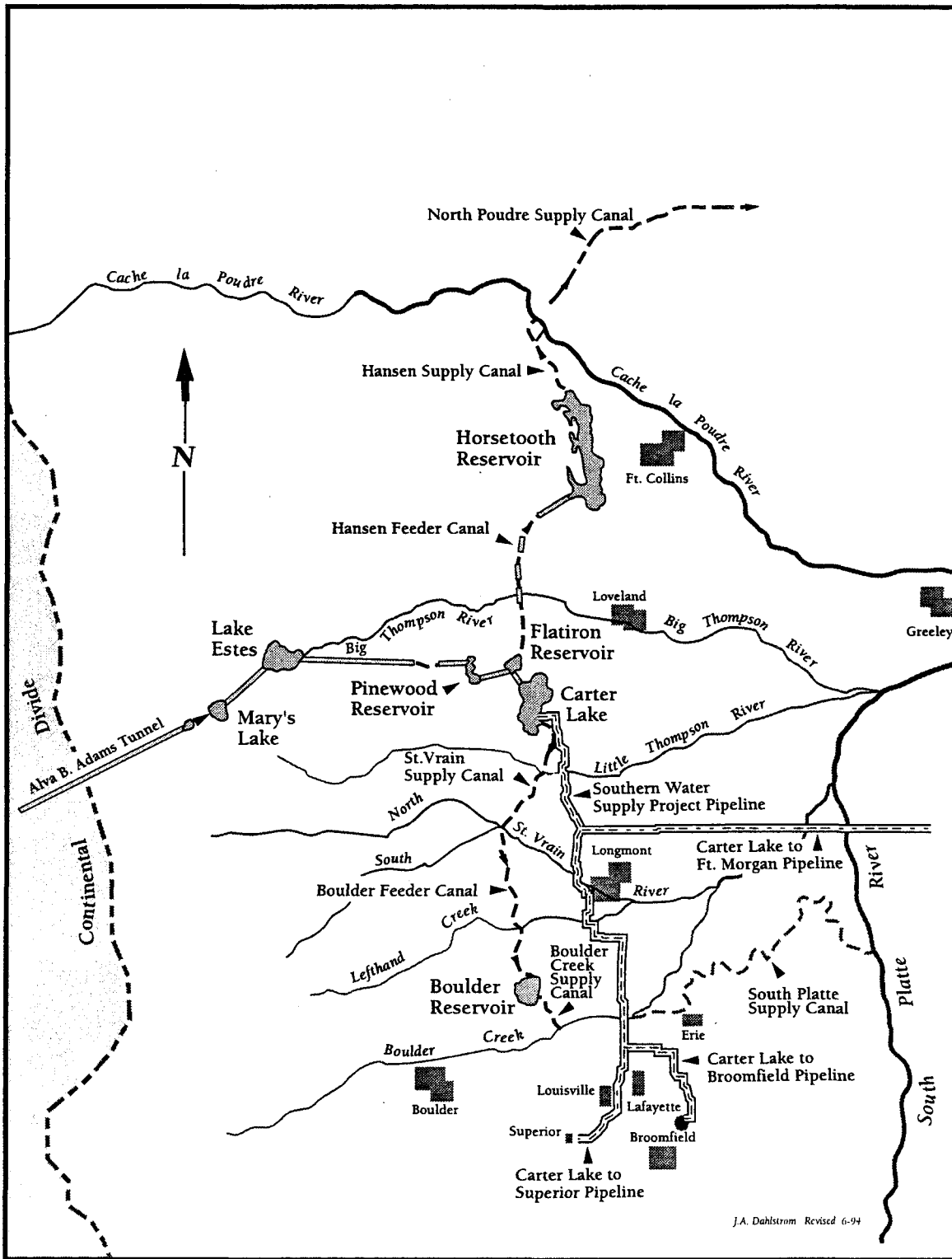
In 1985, the first year of actual Windy Gap operations, project allottees requested nearly 2,300 acre-feet of water. To fulfill this request one of the four Windy Gap pumps ran for just six days, enough to supply the requirements for that year. Between 1985 and 1993 over 92,000 acre-feet of water was diverted by the Windy Gap project. This amount constitutes less than one quarter of the capacity of the Windy Gap system over that nine-year period.¹ The project suffered neither mechanical nor structural problems. Rather, the need for additional water along the northern Front Range did not emerge immediately, and the cost of running the Windy Gap pumps precluded pumping more water than was needed.

