Chapter 4. Institutional Setting

Institutions affecting the use and development of water resources include a wide array of water suppliers, government agencies, and special interest groups. The manner is which these institutions will interact with each other, and the general public, on a project of the size and geographic extent of the CRRP is complex. This chapter describes the institutional setting for water use and development in Colorado, initially focusing on the public laws that govern how, or if, projects like the CRRP can be developed. Colorado, interstate and federal agencies, whose regulations and policies define how the natural resource laws are interpreted and implemented, are then described. The chapter concludes with an overview of the funding programs frequently used in developing water supply projects, large and small.

Overview Of Colorado Water Law

Before Colorado was a State, the Territorial court acknowledged that water could be diverted from a stream, and conveyed in a ditch built across others' lands, for beneficial use at a site removed from the stream. This legal right was necessitated by the dry climate of Colorado, and represented a break in philosophy from eastern states' riparian water laws. The Colorado Constitution later elaborated that the unappropriated water of the state belonged to the public; and the ability to divert water "heretofore unappropriated" and apply it to use in order of priority shall never be denied. This constitutional mandate and certain ensuing legislation and court findings form the basis of Colorado's prior appropriation doctrine.

This doctrine holds that while surface waters in the stream belong to the public, the right to use portions of the water arises by putting the water to the appropriator's beneficial purpose. In times of short supply, those who appropriated and adjudicated water earlier are permitted to fill their needs before more junior appropriators. Thus the value of a water right lies in its priority as well as its volume. The user may not expand the time or quantity of diversion beyond that for which the appropriation was originally made. But on the other hand, the user is entitled to protection from injury, meaning actions of others that interfere with the ability to beneficially use water (subject to senior appropriations) in the time, place, and amount of the right.

While the Constitution does not specify what types of uses it considered beneficial, it states clearly that reasonably efficient means of diversion are required in order to avoid wasting the resource. This concept coexists with the notion that there is typically an unconsumed portion of the diversion, which returns to the stream where it must be made available to other appropriators. Downstream users are known to rely on these return flows, which are typically delayed relative to the natural hydrograph. This attenuation of the water supply allows for late summer use, and overall greater use of the limited resource.

Originally, beneficial uses included domestic, agricultural, and industrial uses, but the courts have since recognized a myriad of other beneficial purposes including municipal, power generation, dust suppression, recreation, piscatorial, and augmentation. A 1973 statute authorized the State to appropriate water to maintain minimum flows and lake levels for the protection of the environment to a reasonable degree, thus introducing the concept of a beneficial use that occurs without diverting water from the stream. The court has since recognized instream recreational rights for boat chutes and kayaking courses under specific circumstances.

Issuing of water rights is a judicial matter in Colorado, while day-to-day management and enforcement of the priority system is carried out by staff of the executive branch (the State Engineer's Office). The legislature, shortly after Colorado acquired statehood, established an adjudication process to identify existing rights and allow users to put forth claims for future needs. Today, the court grants water rights and augmentation plans, approves modifications of rights, and reviews diligence for conditional rights as described below. These processes involve hearing and ruling on objectors' protests, or reviewing and approving resolutions reached out of court by the participating parties. In decreeing water rights priorities, Colorado water courts are not free to favor one beneficial use over any other. They are also not allowed to deny water rights based on public interest or environmental grounds.

Traditionally, water rights took the form of either direct diversion rights or storage rights, as the instream flow right was a recent development. Direct diversion rights are generally issued as a rate of flow at which water can be diverted from the stream, although the volume required for the beneficial use has bearing on the allowable rate. The storage right allows the appropriator to impound water when in priority for use when streamflows decrease, a provision essential in the snowmelt-driven hydrology of Colorado. A storage right is generally expressed in terms of a volume that can be stored during one annual cycle.

Regardless of the type of right, a conditional right may be obtained when a user openly demonstrates an intent to place water to beneficial use, even if he has not yet physically applied water to the proposed use. The applicant must show that unappropriated water is available, which may be the case during a small portion of the year or only during some years. These claims are given "conditional" status and bear the priority of the year in which application was made to the Court. To maintain the right, the user must demonstrate diligence in pursuing the project, and must submit this evidence to the court every six years. Once a project is completed and water is put to the intended beneficial use, the conditional right is converted to "absolute" status.

The Constitution declares that when water is insufficient to meet everyone's uses, domestic water use has preference over any other purpose, and that agricultural use has preference to manufacturing use. The Colorado Supreme Court later clarified that this provision does not alter the priority system. It ruled that a water right could be condemned for a city's use provided that just compensation is made to the water right holder. The finding implicitly confirms two other aspects of Colorado water rights: water rights are property, and may be changed in terms of type, location of diversion, and/or location of use.

As real property, like land or buildings, water rights may be sold, inherited, or used as collateral for a loan. The price is determined by the market, based on supply and demand. Typically, when a right is sold, its place of use, point of diversion, and/or type of use change. This is permissible, provided that other water rights are not injured. The transfer process requires that other water users be notified of the change and that they have the opportunity to be heard in court if they believe their rights to be adversely affected. In general, the transfer is limited in time and quantity to the amounts that have been withdrawn and consumed historically, without diminishment of return flows upon which downstream users rely. The court issues a decree which typically specifies terms and conditions under which exercise of the right can now occur, to ensure non-injury to others.

