

## 4. AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

### 4.1 Introduction:

This chapter discusses resources that may be affected by the No Action Alternative and by the Proposed Alternative. During preparation of the EA, information on issues and concerns was received from affected water users, resource agencies, and private citizens (see the Consultation and Coordination Chapter for further details).

For each resource, existing conditions are described and direct, indirect, and cumulative impacts are considered.

- Direct impacts—these are impacts which are caused by the action and occur at the same time and place.
- Indirect impacts—these are impacts which are caused by the action and are later in time or further removed in distance, but are still reasonably foreseeable.
- Cumulative impacts—these are impacts which result from the incremental impact of the alternatives when added to other past, present, and reasonably foreseeable future actions regardless of which agency or person undertakes the actions.

The primary purpose of the Proposed Alternative is to provide water to a growing population in the Pine River Project area. Such growth has and continues to result in changes in land use and natural and cultural resources. Reclamation does not have the authority or the responsibility to control or direct growth in the area; this authority and responsibility lies with local governments and the Tribe.

### 4.2 Hydrology and Water Quality:

#### 4.2.1 Existing Conditions:

The Pine River and its tributaries are the source of the water supply for the lands in the Pine River Valley. The Pine River and its principal tributary, Vallecito Creek, rise in a rough mountainous region of the San Juan Mountains and flow in a general southerly direction to Vallecito Reservoir, located at the head of the Pine River Project area. This reservoir provides irrigation storage water to the Pine River Project and the Pine River Indian Irrigation Project. From the reservoir, the Pine River flows south about 30 miles through the project lands and the Southern Ute Indian Reservation to the Colorado-New Mexico State line and continues another mile or two to Navajo Reservoir on the San Juan River.

The Pine River is primarily a snow fed river, and consequently, the greater portion of the runoff occurs during high spring flows, usually during the months of May and June. The streamflow decreases rapidly after the spring peak, and is usually at the lowest flow from November through March.

Vallecito Reservoir is the only major reservoir in the project area and has regulated the Pine River streamflow since 1941. The reservoir has an active (useable) capacity of 125,400 af and a maximum surface area of 2,720 acres. The mean annual inflow to Vallecito Reservoir for the 1941-2005 period of record was 268,500 af. The minimum annual inflow was recorded in 2002 at 74,500 af, and the maximum annual inflow was in 1979 at 436,200 af. Table 1 is a list of stream discharge records, published by the USGS, available for the Pine River drainage. Annual discharges for years of complete record are shown in Table 2. Summary statistics of Vallecito Reservoir inflows and releases and Pine River at La Boca and Spring Creek at La Boca are shown in Table 3.

Table 1 –Gaging Stations in project area.

Site Number	Site Name	Daily flow data begin date	Daily flow data end date	Drainage Area Sq. Miles	
9352800	Pine River above Vallecito Reservoir	1996	2002	N/A	
9352900	Vallecito Creek above Vallecito Reservoir	10/1/1962	Present	72.5	
9353000	Vallecito Reservoir .	3/1/1941	Present	255.0	
9353500	Pine River near Bayfield, CO	10/1/1927	9/30/1986	270.0	
9353800	Pine River near Ignacio, CO	10/1/1999	Present	340.0	
9354000	Pine River at Ignacio, CO			448.0	
9354500	Pine River at La Boca, CO.	1/1/1951	Present	520.0	
9355000	Spring Creek at LaBoca, CO	1/1/1951	Present	58.2	

Following the irrigation season in the fall, the reservoir begins to refill. Winter storage, however, is currently limited to 77,000 af in order to prevent ice damage to the spillway’s radial gates. Following the severe drought of recent years, reservoir managers at Vallecito and in many other areas of western Colorado have become more conservative in their efforts to fill their reservoirs and maximize storage of winter inflow to the extent possible in anticipation of possible low spring inflows.