This under-utilization of Windy Gap is due to a number of reasons. Colorado and other areas of the United States experienced a severe economic slump when oil prices plummeted in the mid-1980s. Colorado's economy suffered on both East and West slopes as oil companies headquartered in Denver faltered and the oil shale industry on the West Slope collapsed. The anticipated population growth for which Windy Gap was built did not materialize as rapidly as expected, and with it the need to utilize Windy Gap at more than one-quarter capacity. By the late 1980s, however, Colorado's economy began to rebound and it appeared more of Windy Gap's capacity might finally be utilized.

Beginning in 1988, Windy Gap allotments were sold more frequently. Estes Park, which had sold half of its original eighty units to PRPA in 1976, sold an additional thirty-five units to the Superior Metropolitan District — an area undergoing rapid urbanization in southern Boulder County. In 1989 Greeley sold thirteen of its eighty units to Broomfield, a portion of which is also located in Boulder County on the northern edge of the Denver metro area. Today the original SCWC has expanded from six to ten entities.² This exemplifies the growing need for Windy Gap water both for municipal and agricultural use.

Both Superior and Broomfield require year-round delivery of Windy Gap water from Carter Lake. This posed a problem for both the Subdistrict and the NCWCD. The "southern end," as the water delivery area of the District south and east of Carter Lake is known, is the bottle-neck of the CBT system. When the CBT project was originally designed, 85 percent of the anticipated water deliveries were for agriculture, most of those to the Poudre, Big Thompson, or lower South Platte valleys. Thus, the outlet works and canals which deliver water south and east from Carter Lake were smaller than their counterparts at Horsetooth Reservoir on the north end.

As early as 1968 NCWCD manager Barkley recognized the impending need for expanded, year-round water delivery from Carter Lake. Barkley's observation was in response to concerns from municipalities, rural-domestic water providers, and industries taking delivery of CBT water below Carter Lake. The 1968 District board meeting minutes reveal a discussion regarding the merits of a pipeline to assure adequate year-round water deliveries from Carter Lake.³ Nearly twenty-one years later, in June of 1989, the District and Subdistrict authorized a study of northern Front Range water supplies, including the northern edge of the Denver metro area. This study was urgently needed. Growing demand for new water supplies from the northern Denver suburbs was a major issue for northern



C-BT, East Slope Facilities and SWSP

Colorado. The District and Subdistrict were concerned Denver might attempt to make claims on CBT or Windy Gap water, something the NCWCD was prepared to resist.

In 1989 Denver's attempts to construct the massive Two Forks Dam on the South Platte near Deckers appeared to be headed for defeat due to environmental concerns. If Two Forks was never constructed, the possibility of diverting additional water from the West Slope through Denver's Robert's Tunnel would also be impaired. The Roberts Tunnel has excess capacity to carry additional water eastward. However, Denver currently has no East Slope facility to store the additional water. The Army Corps of Engineers approved a permit for construction of Two Forks in 1989, but in November of 1990 EPA director William Reilly refused to authorize the dam on environmental grounds.⁴

The defeat of Two Forks in 1990 was a blow to Denver, but even more—so to some of its water—short suburbs such as Aurora and Thornton. With Two Forks construction questionable even in the early 1980s, Aurora had decided to purchase agricultural land and water rights in the Arkansas Valley. Though not the first municipality to do so, Aurora's actions along with earlier agricultural—to—urban water transfers dried up thousands of acres of irrigated land in Crowley, Otero, and Park counties in the Arkansas River basin.⁵ The city of Thornton, one of Denver's northern—most suburbs, had committed to a larger share of the Two Forks project than any other suburb. By the mid—1980s, however, the city had shrewdly anticipated the high cost and possible defeat of Two Forks and began looking for an alternate source of water. In 1985 Thornton secretly began to purchase agricultural land and water rights in Weld and Larimer counties in the Poudre River Valley. The plan was to pipe the water from Larimer County sixty miles south to Thornton. By 1986 the city had spent \$60 million for 21,000 acres of farmland and water rights.⁶ Thornton's actions disturbed the NCWCD and other water entities in northern Colorado who considered it a water raid. Had

not Windy Gap had been planned, pursued, and constructed in part to avoid just this kind of situation? Thornton, however, was neither a SCWC member nor located within the District or Subdistrict boundaries. Unlike Broomfield, the city was not eligible to receive CBT or Windy Gap water.⁷ Colorado's constitutional provisions and legal system of water rights allowed Thornton to proceed with its plan. However, as in many water disputes, the result was a sometimes ugly and expensive legal battle between Thornton, the District, and other northern Colorado water entities.