An exchange right allows an upstream diverter to take water already appropriated by a downstream senior diverter, if the upstream party replaces the water at the senior right's diversion point. For instance, a municipality could divert "out of priority" if it also has water in storage positioned somewhere above the senior downstream right. Concurrently with the diversion, the municipality can release water from the reservoir so that the calling right has as much water available to it as it would have had absent the municipal diversion. In order for the exchange to be allowed, the exchange water must also be adequate in quality to meet senior appropriators' requirements of

use, the substitute supply must be legally available to the junior diverter, and no injury can occur to third party water rights in order for the exchange to be allowed. An exchange right is assigned a priority relative to other water rights and exchanges in the same reach of the system, based on the date the exchange is exercised.

Groundwater is administered differently depending on whether it is tributary (connected to the surface hydrologic system) or non-tributary (deep aquifer water that is not connected to the surface system in a measurable way). Tributary groundwater withdrawals are subject to the prior appropriation system, because they pull water from the river or intercept shallow groundwater that would otherwise return to the stream. Tributary groundwater rights are generally junior, as groundwater development did not begin on a significant scale until the middle of the 20th century. A groundwater user can obtain a plan of augmentation that allows him to pump when the well is out-of-priority, as long as he provides replacement water to senior rights that might be affected by this activity. The plan must be approved under a water court decree, and requires the same kinds of conditions against injury as an exchange right.

As early as 1882, Colorado's courts confirmed that the place of use for diverted water may be in a different basin from the diversion point. When water is imported from a basin to which the basin of use is not hydrologically connected within the State, that water can be consumed entirely by the entity that holds the right. Unlike diversions of native water, there is no provision that the unconsumed portion be made available to other appropriators, or that return flows be maintained.

Both statute and case law have articulated certain principles with specific applicability to municipal use of water:

- In 1908, the Colorado Supreme Court reiterated its 1891 determination that cities cannot divert water belonging to senior priorities without paying just compensation.
- In the same case, the court mandated efficiency, stating that "Water is too valuable to be wasted, either through an extravagant application for the purpose appropriated or by waste resulting from the means employed to carry it to the place of use."[1]
- A public entity has a right of condemnation for the conveyance of domestic water, although the town through which the pipeline passes may reasonably regulate maintenance of the pipeline.
- Cities may set water rates for service both inside and outside the city boundaries, and may enter into perpetual water contracts.
- "Great and growing cities" have a broad need to serve municipal water purposes and plan for future development

Interstate River Compacts, U.S. Supreme Court Decrees and Interstate Agreements Affecting Colorado River Water Use

The Colorado River is managed and operated under numerous compacts, federal laws, court decisions and decrees, contracts, and regulatory guidelines collectively known as the "Law of the River." This collection of documents apportions the water and regulates the use and management of the Colorado River among the seven

[1] Town of Sterling v. Pawnee Ditch Extension Co., 94 P.341 (Colo. 1908).

basin states and Mexico. Many regard the Law of the River as a constitution, because it establishes a framework for managing the river. Following is a synopsis of the most significant documents, as presented on the U.S. Bureau of Reclamations Lower Colorado Region web page (www.usbr.gov/lc/region)

- The **Colorado River Compact of 1922** - The cornerstone of the "Law of the River", this Compact was negotiated by the seven Colorado River Basin states and the federal government in 1922. It defined the relationship between the upper basin states, where most of the river's water supply originates, and the lower basin states, where most of the water demands were developing. At the time, the upper basin states were concerned that plans for Hoover Dam and other water development projects in the lower basin would, under the Western water law doctrine of prior appropriation, deprive them of their ability to use the river's flows in the future.

  The states could not agree on how the waters of the Colorado River Basin should be allocated among them, so the Secretary of Commerce Herbert Hoover suggested the basin be divided into an upper and lower half, with each basin having the right to develop and use 7.5 million acre-feet (maf) of river water annually. This approach reserved water for future upper basin development and allowed planning and development in the lower basin to proceed.

- The **Boulder Canyon Project Act of 1928** - This act: (1) ratified the 1922 Compact; (2) authorized the construction of Hoover Dam, its power plant, and the All-American Canal in the lower Basin; (3) apportioned the lower basin's 7.5 maf among the states of Arizona (2.8 maf), California (4.4 maf) and Nevada (0.3 maf); and (4) authorized and directed the Secretary of the Interior to function as the sole contracting authority for Colorado River water use in the lower basin.

- **California Seven Party Agreement of 1931** - This agreement helped settle the long-standing conflict between California agricultural and municipal interests over Colorado River water priorities. The seven principal claimants - Palo Verde Irrigation District, Yuma Project, Imperial Irrigation District, Coachella Valley Irrigation District, Metropolitan Water District, and the City and County of San Diego - reached consensus in the amounts of water to be allocated on an annual basis to each entity. Although the agreement did not resolve all priority issues, these regulations were also incorporated in the major California water delivery contracts.

- The **Mexican Water Treaty of 1944** - Committed 1.5 maf of the river's annual flow to Mexico, but made no provision for water quality.

- **Upper Colorado River Basin Compact of 1948** - Created the Upper Colorado River Commission and apportioned the Upper Basin's 7.5 maf among Colorado (51.75 percent), New Mexico (11.25 percent), Utah (23 percent), and Wyoming (14 percent); the portion of Arizona that lies within the Upper Colorado Basin was also apportioned 50,000 acre-feet annually.