Normally snow melt and associated Vallecito Reservoir inflow begins to increase in mid-April, and more water is stored. Downstream irrigation also begins at this time and the natural streamflow is passed through the reservoir as needed to meet downstream irrigation water rights that are senior to Vallecito Reservoir. Peak inflows and peak reservoir content generally occur in the May-July period. Following the peak inflows, whenever downstream irrigation needs cannot be met using the natural streamflow, a “call” is placed on the river, and the District begins releasing storage water to project shareholders for downstream irrigation. This “call”, determined by the Colorado Division of Water Resources, occurs when natural flows are insufficient to meet all water rights on the river and assures that the senior or older water right holders receive full supplies before junior or newer water right holders receive their water.

Storage releases can continue into late October or early November, although releases are generally reduced significantly in the fall. Currently up to approximately 400 af of Vallecito Reservoir water is now being used annually for M&I purposes. This water is released along with the storage releases for irrigation. Mean monthly releases from Vallecito Reservoir have averaged 50 to 80 cubic feet per second (cfs) in the winter and

Table 2. Annual flow (acre-feet) at selected locations.

<u>Water Year</u>	<u>Vallecito Reservoir Inflow</u>	<u>Vallecito Reservoir Release</u>	<u>Pine River near Bayfield</u>	<u>Pine River near Ignacio</u>	<u>Pine River at La Boca</u>	<u>Spring Creek at La Boca</u>	<u>Sum Pine and Spring Creek at La Boca</u>
1941	391,077	338,894	411,488				
1942	341,734	338,931	350,132				
1943	215,120	216,359	220,554				
1944	331,774	363,975	382,395				
1945	227,395	193,501	191,458				
1946	176,207	170,793	166,231				
1947	268,181	216,970	211,390				
1948	378,228	410,505	410,576				
1949	357,508	363,181	368,059				
1950	173,604	197,045	196,191				
1951	149,315	149,435	145,503		31,985	11,023	43,009
1952	364,480	322,239	322,496		282,242	22,148	304,390
1953	156,694	180,976	175,930		62,172	21,532	83,703
1954	198,713	178,048	176,682		64,058	24,294	88,352
1955	207,075	196,707	192,151		80,400	22,359	102,759
1956	172,340	210,701	199,557		70,016	21,186	91,203
1957	391,888	327,233	332,793		323,278	19,168	342,446
1958	325,533	361,829	359,938		327,298	23,603	350,901
1959	136,650	166,937	166,003		56,017	15,263	71,281
1960	252,723	225,104	224,237		141,419	20,916	162,335
1961	218,899	190,879	192,746		105,283	22,709	127,992
1962	261,212	277,438	277,238		152,410	20,271	172,681
1963	173,504	179,560	179,579		82,060	18,220	100,280
1964	161,813	163,852	163,628		58,578	13,815	72,393
1965	366,206	311,399	310,845		241,134	22,755	263,889
1966	252,226	279,751	279,235		166,096	20,277	186,372
1967	185,753	197,254	197,274		78,825	20,102	98,927
1968	267,187	225,507	225,376		107,141	20,285	127,426
1969	288,637	274,205	274,076		179,647	28,413	208,060
1970	281,059	274,362	274,316		162,482	25,524	188,006
1971	195,121	238,709	238,699		104,077	23,449	127,525
1972	201,974	219,217	219,235		85,743	22,053	107,797
1973	432,353	385,622	386,277		421,579	34,226	455,805
1974	149,243	198,799	198,956		77,286	18,378	95,664
1975	369,002	314,793	314,648		279,630	25,326	304,955
1976	230,775	240,014	239,798		120,000	25,517	147,517
1977	100,803	142,324	142,032		56,638	11,330	67,967
1978	217,902	191,734	190,828		85,878	18,294	104,172
1979	436,217	407,236	407,222		401,137	30,425	431,562
1980	361,959	345,086	341,815		292,141	32,119	324,261
1981	200,094	227,129	226,032		84,813	24,813	109,626
1982	321,200	257,646	257,508		164,767	26,076	190,843
1983	318,490	356,483	358,028		275,740	29,271	305,011
1984	318,632	310,300	310,988		223,920	26,744	250,664
1985	418,492	404,867	403,415		343,477	30,154	373,631
1986	400,436	398,582	398,838		329,845	27,707	357,552
1987	417,462	416,108			364,715	34,502	399,216
1988	240,643	228,775			127,825	24,973	152,798
1989	215,038	254,858			136,808	24,073	160,880
1990	228,906	191,324			85,436	18,611	104,046
1991	250,917	252,344			156,559	23,985	180,545
1992	245,604	245,895			155,992	27,591	183,583
1993	329,238	311,577			265,614	29,498	295,112
1994	228,209	253,563			158,243	23,119	181,362
1995	389,457	362,097			270,575	29,099	299,674
1996	150,394	198,512			66,664	29,056	95,720
1997	414,433	351,287			284,779	24,508	309,286
1998	251,939	274,010			149,272	18,620	167,892
1999	378,674	357,541			282,468	22,347	304,815
2000	177,657	225,275		27,838	78,123	18,693	96,816
2001	302,938	265,912		88,807	155,242	21,492	176,735
2002	74,463	116,406		15,902	32,267	7,079	39,347
2003	163,139	144,353		8,614	35,054	12,564	47,618
2004	243,791	211,090		40,638	99,594	18,839	118,433
2005	402,417	385,020			325,597	20,504	346,101