A 1989 study of northern Front Range water supplies commissioned by the District and Subdistrict was in part a response to the actions of Aurora and Thornton. The NCWCD and MSD expected the water demands of metro-Denver to increase and wanted northern Colorado to be prepared. Objectives of the study included enhancing water availability and maintaining existing water supplies. The study assessed the feasibility of expanding regional cooperation among water users and identifying ways to increase the efficiency of water use. One direct result of the study was the NCWCD's Southern Water Supply Project (SWSP).⁸ Currently under construction, the SWSP consists of a 32-mile pipeline from Carter Lake which will deliver CBT and Windy Gap water south through Boulder County to Broomfield. Branch lines will transport water east to Fort Lupton and Hudson, with additional connecting lines to other participants.⁹ The SWSP grew out of the 1989 water study, the need for additional water deliveries at the southern end, and, in particular, the water quality problems of a number of communities¹⁰

Broomfield's participation in the SWSP is a direct result of contamination of its main source of water — Great Western Reservoir located northwest of the Denver metro area in Jefferson County. The threat of plutonium contamination from the Department of Energy's Rocky Flats Nuclear Weapons Plant has necessitated the abandonment of Great Western for

an alternate supply. The impending cleanup of Rocky Flats and resulting soil disturbance on such a large scale threatened Broomfield's water supply.¹¹ In a similar predicament, the towns of Fort Lupton and Hudson have been ordered by the Colorado Department of Health to cease use of their municipal groundwater supplies in the South Platte Valley due to violations of the Safe Drinking Water Act. The water supplies of both towns have been contaminated by high levels of nitrates. Construction of the first phase of the SWSP pipeline to Broomfield began in April of 1994 and is scheduled for completion in the summer of 1995 at a cost of \$68 million.¹²

The recent sale of Windy Gap allotments to Superior, Broomfield, and other entities, the resulting increase in the number of Windy Gap allottees, and construction of the SWSP illustrate the growing need for Windy Gap water, more than thirty years after the project was first envisioned. While Windy Gap did not prevent Thornton from pursuing a large agricultural to urban water transfer in the Poudre basin, it should help forestall such actions by municipalities within MSD and NCWCD boundaries which have access to project water. However, this will not prevent others like Thornton located outside the boundaries from following Thornton's example. Colorado's water law system allows for such transfers, and the state constitution prioritizes water use in the following manner: (1) municipal; (2) agricultural; and (3) industrial. Thus, as the urban population of Colorado continues to grow, northern Colorado has only to look at the Arkansas Valley to see where its future may lie. This also raises an important question: Can Denver and its suburbs use the state constitution to legally condemn agricultural shares of CBT water, compensate the irrigators, and divert the water for municipal use?

As exemplified in the development of Windy Gap, the process of planning and constructing transmountain water diversion projects is often a litigious process. Critics of

Colorado's Prior Appropriation Doctrine argue that what Colorado needs is a state-wide conceptual water plan and central coordination of supplies. The state's system of water regulation is statutory-based. As mentioned in Chapter II, the 1969 Water Right Determination and Administration Act divided the state into seven water divisions, with a water court in each to allocate water and resolve disputes over surface and tributary groundwater supplies. Thus, in Colorado, water courts handle the allocation, resolution, and transfer of water rights, while the State Engineer's Office has control over the distribution, management, and administration of the state's water resources.