- **Colorado River Storage Project of 1956** - Provided a comprehensive Upper Basin-wide water resource development plan and authorized the construction of Glen Canyon, Flaming Gorge, Navajo and Curecanti dams for river regulation and power production, as well as several projects for irrigation and other uses.

- The **Arizona v. California U.S. Supreme Court Decision of 1964** - In 1964, the Supreme Court issued a decision settling a 25-year-old dispute between Arizona and California. The dispute stemmed from Arizona's desire to build the Central Arizona Project so it could use its full Colorado River apportionment. California objected and argued that Arizona's use of water from the Gila River, a Colorado River tributary,

constituted use of its Colorado River apportionment, and that it had developed a historical use of some of Arizona's apportionment, which, under the doctrine of prior appropriation, precluded Arizona from developing the project.

The Supreme Court rejected California's arguments, ruling that lower basin states have a right to appropriate and use tributary flows before the tributary co-mingles with the Colorado River, and that the doctrine of prior appropriation did not apply to apportionments in the lower basin. In 1979, the Supreme Court issued a Supplemental Decree which addressed present perfected rights referred to in the Colorado River Compact and in the Boulder Canyon Project Act. These rights are entitlements essentially established under state law, and have priority over later contract entitlements.

- The **Colorado River Basin Project Act of 1968** - This Act authorized construction of a number of water development projects in both the upper and lower basins, including the Central Arizona Project (CAP). It also made the priority of the CAP water supply subordinate to California's apportionment in times of shortage, and directed the Secretary to prepare, in consultation with the Colorado River Basin states, long-range operating criteria for the Colorado River reservoir system.

- The **Criteria for Coordinated Long-Range Operation of Colorado River Reservoirs of 1970** - Provided for the coordinated operation of reservoirs in the upper and lower basins and set conditions for water releases from Lake Powell and Lake Mead.

- **Minute 242 of the U.S.-Mexico International Boundary and Water Commission of 1973** – This document resulted from negotiations with Mexico under the International Boundary and Water Commission (IBWC), and required the U.S. to take actions to reduce the salinity of water being delivered to Mexico at Morelos Dam.

- The **Colorado River Basin Salinity Control Act of 1974** - Authorized desalting and salinity control projects, including the Yuma Desalting Plant. Title I created the means for the U.S. to comply with the provisions of Minute No. 242, and thereby meet commitments to Mexico regarding quality of water delivered pursuant to the 1944 Mexican Water Treaty . Title II created the Colorado River Salinity Control Program and directed the Departments of Interior (BLM and United States Bureau of Reclamation [USBR]) and Agriculture Natural Resources Conservation Service (NRCS) to manage salinity of the river.

Federal Statutes, Regulations, and Rights Affecting Water Supply

Growing public concern for controlling water pollution led to the Federal Water Pollution Control Act Amendments of 1972. As amended in 1977, this law became commonly known as the **Clean Water Act**. The Clean Water Act is the cornerstone of surface water quality protection in the United States. It gave the USEPA the authority to implement pollution control programs, both regulatory and non-regulatory, including setting wastewater standards for industry and water quality standards for all contaminants in surface waters. The Act made it unlawful for any person to discharge any pollutant from a point source into navigable waters, unless a permit was obtained under its provisions. It mandated State-administered funding for construction of wastewater treatment facilities. In addition, it authorized activities related to non-point source pollution, including runoff from farms, streets, and construction sites.

The **Endangered Species Act** (ESA) of 1973 provides a means for protecting all endangered and threatened species of life. It is comprehensive in that it also provides for the protection of the critical habitats on which these species depend for survival. The U.S. Fish and Wildlife Service (FWS) is responsible for administering the Act with respect to all non-marine species. ESA provides for listing of endangered or threatened species by the Secretary of the Interior, and mandates development and implementation of recovery plans to promote conservation of the species.

The **National Environmental Policy Act** (NEPA) has been called a “stop and think statute” for projects that may affect the environment. NEPA requires that Federal agencies stop and consider the potential effects of actions that might adversely affect the environment, and consider possible alternative courses of action to reduce impacts, before approving the project. Federal agencies are required to prepare various reports, the most significant being an Environmental Impact Statement, or EIS, for all "major Federal actions significantly affecting the quality of the human environment". An environmental assessment (EA) may be prepared first to determine whether or not an EIS will be required. If an EA indicates that no significant impact will occur, then a Finding of No Significant Impact (FONSI) may be issued which presents the reasons why the action will not produce significant environmental impacts.

However, if an EIS must be prepared, the agency gives public notice and embarks on a scoping process. An EIS is often an extensive document which must describe the environmental impacts of the proposed action, the adverse environmental impacts which cannot be avoided, the reasonable alternatives to the proposed action, the relationship between short term uses and long term productivity of the environment and any irreversible commitments of resources involved in the proposed action. Comments are solicited from potentially affected parties when the document is in draft form, and the EIS is finalized only after the comments are considered.

The contents of the Final EIS must be considered when making a decision on the proposed action. The agency must prepare a record of decision (ROD), a concise statement of its decision discussing its choice among alternatives and the means that will be employed to mitigate or minimize environmental harm. Usually, the ROD is the basis on which the sponsoring agency grants a permit to proceed.

NEPA also required the establishment of the Council on Environmental Quality (CEQ). The CEQ assists and advises the President in preparation of a national environmental quality report, gathers information on conditions of and trends in environmental quality, evaluates federal programs in light of NEPA goals, develops and promotes policies for improving environmental quality, conducts studies relating to environmental quality, and reports annually on the state of the environment.