**Table 3. Summary statistics (cfs) for Pine River system at selected gaging sites.**

<b>Vallecito Reservoir Inflow (Average Monthly 1951-2005)</b>				
	<b>Mean</b>	<b>Median</b>	<b>Min</b>	<b>Max</b>
Jan	79	76	43	158
Feb	77	71	43	138
Mar	115	105	48	258
Apr	346	322	109	703
May	1,088	1,053	254	1,945
Jun	1,245	1,123	123	2,711
Jul	488	345	59	1,534
Aug	287	268	55	1,014
Sep	256	213	54	1,042
Oct	189	146	51	609
Nov	127	105	49	338
Dec	91	85	37	167
<b>Vallecito Reservoir Release (Average Monthly 1951-2005)</b>				
	<b>Mean</b>	<b>Median</b>	<b>Min</b>	<b>Max</b>
Jan	56	46	6	175
Feb	60	44	6	486
Mar	91	48	6	547
Apr	196	111	6	714
May	685	587	196	1,696
Jun	975	824	483	1,955
Jul	722	675	70	1,417
Aug	595	597	107	1,360
Sep	475	453	86	936
Oct	283	252	62	650
Nov	105	54	6	515
Dec	78	49	6	370
<b>Pine River at La Boca, CO (Average Monthly 1951-2005)</b>				
	<b>Mean</b>	<b>Median</b>	<b>Min</b>	<b>Max</b>
Jan	77	66	16	317
Feb	105	79	23	680
Mar	224	175	32	972
Apr	350	211	23	1,339
May	429	181	41	1,719
Jun	486	295	61	1,555
Jul	289	184	24	1,381
Aug	231	188	13	1,349
Sep	210	165	33	725
Oct	186	142	25	672
Nov	130	77	27	709
Dec	102	70	18	396
<b>Spring Creek at La Boca, CO (Average Monthly 1951-2005)</b>				
	<b>Mean</b>	<b>Median</b>	<b>Min</b>	<b>Max</b>
Jan	5	4	0	21
Feb	10	6	2	55
Mar	18	9	2	90
Apr	13	10	1	41
May	38	39	14	65
Jun	57	59	24	79
Jul	66	68	1	111
Aug	65	65	0	132
Sep	57	56	1	92
Oct	33	33	3	88
Nov	10	7	1	30
Dec	5	5	1	20
<b>Sum Pine River &amp; Spring Ck at La Boca (Avg Monthly 1951-2005)</b>				
	<b>Mean</b>	<b>Median</b>	<b>Min</b>	<b>Max</b>
Jan	76	68	17	189
Feb	115	86	27	707
Mar	242	194	35	1,030
Apr	363	218	24	1,380
May	467	237	58	1,746
Jun	543	349	99	1,615
Jul	354	252	25	1,462
Aug	296	251	13	1,400
Sep	267	230	34	789
Oct	220	174	28	706
Nov	140	89	29	738
Dec	108	76	20	405

and 600 to 1,000 cfs in the summer. Corresponding minimum monthly releases have been 6 cfs and 190 cfs.