Critics of this system point to Wyoming, where a state board of control handles all of these responsibilities and a water dispute goes to court as a last resort, making the process of obtaining a Wyoming water permit much simpler. The Wyoming process does not require a lawyer, engineer, hydrologist, or the capital often necessary here in Colorado.¹³ One argument has been that a strong state engineer-manager system like Wyoming's would enable Colorado to utilize its water more efficiently, particularly for irrigation. However, this ignores the fact that return flows from irrigation are utilized many times before flowing out-of-state. It should also be pointed out that Wyoming is a sparsely-populated state with a much less complicated water regulation system than Colorado. Many see nothing wrong with the current priority system, and argue that rather than trying to change Colorado's system — one which has operated for over 130 years — critics should work to correct problems within the present system.

Windy Gap is the most recent major transmountain water diversion project to be built in Colorado. As mentioned, the process of planning, pursuit, and final construction took nearly two decades to accomplish. Certainly much of the delay was due to the litigious adjudication process. But the onset of the modern environmental movement and the

proliferation of legislation and regulations cannot be over-emphasized. The Subdistrict had to deal with dozens of environmental laws and federal agencies, and comply with over fifteen different federal, state, and local permits and licenses.¹⁴ In the spring of 1994, for example, the Department of the Interior designated nearly 2,000 miles of the Colorado River and its tributaries as critical habitat for four endangered species of fish — the Colorado squawfish, humpback chub, bonytail chub, and razorback sucker. The designation provides additional protective requirements under the Endangered Species Act, and may further impede future transmountain water diversions.¹⁵

The modern environmental movement has changed not only the practice of constructing water projects in Colorado but the mindset of many Coloradoans. Today many residents are more environmentally aware than two or three decades ago. Polls reveal strong support for environmental protection and a willingness to pay for such measures. Water quality problems such as salinity, groundwater contamination, heavy metals, and agricultural runoff are fairly widespread. Thus, in addition to more stringent regulations that will impact future water projects, public concern (and sometimes opposition) to water diversions has grown as well.

Future water needs in western Colorado will also affect prospective plans for transmountain water diversions. The state is currently undergoing a population boom. In 1993 over 70,000 new residents came to Colorado, the greatest annual population increase since 1973.¹⁶ Unlike some earlier population booms, the Front Range and East Slope are not the only regions experiencing this growth. All across western Colorado communities are struggling to cope with an influx of new residents. Grand Junction and the entire Grand Valley are the focus of this West Slope growth. A study released recently by the Ryder Truck Rental Company reported that Grand Junction was the top city (under a population of

100,000) in the nation for number of incoming versus outgoing Ryder rental vehicles.¹⁷ In March of this year the population of Mesa County passed 100,000, and the city of Grand Junction, with a current population of 32,500 is planning for an influx of nearly 60,000 residents early in the next century.¹⁸

The situation is similar in Montrose and Delta counties. For the first time in its history Montrose County is considering controls to limit and regulate growth. In the Uncompahgre Valley, applications for subdivisions have risen from one-to-two/month in 1991 to more than twenty/month in 1993. Delta County, where new residential and commercial utility permits have doubled since 1990 and septic system applications have more than tripled since 1989, is already limiting such applications.¹⁹ This spring in the town of Carbondale on the Crystal River near Glenwood Springs, the town board considered annexing additional land for construction of 1,100 new homes which would effectively more than double the town's population.²⁰

Also this spring Garfield, Pitkin, Lake, Summit, and Eagle counties formed the Rural Resort Region Forum in an attempt to deal collectively with a recent building boom and population influx. Between 1980 and 1990 the five-county population increased by 33 percent. Eagle County has been hit hardest. The decade of the 1980s saw the county population increase by 60 percent, and the county airport is seeking over \$6 million in FAA funding to construct a new terminal and tower. Building permits for Eagle County set a record in 1993 and will do so again in 1994. This tremendous growth has severely taxed the water supply system. During the summer of 1993 the water treatment plant at Avon operated at 100 percent of its capacity — four years ahead of schedule. Water shortages are a real possibility for the coming summer.²¹

In addition to environmental constraints and West Slope population growth, interstate water demands on the Colorado River will undoubtedly impact the future of transmountain water diversions. The current situation in Nevada is a good example. The city of Las Vegas has recently undergone phenomenal population growth. The Las Vegas metropolitan area now has more than one million residents. Currently the city is supplied by a limited quantity of Colorado River water. In 1922, under the Colorado River Compact, the state of Nevada was allocated only 300,000 acre-feet of Colorado River water from a pool of fifteen million acre-feet. At that time Las Vegas was little more than a dot on the Nevada map. Today, the city and the Colorado River Commission of Nevada are aggressively pursuing at least twenty-seven different proposals to augment the Las Vegas water supply.²²