The **Safe Drinking Water Act** focuses on all waters actually or potentially designed for drinking use, whether from above ground or underground sources. The Act authorized the USEPA to establish safe standards of purity and required all owners or operators of public water systems to comply with primary (health-related) standards. State governments, which assume this power from USEPA, also encourage attainment of secondary standards (nuisance-related).

The **Wild and Scenic Rivers Act** provides for the preservation of selected rivers due to their remarkable scenic, recreational, geologic, fish and wildlife, historic, or cultural values. No Federal agency shall recommend authorization of any water resources project or shall financially assist in such project that would have a direct and adverse effect on the values for which the river was designated in the National Wild and Scenic River System. The Act institutes a National Wild and Scenic River System, designates the components of that System, and prescribes the methods by which additional components might be added to the System in order to carry out this

goal. The only Wild and Scenic River designated within Colorado is part of the Cache La Poudre basin, which is tributary to the South Platte River.

The **Fish and Wildlife Coordination Act** (FWCA) provides for wildlife conservation by entrusting the Secretary of the Interior with certain duties. One of these is to provide assistance to, and cooperation with, Federal, state, and public or private agencies to provide that wildlife conservation receive equal consideration and be coordinated with other features of water-resource development programs. Federal agencies that propose or authorize modification of any body of water shall first consult with the Fish and Wildlife Service and with the appropriate state agency to conserve wildlife resources. The act also authorizes the Secretary of the Interior to conduct investigations on the effects of domestic sewage, industrial wastes, erosion silt, and other substances on wildlife, and recommend ways to alleviate these effects.

In addition to these federal laws, there are **federal reserved rights** associated with Rocky Mountain National Park and the Black Canyon of the Gunnison National Park within the Colorado River basin. Rocky Mountain became the first national park to adjudicate reserved water rights, when, in 1994, Federal reserved water rights were decreed for all unappropriated water in the portion of the park located east of the Continental Divide. Absolute water rights for the Colorado River drainage were given to Rocky Mountain National Park in 2000. These decrees gave the park water rights dating back to 1915.

The National Park Service (NPS) applied for water rights for the Black Canyon of the Gunnison National Monument in 1971, and seven years later was granted a conditional right for instream flow purposes with an appropriation date of 1933. The claimed quantity of the right was clarified in a 2001 application to make the right absolute. NPS sought 300 cfs of baseflow from July 25 to May 1. A peak day flow between May 1 and June 30 was to be calculated each year based on inflow to Blue Mesa Reservoir, with shoulder flows ramping up to the peak beforehand, and from the peak down to 300 cfs afterwards. The case engendered more opposition (measured by numbers of objectors) than any other in Colorado history. In a settlement reached in March 2003, the Park will receive a reserved right for base flows of 300 cubic feet per second to maintain the flow of water through the canyon. The adjudicatory process for these rights is ongoing and continues as of this date.

Endangered Species Act

Under the Endangered Species Act (ESA), all federal actions (for example, Army Corps of Engineer “404” permitting, or U.S. Forest Service right-of-way or special use permitting) are subject to issuance of a biological opinion by the U.S. Fish and Wildlife Service (USFWS), as to whether the action will jeopardize the continued existence of threatened or endangered species in the area affected by the action. Furthermore, the opinion addresses the likelihood of destruction or adverse impact to critical habitat for the species. Four fish species native to the Colorado River basin are federally listed as endangered: the Colorado pike minnow, humpback chub, bonytail chub, and razorback sucker. Once abundant in the warm waters of western Colorado rivers, their numbers have fallen due to habitat loss, changes in water flow and temperature, blockage of migration routes, and competition with non-native species.

In the late 1970’s, USFWS determined in Section 7 consultation on several Bureau of Reclamation projects that a jeopardy situation existed for the fish. As ESA directed federal agencies to work with state and local agencies to resolve water development and species conservation conflicts, a coalition including water users, environmental groups, the Department of Interior, and the States of Colorado, Utah, and Wyoming was formed. By 1988, they

had developed and accepted a Cooperative Agreement for the Recovery Implementation Plan for Endangered Fish Species (the Recovery Plan) in the Upper Colorado Basin.

The goals of the Recovery Plan were simple: provide a programmatic approach to recovering the endangered Colorado River fishes while allowing the Upper Basin states (Colorado, Wyoming, and Utah) to develop their compact entitlements. Under the plan, 1,980 river miles have been identified as critical habitat for the endangered fish. These include the Gunnison River from Delta, Colorado, to its confluence with the Colorado River, and the Colorado River from Rifle, Colorado, to Lake Powell. The program includes five recovery elements: conducting research, improving river habitat, providing adequate stream flows, managing non-native fish, and raising endangered fish in hatcheries for stocking. “Providing adequate stream flows” involves acquiring and protecting stream flows and altering operations of dams to re-create more natural flow patterns. This strategy seeks to provide high flows during natural spring runoff and more stable flows the rest of the year.