There are a series of private and Tribal irrigation diversions on the Pine River. Immediately below these irrigation diversions, flows on the Pine River can approach zero cfs in summer months. Return flows replenish the river below the diversions. Pine River inflow to Navajo Reservoir, measured as mean monthly flows, has been as low as 6 cfs and as high as 2,000 cfs (Reclamation, 2000).

Ditch diversion records for the Pine River are maintained by the Colorado Division of Water Resources, Division 7 Engineer in Durango, Colorado. There are approximately 771 cfs of water rights senior to Vallecito Reservoir downstream of the reservoir; however, observations over the years have shown a release of 700 cfs from the reservoir is typically sufficient to meet these downstream water rights because of use of return flows and intervening tributary runoff.

Stream water quality and Vallecito Reservoir water quality are generally good. Unlike many San Juan mountain rivers, pollution from historic mining is not a problem. There are some irrigation and M&I return flows downstream from Vallecito Reservoir, but the water quality of the Pine River at its origin is so high that downstream quality remains high (Reclamation, 2000).

Groundwater quality problems have been identified in southeastern La Plata County (La Plata County, 2002). Rainfall and snowmelt are the principal sources of natural groundwater recharge, and in irrigated areas deep percolation is an important recharge source.

#### 4.2.2 Environmental Consequences:

Overall, reservoir operations and streamflows should not be significantly different under the No Action and Proposed Alternatives. Under the Proposed Alternative, it is anticipated that 3,000 af of irrigation water would gradually (over a period of many years) be used for miscellaneous uses.

Hydrological impacts are determined by overlaying the Proposed Alternative onto historical reservoir operations and ditch diversions (i.e., water demands) to determine impacts. Three primary assumptions were used in the hydrology analysis:

- The entire 3,000 af would be required to be released for M&I purposes each year;
- The entire 3,000 af would be required to be “restored” each year prior to the beginning of the next year’s irrigation season;
- The 3,000 af would be released only during a call on the river (i.e., during portions of the irrigation season); similar to how the 400 af is currently released; and

- The 3,000 af would not come from the Southern Ute Indian Tribe's 1/6 allotment of Project water.

It should be noted that the assumption of fully using the 3,000 af each year is a maximum case; releases would actually vary from zero to 3,000 af depending on water conditions each year. Based on these assumptions, an operation study was developed and is shown in Appendix F.<sup>6</sup>

The water used for miscellaneous uses would be released to the Pine River generally during the period of the irrigation season if there was a call on the river. This would be over a period ranging from an estimated 48 days to 141 days, depending on river flow conditions. When the additional 3,000 af is fully developed, the M&I daily water releases could vary between approximately 10.7 and 31.5 cfs during the irrigation season, once again depending on river flow conditions. These releases would increase streamflows slightly in the water critical area (from the dam to the Pine River Canal diversion located approximately 4 miles downstream from Bayfield). Below this point, irrigation season streamflows should not change.

Vallecito Reservoir content at the end of the irrigation season under the Proposed Alternative could be up to 3,000 af less than under the No Action alternative. This would normally represent a 1 to 2-foot reduction in reservoir depth in the fall but up to 4 feet in extremely dry years such as 1977.

As stated above, this analysis assumes that any reduction in storage as a result of M&I releases would need to be “restored” each year. The approach for restoring this water is to keep in storage (i.e., not release) those historical reservoir releases that were not needed to meet the needs of project users. To determine if the release of the water for miscellaneous uses in any given year would impact the irrigation supply for that year, the reservoir content at the end of the irrigation season under the Proposed Alternative scenario was compared to the historical content. To determine if “restoring” the water released under the Proposed Alternative would impact the following year's water supply, the reservoir content at the beginning of the next irrigation season under the Proposed Alternative scenario was compared to the historical content at the beginning of the next irrigation season. In both of these comparisons, the Southern Ute Indian Tribe's 1/6 portion of storage water available to it during the given water year was identified and set aside. Only the District's 5/6 portion was used to meet the miscellaneous water needs. In this analysis, the irrigation season is defined as May 11 through November 15 of each year and the winter season is defined as November 16 through May 10.