One such plan is the Roan Creek proposal, involving construction of a \$200 million reservoir and pump-storage project on Roan Creek near DeBeque in western Colorado. The plan is to pump surplus Colorado River water to the reservoir for later release to Nevada. The project would yield approximately 175,000 acre-feet of water each year. The conditional water rights for the project are held by Getty Oil Exploration Company and Chevron Oil Shale Company, both of which would like to lease the water to Nevada for thirty to fifty years until oil shale once again becomes viable.²³

Word of the project became public in January of 1993. Almost immediately the proposal was criticized by Colorado officials, who fear that an interstate water lease of this size could set a dangerous precedent. Historically, Colorado has opposed such interstate water marketing because of what is known as the "Law of the River." The concern is that Nevada's long-term use of the water could potentially lead to a legal right to the water in perpetuity.²⁴ Even if interstate water marketing never materializes, continued demands on the Colorado River from lower basin states will pressure Colorado, which currently holds the largest

unutilized share of Colorado River water in the basin.

The construction of new transmountain water diversion projects in Colorado appears bleak. Environmental issues such as endangered species, salinity, water quality, and minimum streamflows, in concert with West Slope growth and interstate pressures to market Colorado water all weigh heavily against the construction of additional projects. Even if a major project was able to surmount these obstacles, the costs (including the likelihood of additional compensatory storage) would probably bankrupt potential users. Colorado's water law system and the state's constitution continue to allow construction of new transmountain water diversions subject to priority. It seems, however, that this is the smallest hurdle for prospective diversions. Instead, Colorado's East Slope and Front Range will likely look towards more efficient use of existing water and further coordination of such supplies. With water diversion, current technology, and a pattern of exchanges and conservation programs in place, there is ample water in the state to supply more than twice the current population.

If additional West Slope water is brought to the East Slope, it will probably be via more efficient use of existing diversion projects that still have excess capacity — possibly Denver's Moffat and Roberts tunnels, perhaps also the Adams Tunnel. As the Front Range continues to be urbanized, the decline in agricultural land will persist and water used for irrigation will continue to be converted to domestic use.²⁵ This is inevitable, as irrigation in Colorado currently uses approximately 80 percent of the state's total supplies.

Like many controversial topics, opinions regarding transmountain water diversion are frequently polarized. During recent years, water projects have been assailed for their environmental damage and degradation. Many times the criticism has been valid. However, it is crucial to remember that the transmountain diversion of water has made eastern Colorado and the Front Range what it is today — a vibrant mixture of farms, cities, and industry —

much of which could not exist without these water projects. As the West Slope begins to develop more fully, the future challenge for all Coloradans — East and West slope alike — will entail maintaining quality of life while balancing additional growth and environmental concerns throughout the Centennial State.

RECOMMENDATIONS FOR FURTHER WORK

As the demand for clean, reliable water supplies grows across Colorado and the western United States, a comprehensive understanding of transmountain water diversion in Colorado is critical. Managers and others in the field of water resources will be called upon to make important decisions about future water supplies for Colorado's citizens. These decisions should not be made lightly, and could benefit greatly from a better understanding of Colorado's water history. The last 130 years of water development in Colorado can provide important lessons for current and future water use in the state.

This investigation of Windy Gap and transmountain water diversion provides a springboard for further historical water research. Additional work is needed on the environmental movement's impact on water diversions. In particular, a more detailed analysis of the issues of salinity, endangered species, and water quality is required. The historic changes that aquatic environments have undergone due to water diversion needs further study as well. For example, how has the diversion of water from the Colorado River watershed changed the river's aquatic habitat during the past century? How has the addition of diverted water affected the watersheds of Colorado's East Slope?

In addition, water diversion should be examined from the unique perspective of the West Slope. Most historical research on transmountain water diversion in Colorado has been written from the position of eastern Colorado, or only dealt with the West Slope in a

perfunctory manner. Just as Dr. Daniel Tyler's *Last Water Hole in the West* details the history of the Northern Colorado Water Conservancy District, a corresponding history of the Colorado River Water Conservation District would provide a fascinating look at the West Slope's perspective and response to the construction of numerous transmountain water diversion projects during the past century.