With respect to the second objective, allowing future development of water resources within applicable state law and interstate compacts, the Recovery Plan was intended to serve as the reasonable and prudent alternative to avoid both jeopardy to existence of the endangered species, and likely destruction of critical habitat, for projects subject to Section 7 consultation. In 1992, USFWS raised issues as to whether progress toward recovery of the fish has been sufficient to allow for continued favorable biological opinions. Discussions among the Recovery Program participants resulted in the “Section 7 Agreement” and “Recovery Implementation Plan Recovery Action Plan” (RIPRAP). The Agreement and RIPRAP clarified how Section 7 consultations would be conducted; and specified measurement of accomplishments under the Recovery Plan which justify its continued use as the reasonable and prudent alternative which avoids jeopardy to the species and adverse impact to habitat. Under this agreement, as long as sufficient progress was being made toward endangered fish recovery, the Service would issue favorable biological opinions on water depletions of fewer than 3,000 acre-feet of water. When reviewing projects that deplete more than 3,000 acre-feet of water per year, the Service would determine on a case-by-case basis the recovery actions that were needed to warrant a favorable biological opinion. Impacts associated with new water depletion projects would be offset both by Recovery Program accomplishments and by a one-time depletion charge contribution made by the water project. For 2001, this depletion charge was $14.75 per acre-foot of a project's average annual net depletion, and the amount is adjusted annually for inflation.

In 1999, USFWS released a Final Programmatic Biological Opinion (PBO) regarding 1) existing operations and depletions by the Bureau of Reclamation’s projects above the Gunnison River confluence; and 2) the Bureau’s portion of 120,000 af of future annual depletions in the same area of the basin. The non-Bureau portion of the 120,000 af of future depletions was treated as “interrelated”, because it was assumed that future projects, locations and affects of which are unknown at this time, will want to rely on the Recovery Program to obtain permitting. The subject area of the PBO was the so-called “15-Mile Reach”, the 15 miles of the Colorado mainstem between diversions at the Government Highline Dam near Cameo to the confluence of the Gunnison River with the Colorado. The rights at Cameo and downstream at the Grand Valley Irrigation Canal can take the entire flow of the river during certain months of the year.

The proposed Colorado River Return Project falls outside of the 15-Mile reach (Programmatic Biological Opinion) PBO, based on the depletion site’s location below the 15-Mile Reach. However, the major recovery actions related to flow maintenance, under the 15-Mile Reach plan, may indicate the types of actions that would be viewed favorably in the case of CRRP, and could create opportunities for coordinated or synergistic activities. These can be summarized as:

1. The water users will provide 10,825 acre-feet of permanent water for delivery to the 15-Mile Reach. The water users have agreed to split this equally between the East Slope and the West Slope.

2. Ruedi Reservoir will provide another 10,825 acre-feet of interim water (for a 15-year period).

3. Wolford Mountain Reservoir will continue to provide 6,000 acre-feet of capacity as provided for in the Wolford Enlargement Biological Opinion.

4. The U.S. Fish and Wildlife Service, water users, CWCB and environmental community are cooperating on an expanded coordinated facilities study (16,000 to 20,000 acre-feet initially without storage releases).

5. Green Mountain HUP surplus water will be delivered to the 15-Mile Reach pursuant to the settlement of the Orchard Mesa Check case (91CW247), up to the capacity of the Grand Valley power plant (16,000 to 65,000 acre-feet).

6. The Grand Valley Improvement Project will be constructed (28,400 acre-feet conserved plus 9,000 acre-feet at Palisade).

7. Green Mountain "excess" surplus water will be delivered to the 15-Mile Reach via non-consumptive municipal and recreational use.

Water Quality Standards and Salinity Control Act

Pursuant to the Colorado Water Quality Control Act, waters of the state have been classified according to the beneficial uses they serve or could be expected to serve. Water quality standards for physical, biological, and chemical parameters have also been developed, and assigned to stream reaches as appropriate to support the use classification. The various use classifications include:

- Recreation Class 1 – Primary Contact
    - Class 1a – Existing Primary Contact: Class 1a waters are those in which primary contact uses have been documented or are presumed to be present
    - Class 1b – Potential Primary Contact: This classification is assigned to water segments for which no use attainability analysis has been performed.
- Recreation Class 2 – Secondary Contact
- Agriculture
- Aquatic Life
- Class 1 – Cold Water Aquatic Life: These are waters that (1) currently are capable of sustaining a wide variety of cold water biota, including sensitive species, or (2) could sustain such biota but for correctable water quality conditions.

- Class 1 – Warm Water Aquatic Life: These are waters that (1) currently are capable of sustaining a wide variety of warm water biota, including sensitive species, or (2) could sustain such biota but for correctable water quality conditions.
- Class 2 – Cold and Warm Water Aquatic Life: These are waters that are not capable of sustaining a wide variety of cold or warm water biota, including sensitive species, due to physical habitat, water flows or levels, or uncorrectable water quality conditions that result in substantial impairment of the abundance and diversity of species.
- Domestic Water Supply
- Wetlands

The Colorado Water Quality Control Act explicitly specifies that stream classifications and water quality standards are not control regulations, however, a controllable point source of water to the stream could be expected, at a minimum, to meet the stream standards promulgated by the Water Quality Control Commission.

In general, upper stream reach classifications in the Colorado mainstem basin indicate Water Supply, Agriculture, Recreation Class 1, and Aquatic Life Cold Class 1 uses, with exceptions on a few tributaries such as upper Ten-Mile Creek, tributaries to the Blue River below Green Mountain Reservoir, and mainstem tributaries between the Roaring Fork and Parachute Creek, which are also outside the White River National Forest. These exceptions are classified as Aquatic Life Cold Class 2, or not capable of sustaining biota due to water supply, physical habitat, or uncorrectable water quality conditions. Below Parachute Creek, in general, the mainstem aquatic life classification is Warm Class 1, with Warm Class 2 designations for the tributaries. Roan Creek, Plateau Creek, and Rapid Creek are exceptions, with combinations of Warm and Cold Class 1 designations.