Impacts to the Pine River were determined by analyzing releases modeled for the Proposed Alternative and comparing those to the historical releases. For the purposes of

---

<sup>6</sup> The Operation Study simulated the release (and subsequent restoration) of the M&I Contract water throughout the entire historic operation of the Project (1941-2006) to determine impacts to historical supplies and releases. In effect, the Operation Study simulates operating the reservoir in a more efficient manner, similar to the past 10 years of operation.

the analysis, releases in excess of the needs of project users are defined as historical releases greater than 700 cfs during the irrigation season and greater than 25 cfs during the non-irrigation season; as indicated previously, this is based on observations made over many years of reservoir operations and irrigation diversions. In many cases, these releases were made in anticipation of high spring runoff inflow or to reach a storage content of less than 77,000 af in the winter to avoid damage to the radial gates caused by ice buildup. In most years, these releases in the fall are substantial in order to reach the winter storage target of 77,000 af.

While some of these releases will continue to be necessary even under the Proposed Alternative (i.e., reservoir storage levels will need to be reduced in anticipation of high runoff and to meet winter storage limits), the release volumes could be reduced at times by the amounts necessary to “restore” water that has been or will be released for M&I purposes. For this analysis, the daily reduction was calculated so that the historical releases would never be reduced when they were below 25 cfs during winter months or 700 cfs during the irrigation season. If the historical daily releases were less than 25 cfs in the winter or 700 cfs during the irrigation season, then no changes were made to releases that day.

Table 4 summarizes changes (as compared to historical operations) in reservoir releases if managing the potential excess releases were used to “restore” the reservoir under the Proposed Alternative. Table 4 also shows that releases would be slightly increased during the months of July-October and slightly reduced during the months of November - April. A majority of reductions in historic winter releases would occur in November, the first recovery month after the irrigation season

Table 4. Change in Historical Vallecito Reservoir releases under the Proposed Alternative.

Month	Percentage change in mean release	Change in mean release (cfs)	Change in minimum release (cfs)	Change in maximum release (cfs)
January	-7%	-4	0	0
February	-5%	-3	0	0
March	-4%	-4	0	0
April	-1%	-2	0	0
May	0	-1	-9	0
June	0	1	11	0
July	1%	8	11	0
August	2%	10	11	0
September	2%	10	5	0
October	3%	9	2	13
November	-15%	-16	0	-20
December	-11%	-9	0	0

Evaluation of reservoir content required a slightly different analysis than that used in predicting streamflow below the reservoir. It was assumed that any additional water

stored in Vallecito Reservoir as a result of more efficient operations, and which better conserved storage and controlled releases to those needed to meet Project purposes, would not only benefit the District, but also the Southern Ute Indian Tribe. This was accomplished by modeling the operation of the reservoir to account for additional demand of 3,600 af/yr (3,000 af or 5/6 for the District and 600 af or 1/6 for the Tribe). Any additional water allotted to the Tribe as a result of more efficient operations would not be included in the M&I Contract water; however, for simplification purposes, it was assumed in this analysis that any additional allocation to the Tribe would be released each year (to avoid changing the historical reservoir content).

Superimposing the release of 3,600 af/yr on the historical reservoir operation demonstrated that historical water supplies of the District and the Tribe were never impacted by the release of the water for miscellaneous needs. This was accomplished by comparing the historical November 15 content to the modeled content.

The analysis also showed that by May 10, the reservoir had returned to the historical content 63 out of 65 years. In the two years that the reservoir didn't return to the historical content by May 10, it was restored by mid-June, before the date of maximum content and before releases from storage were required for irrigation deliveries.

Based on this analysis, there appear to be no significant impacts to hydrological resources or reservoir operations as a result of implementing the Proposed Alternative. Moreover, the impacts to hydrological resources identified in this analysis would likely be less than those described in this section when considering the following:

- The impact analysis does not take into account that approximately 400 af of the 3,000 af is already being used for M&I purposes.
- The impact analysis does not take into account the mitigating effects of return flows on the system. As mentioned above, between 50 and 90 percent of the M&I uses would be returned to the river which would reduce the impacts to river flows.
- As mentioned above, the assumption in the analysis that the full 3,000 af of M&I water would be released each year could be high; releases would actually vary from zero to 3,000 depending on hydrologic conditions.
- The analysis assumes the leased water would be released only during the irrigation season. If a new Third Party Contractor called for a year-round diversion, this could result in small increases in winter flows and small decreases in irrigation season flows (as compared to those shown in Table 4) in the reach of river upstream from the Pine River Canal diversion.
- The analysis does not take into account that irrigated acreage within the District has been and continues to be reduced due to development such as homes, commercial buildings, farm buildings, roads, gas wells, and expansion of the Town of Bayfield. The reduction of the irrigated lands from 1945 to 2005 is roughly estimated to be 1,300 acres which represents approximately 2,700 af of storage water that could be used for M&I purposes.