Additional questions beg historical analysis: What has the historical response been to severe drought in Colorado and the western United States? What effect would a prolonged drought (like that experienced by Colorado during the 1930s) have on water diversion, irrigated agriculture, or municipal lawn watering within the state, particularly considering the demographic, economic, and institutional changes which have occurred since the 1930s?

This thesis provides a cursory look at the history of Windy Gap and the issues of transmountain water diversion. Given the rapidly changing nature of western water management (from typically isolated water quantity and quality management procedures to a more holistic watershed management perspective), there is a definite need for additional historical analysis of Colorado's water resources.

ENDNOTES

1. Minutes, MSD, July 12, 1985; Windy Gap Records. Between 1985 and 1993 Windy Gap pumped a total of 92,194.2 acre-feet during eight seasons (in 1986 no water was diverted). The system has the capability of pumping more than 400,000 acre-feet during eight seasons (48,000 acre-feet annually).

2. The ten Windy Gap allottees are: Left Hand Water District, Central Weld County Water District, Estes Park, Broomfield, Superior Metropolitan District No. 1, Loveland, Greeley, Boulder, Longmont, and PRPA.

3. Minutes, NCWCD, August 9, 1968.

4. Franck, Green, 308.

5. Tyler, Last Water Hole, 450.

6. Ibid., 448.

7. The city of Broomfield is located in three counties — Adams, Boulder, and Jefferson. Broomfield's share of Windy Gap water may only be utilized within the city's Boulder County section due to District and Subdistrict boundaries. In addition, Broomfield is required to maintain additional sources of water to supply its Adams and Jefferson county sections.

8. NCWCD, MSD, "Draft Report: Regional Water Supply Study," May 1991.

9. SWSP participants include: Little Thompson/Central Weld County Water District, Longmont, PRPA, Berthoud, Fort Lupton, Hudson, Public Service Company, Morgan County Quality Water, Louisville, Superior, Erie, and Broomfield.

10. SWSP Files, NCWCDA.

11. Boulder Daily Camera, 25 October 1993.

12. SWSP files, NCWCDA; Longmont Times-Call, 4/12/94.

13. Personal notes, water law course (EA575, taught by George E. Radosevich) taken by the author, Colorado State University, fall semester 1990.

14. Klein, "Chronological Description," 18.

15. Rocky Mountain News, 23 March 1994; Denver Post, 19 March 1994.

16. Grand Junction Daily Sentinel, 27 March 1994.
17. Ibid., 6 February 1994.
18. Denver Post, 13 March 1994; Grand Junction Daily Sentinel, 27 January 1994.
19. Grand Junction Daily Sentinel, 18 February 1994, 27 February 1994.
20. Ibid., 4 March 1994.
21. Ibid.
22. Grand Junction Daily Sentinel, 11 February 1994.
23. Ibid., 30 January 1994.
24. Rocky Mountain News, 21 February 1993.

25. Note that although irrigated acreage along the urban corridor of the Front Range continues to dwindle, large areas of irrigated agriculture show no signs of decline further east along the South Platte River.

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LIST OF ABBREVIATIONS

CBT	Colorado–Big Thompson Project
CEQ	Council on Environmental Quality
CRWCD	Colorado River Water Conservation District
DOI	U.S. Department of the Interior
DOW	Colorado Department of Wildlife
DRCOG	Denver Regional Council of Governments
ECI	Engineering Consultants Incorporated
EDF	Environmental Defense Fund
EIS	Environmental Impact Statement
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FERC	Federal Energy Regulatory Commission
FWS	U.S. Fish and Wildlife Service
HUD	U.S. Department of Housing and Urban Development
IECO	International Engineering Company
MSD	Municipal Subdistrict
NEPA	National Environmental Policy Act
NCWCD	Northern Colorado Water Conservancy District
NWCCOG	Northwest Colorado Council of Governments
PRPA	Platte River Power Authority
SCWC	Six Cities Water Committee
SWSP	Southern Water Supply Project
USBR	U.S. Bureau of Reclamation
WCRM	Western Cultural Resources Management
WSSC	Water Supply and Storage Company
WSPA	West Slope Protective Association