Similarly, in the Gunnison basin, upper stream segments generally support Water Supply, Agricultural, Recreation Class 1, and Aquatic Life Cold Class 1 uses, with exceptions on certain tributaries with respect to the Aquatic Life classification. Lower tributaries to the North Fork of the Gunnison, lower tributaries to the Gunnison mainstem (below Crystal Reservoir) which are not on National Forest land, and the Uncompahgre mainstem below Montrose are classified as Aquatic Life Warm Class 2.

An important requirement reflected in the standards is that an upstream use cannot threaten or degrade a downstream use, and therefore, upstream segments of a stream are generally the same as or higher in classification than downstream segments.

While Colorado has specified numeric standards for numerous water quality constituents, it has adopted a narrative standard for salinity or total dissolved solids. It is an extension of Colorado's participation in the Colorado River Basin Salinity Control Forum (the Forum) and compliance with the Colorado River Salinity Control Act. The Forum was created in 1973 in response to the Clean Water Act, which mandated establishment of water quality standards throughout the country. Recognizing that salinity control on the Colorado River was an interstate issue, the seven Colorado River basin states joined efforts to develop a policy that would maintain salinity concentrations in the lower Colorado River mainstem at or below 1972 levels, while allowing the states to develop their compact entitlements. They adopted the following total dissolved solids (TDS) standards for three locations on the river:

Below Hoover Dam	723 mg/l
Below Parker Dam	747 mg/l
At Imperial Dam	879 mg/l

The Colorado River Basin Salinity Control Act and subsequent amendments authorized specific salinity reduction projects, to be implemented and managed by the Bureau of Reclamation, Bureau of Land Management, and Natural Resources Conservation Service. In Colorado, these projects include the Grand Valley Unit, which accomplished lining and piping of over 200 miles of off-farm canals and laterals of the Grand Valley Project. Efforts in the Gunnison basin included a winter water program on the Uncompahgre Project, whereby winter stock watering is accomplished by pumping or expansion of existing domestic systems. Ditches that once ran year-round for stock use no longer run during the non-irrigation season. In addition, the South Canal system of the Uncompahgre Project is being piped in sections. The Forum estimated that, as of the year 2000, salinity control measures throughout the Colorado River basin have resulted in a reduction in salt loading of 773,000 tons per year.

Finally, it should be noted that Colorado water law recognizes quality as well as quantity in protecting a senior appropriator's right. An exchange decree or augmentation plan can be decreed only if the replacement water supply is the same in time, place, quantity, and of suitable quality to prevent injury. However, the transfer or change of a water right's use does not require the same protection of quality for senior appropriators. The current Attorney General regards this as a loophole that needs to be closed (Ken Salazar, Letter to legislators, January 3, 2003).

Potentially Involved Agencies and Their Roles

Colorado Agencies

Local agencies, including County Boards and planning agencies will be very involved in any CRRP studies as reviewers, participants or sponsors. It is also very likely that local water suppliers would also be heavily involved based on the State's goal of the CRRP being capable of delivering water in the Colorado, South Platte, and Arkansas basins. Regardless of the pipeline corridor eventually selected, several counties would be involved and, at least some of these have adopted County 1041 processes for review and approval of infrastructure projects.

On a state government level, water quantity management, planning, and administration fall under the purview of the Colorado Department of Natural Resources (DNR), while water quality is the domain of the Colorado Department of Public Health and Environment (CDPHE). The **Colorado Water Conservation Board** is the state executive branch agency responsible for planning, developing, and protecting Colorado's water. It has five major programs with these areas of responsibility:

- Water Supply Protection – compact and treaty issues, growth and development analysis, State implementation of Federal policy and partnership with Federal water agencies on development projects
- Water Supply Planning and Finance – water project construction loan fund
- Stream and Lake Protection – instream flow rights and natural lake level storage rights, to protect the environment
- Flood Protection – flood hazard identification, support for local planning and regulation, technical and financial support for flood protection project implementation, preparedness and response
- Conservation and Drought Planning – water efficiency and water conservation planning

The **Division of Water Resources (DWR)**, or State Engineer's Office, within DNR is responsible for regulation and administration of water supply, in accordance with statute, decrees, and interstate compacts. In addition, it issues well permits, regulates dam safety, and enforces rules and policies adopted by the Colorado Ground Water Commission and the State Board of Examiners of Water Well Construction and Pump Installation Contractors.

The **Colorado Ground Water Commission** manages and controls the State's eight designated groundwater basins and thirteen groundwater management districts. These are areas in which the aquifers are isolated from the surface system. The Ground Water Commission is authorized to adopt rules and policies governing the basins.

The **Colorado Water Quality Control Commission** develops state water quality policies that implement the broader policies of the Colorado Water Quality Control Act. The Commission classifies both surface and ground waters of the State according to uses for which they are suitable, or could reasonably become suitable, and has adopted standards related to those uses. They are authorized to develop regulations as needed to maintain quality for all beneficial uses. The **Colorado Water Quality Control Division** (CDPHE) enforces the Water Quality Control Commission's rules as well as those of the State Board of Health, which is responsible for primary drinking water standards. It issues permits for discharge of pollutants into state waters and administers a non-point source pollution control program.