It should also be noted that this analysis does not take into account impacts to historical reservoir storage if the Tribe had used all of its allotted storage each year. If and when this happens in the future, it could affect (in some years) the maximum reservoir content of a given year which would impact both the Southern Ute Indian Tribe's and District's water supply the following year – independent of the Proposed Alternative. This analysis was developed to show only that historical supplies (including the Tribe's) and hydrological resources would not have been impacted by the Proposed Alternative. The analysis does show that the releases for the M&I Contract water would not be derived from the Tribe's allocation of Project water; therefore, the Tribe's full allocation of water would be available for Tribal use each year.

This EA evaluates the use of 3,000 af of Project water for miscellaneous uses. As identified in the Contract, it is possible that in the future, additional water may be used for miscellaneous uses resulting in cumulative effects on hydrologic resources. If additional water were used for miscellaneous uses, some would likely be for larger Third Party contracts for use outside of the Project service area, in which case water would come from the Voluntary Shareholder Pool previously discussed. Potential impacts to hydrologic resources, including irrigation water supplies, would be determined by separate NEPA evaluations to be completed prior to approval of any Third Party Contract where the water was being delivered outside of the Project service area. This analysis would include the cumulative effect of delivering the additional water on top of the 3,000 af being analyzed in this NEPA document.

From a hydrologic standpoint, the impacts of using water from the Voluntary Shareholder Pool are not anticipated to be significant. The water would be derived by shortening the irrigation season or decreasing the supply of only those irrigators who voluntarily gave up their water. Because the water would be made up directly from irrigation supplies from those who volunteered, the water would not have to be “restored” as in the previous analysis. Prior to providing water to the Pool, the individual shareholders would be required by the District to prove that doing so would not impact other shareholders' abilities to receive their water. The amount of water that would be removed from the Pine River Basin as a result of this future action would be insignificant when compared to the total amount of water in the basin.

In the event that a portion of the additional 3,700 af of water that could possibly be used for miscellaneous uses were not to come from the Voluntary Shareholder Pool (i.e., if the water were leased within the District service area), the impacts of that action would be overlaid on top of the existing operations at that time, which would include the action being covered in this EA (the use of 3,000 af of Project water for miscellaneous uses). In such a case, and prior to approving each use of this water, the action would be analyzed to determine if this additional water could be restored without impacting the irrigation supplies.

The operation study developed for this analysis simulates an operational method which has generally been implemented by the District using historical hydrology that minimizes or avoids impacts to supply. Future operation of the reservoir will be dependent on

hydrology, snowpack, runoff characteristics, summertime precipitation, and other factors. As such, nothing in this document or the Contract requires the District to operate the reservoir in exact accordance with the operation study simulation to supply the M&I Contract Leased Water. However, if reservoir operation strategies implemented by the District result in impacts significantly different than addressed in this EA, additional operating plan reviews, involving the District, Southern Ute Indian Tribe, and Reclamation, would be required.

Under the No Action Alternative, significant changes to the hydrology or water quality are not expected.

#### 4.3 Land Use:

##### 4.3.1 Existing Conditions:

The primary land use in the area has historically been agricultural. In recent years, many non-agricultural residents have moved to the Pine River Valley because of a desire to live in a rural setting and because land and housing is relatively more affordable than in the Durango area. La Plata County experienced a 36 percent growth rate between 1990 and 2000 and the town of Bayfield a 42 percent growth rate during the same period. The unincorporated area of Gem Village just west of Bayfield has also shown rapid growth.

Vallecito Reservoir is surrounded by parcels of private land and the San Juan National Forest. The Pine River drainage south of the reservoir is primarily private land and Tribal land, although there are scattered tracts of public land administered by the Bureau of Land Management. Natural gas development has increased in the area with increased well pads, pipelines, and associated facilities.

Much of the recent growth outside of developed areas such as Bayfield and Ignacio has depended on groundwater; for example, permits were issued for over 1,880 domestic wells in La Plata County, both in and outside of the service area, in the 1996-2000 period (La Plata County, 2002). Groundwater supplies are often found in association with irrigated areas, and this tends to concentrate growth on irrigated land. However, groundwater supplies have had increasing problems with quantity, quality, and interference with senior water rights. Consequently, hauling water to store in individual cisterns is still a common practice. The Colorado Division of Water Resources regulates water rights for all uses in the area.

Bayfield has a comprehensive plan and land use permitting system and is expected to expand through annexation. Forest Lakes is a large residential subdivision originally viewed as a summer home community but now matured into a year round residential community. Other small subdivisions exist, and numerous small lots created through the minor exempt subdivision process have created pockets of home sites surrounded by agricultural lands. Land use planning is the responsibility of La Plata County and is regulated through the La Plata County Land Use Code. Rural private land development must comply with the Land Use Code. Local planning districts are established, such as

the Bayfield District, to obtain citizen guidance on development. The town of Bayfield also has planning authority, and the Southern Ute Indian Tribe and the Bureau of Indian Affairs regulate land use on Trust and allotted lands on the reservation. Along with the rapid development of the area, there is a strong interest and emphasis on protecting rural characteristics, productive agricultural lands, and natural areas (La Plata County, 1997).

#### 4.3.2 Environmental Consequences:

Continued residential growth is projected, especially adjacent to already developed areas and along transportation corridors (La Plata County, 2002) under both the No Action and Proposed Alternatives. If present trends continue, land use changes in the area will be significant. Land use will change to smaller agricultural tracts and increased residential use. Residential growth will be accompanied by the need for utility and transportation improvements. No major industrial projects are forecasted for the area. The responsibility for guiding and regulating growth will continue under the leadership of local entities such as La Plata County, the Tribe, or Bayfield. Continued growth in natural gas development is expected with associated wells, access roads, compressor stations, pipelines, and other facilities.

The Colorado Division of Water Resources will continue to oversee water rights in the area to assure the state priority system is honored. Water made available for miscellaneous uses under the Proposed Alternative is considered the only practicable source of water to serve the projected growth. The proposed Contract *allows* for the use of water to meet anticipated future needs but it does not *require* the use. Therefore, if the existing trend toward smaller tracts needing M&I water does not continue as anticipated, then the use of Project water for miscellaneous uses would be reduced.

Under the No Action Alternative, water would not be made available under the Contract, and other, more expensive and impracticable sources such as acquisition and storage in new reservoirs of senior irrigation rights and/or winter/spring flows or piping from the supplies in the Animas River Basin could be considered. This could result in more land being used for reservoir sites and water distribution systems.

#### 4.4 Agriculture:

##### 4.4.1 Existing Conditions:

Lands within the District consist of hills, ridges, and drainages, with elevations ranging from approximately 6,200 feet to 7,400 feet. The greatest portion lies between elevations of 6,300 and 6,800 feet, creating a slight slope to the south. In general, this topography supports flood irrigation practices without requiring much land preparation. Most agricultural lands were developed prior to the construction of Vallecito Dam, and by the 1920s irrigation ditches fully used the Pine River during the summer (Harris, 2001).

Physiographic features divide the agricultural lands into three basic categories based on soil type: bench lands, residual lands, and alluvial lands. The bench lands, which

comprise the greatest part of the project, contain the most productive soils in the District and are generally located west of the Pine River. The residual lands contain soils that are generally less productive than those of the bench lands, although successful irrigated agriculture is now occurring on those lands. The alluvial lands also include highly productive soil, which is generally permeable, allowing for good root and water penetration (Harris, 2001). A small portion of the agricultural lands in the Bayfield vicinity is classified as prime farmland (BLM, 2004).