Colorado Water Resources and Power Development Authority was created by the General Assembly in 1981, to provide funding for water and wastewater utilities in Colorado. The agency is authorized to initiate, acquire, construct, and operate water projects.

As early as 1879, the Colorado General Assembly assigned the duty of determining water right priorities to the courts. The Water Right Determination and Administration Act of 1969 created seven water divisions based upon the State's major drainages, each of which has a **Water Court**. Water judges are district judges appointed by the Supreme Court and have jurisdiction in the adjudication of both surface and ground water rights. In executing that responsibility, they review and hear cases of reasonable diligence for conditional water rights, changes of water rights, applications for exchange rights and augmentation plans, and appeals from State or Division Engineer enforcement orders. Appeal of a water court decision goes to the Colorado Supreme Court.

Water conservation districts are local bodies created by the State legislature to protect and develop the waters within their boundaries. Conservation districts cover a large geographical area and are authorized to levy taxes, issue bonds, and collect user fees. The **Colorado River Water Conservation District** covers the upper Colorado mainstem basin (including the Gunnison basin) as well as the Yampa and White River basins in Colorado. Formed in 1937, its programs are focused on developing the West Slope's water resources for inbasin uses, representing West Slope users in the implementation of Federal programs, and protecting West Slope interests with respect to both transmountain diversions to the East Slope and expanding use of Colorado River water by downstream states. The only other conservation districts in Colorado are the Rio Grande Water Conservation District, in the Rio Grande basin, and the Southwestern Conservation District, which covers the San Juan, Dolores, and San Miguel basins.

Water conservancy districts are local agencies originally created to construct, pay for, and operate water projects. Colorado's Water Conservancy Act of 1937 authorized their establishment, which originates by petition of landowners within the proposed district. Conservancy districts are empowered to levy property taxes and issue bonds, and lease or sell water, among other authorities, duties, and responsibilities. There are approximately 50 conservancy districts in the State, including fifteen in the Colorado mainstem and Gunnison basins.

Interstate Agencies

The **Upper Colorado River Commission** is an interstate compact administration agency created by the Upper Colorado River Basin Compact of 1948. The Commission is made up of one Governor's appointee from each of the upper Division states except Arizona (i.e., Colorado, New Mexico, Utah, and Wyoming), and an additional Commissioner appointed by the President of the United States. It has been granted broad and comprehensive powers to adopt rules and regulations; locate and establish streamflow gaging stations; engage in cooperative studies of water supplies; determine the quantity of water used annually in the upper basin and in each state, and the amount delivered to the lower basin; regulate use, if necessary; and all other functions required of it under the Upper Colorado River Basin Compact.

The **Colorado River Energy Distributors Association (CREDA)** is a non-profit organization representing consumer-owned electric systems that purchase federal hydropower and resources of the Colorado River Storage Project (CRSP). Their stated mission is " to preserve and enhance the availability, affordability, and value of CRSP facilities while promoting responsible stewardship of the Colorado River System." CREDA was established in 1978, and serves as the "voice" for its members in dealing with Bureau of Reclamation (as the generating agency of the CRSP) and Western Area Power Administration (WAPA) (as the marketing agency of the CRSP). CREDA members are all non-profit organizations, serving nearly 3 million electric consumers in Arizona, Colorado, Nevada, New Mexico, Utah and Wyoming. Member organizations within Colorado include the City of Colorado Springs, Intermountain Rural Electric Association, Platte River Power Authority, Tri-State Generation & Transmission Cooperative, and Yampa Valley Electric Association, Inc.

Federal Agencies

Numerous bureaus, agencies, and commissions within the Federal government have interest and responsibility in the areas of water supply and quality regulation. This brief list summarizes only the major Federal agencies and their focus of concern.

Environmental Protection Agency - administers the Clean Water Act and the Safe Drinking Water Act. It oversees water quality standards for interstate waters and issues discharge permits for federal installations.

National Park Service – manages, promotes, and regulates use of unique lands designated as parklands, with emphasis on conservation. The U.S. Supreme Court and various state courts have upheld implied federal reserved rights for these lands, including those at Rocky Mountain National Park and the Black Canyon of the Gunnison River.

Bureau of Reclamation – develops multipurpose projects for the delivery of water for irrigation, municipal and industrial use, generation of power, and to meet Compact requirements; partner in the Colorado River Basin Salinity Control Program, with Natural Resources Conservation Service and Bureau of Land Management.

Fish & Wildlife Service – administers the Endangered Species Act, and is thus the lead agency for the Colorado River Endangered Fish Recovery Program; manages federal fisheries and is concerned with land acquisition and management.

Geological Survey – collects, analyzes, and publishes information on quality and quantity of surface and groundwater; sponsors water supply investigations in many areas.

Agricultural Research Service – conducts basic and applied research in water management, watershed engineering, and soil management.

Natural Resources Conservation Service (formerly Soil Conservation Service) – within the U.S. Department of Agriculture, provides leadership and technical assistance to farmers and other landowners in conserving their soil, water, and other natural resources; identifies, maps and protects Prime and Unique Farmlands; partner in the Colorado River Basin Salinity Control Program, with the Bureau of Reclamation and Bureau of Land Management.

Forest Service – manages land and water resources on millions of acres within Colorado; functions involve watershed management, research on forest management, and fire protection. Numerous water-related facilities in the West Slope basins are located on Forest Service land and subject to its permitting requirements.

Army Corps of Engineers – administers Section 404 of the Clean Water Act, granting dredge and fill permits for channel structures; also active in flood control, conservation, and hydroelectric power.

International Boundary and Water Commission - resolves issues between the United States and Mexico, related to the 1944 treaty apportioning Colorado River water between the two countries, and the 1973 agreement to control salinity levels in the Colorado River.

Federal Energy Regulatory Commission – licenses proposed non-federal hydroelectric projects, and makes recommendations to other agencies such as river basin commissions, on their water development projects and long range planning.

Existing Water Project Funding Programs

Most water project funding in Colorado comes from the water users, through water rates and connection charges which are used to pay annual expenses and repay bond issues utilized for water system capital construction. Public funding programs from state and federal agencies offer grants and loans to support local water user funding efforts. Grants are typically small, less than $1 million. Beyond these established programs, the Colorado Legislature or the U.S. Congress may financially support a water resource development on a project-specific basis.

The **Colorado Water Conservation Board Construction Fund** was created by the General Assembly to provide low interest loans to water users in the development of raw water supply projects. These can include new dams or rehabilitation and/or enlargement of existing dams; agricultural water supply systems including diversion dams, ditches and headgates; and municipal raw water supply systems, including diversion structures, pipelines, and wells. The Construction Fund is a partially self-supporting revolving loan fund. Revenues come from the return of principal and interest on outstanding loans, interest earned on the fund's cash balance in the state treasury, and federal mineral royalty distributions. Total equity of the fund currently exceeds $240 million. The fund has financed more than 200 locally sponsored water projects.

Loans are available for up to 90 percent of the total engineering and construction costs of the project, and non-reimbursable investments can be sought for up to 50 percent of the cost of a feasibility study and other water supply investigations. Loan rates are adjusted annually by the CWCB, and were set at the following rates in 2003:

- 2.5 percent for agricultural loans;
- 4.0 percent for municipal loans in middle-income areas;
- 5.5 percent for commercial loans.

The CWCB is authorized to approve loans up to $5 million without legislative authorization. Loans for more than $5 million are recommended by the CWCB to the Legislature for authorization through the annual construction fund projects bill.

The **Water Pollution Control Revolving Fund** is an outgrowth of the 1988 Clean Water Act Amendments, which required Colorado to convert its wastewater grant program to a revolving loan program. The program is administered by the Colorado Water Resources and Power Development Authority (the Authority), Colorado Department of Local Affairs Division of Local Government, and the Water Quality Control Division. The fund provides loans to governmental agencies for projects that improve or benefit public health or water quality. Eligible projects have included point source wastewater treatment, non point source, groundwater, and storm water projects. Recent project support has not exceeded 25 million dollars.

The **Drinking Water Revolving Fund** is administered much as the Water Pollution Control Revolving Fund, by the Authority. The Authority issues bonds to fund leveraged loans (those with local government capital contributions) and provides the State's required 20 percent match on each federal dollar. The subsidized loans are provided to assist public water systems in financing the cost of infrastructure needed to achieve or maintain compliance with the Safe Drinking Water Act requirements, and to protect the public heath objectives of the Act. The Fund loan support has typically been less than $15 million

The **Small Water Resources Projects Program** was developed after the passage of Senate Bill 67 in 1989. Under the statute, the Water Resources and Power Development Authority can expedite its procedures to assist local governments in financing water resource projects, defined as water management facilities or hydroelectric facilities, without legislative review. This process gives the project sponsor and the Authority greater flexibility in reacting to rapidly changing bond market conditions. Loan support is limited to $2 million per municipality.

In addition, the Authority also operates the **Water Revenue Bond Program** to provide funds for all participants in the aggregate of up to $500 million, without legislative review, to entities for water and wastewater projects not eligible under the above programs. The Authority subsidizes the costs of bond issuance for the program.

The **Colorado Watershed Protection Fund** is a State income tax check off program. Applications for project funding must be made by "locally-based Colorado watershed group(s) that (are) committed to a collaborative approach to the restoration and protection of lands and natural resources … in concert with economic development"(www.coloradowater.org - Colorado Watershed Assembly). The project must be intended to restore and/or protect the water, lands, and other natural resources within the watershed, and the applicant must provide 20 percent cash or in-kind services. Maximum amount of funding is $50,000.

The **Colorado River Water Conservation District Grants Program** considers requests for financial assistance for water resource projects within the District which are consistent with its statutory purposes. Generally these purposes are: the beneficial use of water for agriculture, municipal, industrial and other purposes; watershed management activities; water quality enhancement projects; and water efficiency enhancement projects. Grants may be made available to local governments, water districts, and other water users within the Colorado River Water Conservation District for activities that promote the responsible and efficient use of Colorado's Colorado River compact entitlement. Generally, grants are given to fund actual implementation of a project.

A number of Federal programs are available to support water development in Colorado. The U.S. Department of Agriculture-Rural Development Agency offers a Water and Environment Program for building water delivery systems with loans usually less than $20 million. The U.S. Rural Community Assistance Corporation offers a loan program in amounts of up to $6 million. Grants of up to $2 million can be obtained from the U.S. Economic

Development Administration. The USEPA provides funds administered by the Colorado state agencies described above.