The Project stores Pine River water in the winter and spring and releases water in the summer and fall to provide irrigation water to supplement existing supplies to over 40,000 acres of private lands and over 17,000 acres of Tribal lands (for use on the Pine River Indian Irrigation Project). There has been a decline in irrigated acreage in the area as Bayfield expands and as roads, homes, gas well facilities and other uses develop. Project water is released from the reservoir into the Pine River for delivery to private ditches and canals. There are nearly 1,000 Project water users who receive water from Vallecito Reservoir through a complex network of private and Southern Ute Indian Tribe canals and ditches. Included in this delivery system are 5 diversion dams, 196 miles of canals, 148 miles of distribution laterals, and 19 miles of drains. The District provides water to 25 main canals (see Appendix B). Most of these canals are shared by several landowners with varying decreed priorities and flow rates, which together determine the decreed flow rate of a canal.

All irrigation diversions, ditches and canals are operated by private groups. Ditch riders, employed by ditch companies, operate the systems to distribute water to individual property owners. Parshall flumes are used to measure water at the private landowner head gates. Each ditch rider is responsible for the proper measurement of water to each ditch and parcel. The ditch riders determine the amount of water needed to satisfy each individual water right on the ditch and then contact the Colorado Division of Water Resources to place their water “order.” The Division then contacts the District, and reservoir releases are adjusted accordingly.

#### 4.4.2 Environmental Consequences:

Appendix C contains a report on the effects of the Proposed Alternative on irrigation service from the Pine River Project. In summary, the analysis reveals that making 3,000 af of Project water available for uses other than irrigation will have an insignificant effect on the irrigation supply and will not affect non-Project irrigation. This is a result of the relatively small amount of water to be used for miscellaneous uses when compared to the total Project supply and the limited accuracy of flow measurement devices. In addition, irrigated lands served by the District have declined by approximately 1,300 acres since 1945, which has lowered the demand for irrigation water by approximately 2,700 af.

In addition, as described in Section 4.2.1, sufficient water supply exists to meet both the irrigation and M&I demands (both existing and future) and the additional water released for miscellaneous uses during any one year could be replaced prior to the next irrigation season thereby avoiding impacts to the irrigation supply.

As indicated above, irrigated acres have declined and this trend will probably continue as large commercial farms are converted to smaller tracts and subdivisions. This trend would be expected under both the No Action Alternative and the Proposed Alternative and will include continued growth in and around already developed areas and a concentration of growth along major transportation corridors (La Plata County, 2002).

As indicated previously, additional water that may be made available for miscellaneous uses in the future is subject to additional 1920 Act and NEPA compliance. This water could come from the “Voluntary Shareholder Pool”. If this additional use of water were proposed, the District, the Southern Ute Indian Tribe, and Reclamation would review proposals to assure protection of agricultural interests.

#### 4.5 Fisheries:

##### 4.5.1 Existing Conditions:

The primary fisheries in the project service area are associated with Vallecito Reservoir and the Pine River. The reservoir is managed by the Colorado Division of Wildlife primarily as a cold-water fishery. Both rainbow trout and kokanee salmon populations are supported by stocking. Brown trout are also present and reproduce naturally in reservoir tributaries. Northern pike and smallmouth bass reproduce in the reservoir and provide recreation opportunities. Other species in the reservoir include yellow perch, walleye, and white suckers.

The Pine River supports a self-sustaining brown and rainbow trout fishery in the 12 mile reach between Vallecito Dam and Bayfield, and the Colorado Division of Wildlife is conducting experimental stocking to reintroduce Colorado River cutthroat trout in the five mile reach downstream from Vallecito (CDOW, 2005). Summer flows are generally adequate in this reach; however, low winter flows occasionally limit habitat. Minimum flows as high as 75 cfs have been recommended by the Colorado Division of Wildlife downstream from Vallecito for the winter months, although historically flows of this magnitude have rarely occurred, as can be seen in Table 3. Low winter flows can result in habitat loss, anchor ice, and fish mortality.

Downstream from Bayfield brown trout are the dominant game fish and there is an increase in the numbers of warm-water species. Native fish include the flannelmouth sucker, bluehead sucker, mottled sculpin, and speckled dace. The roundtail chub is either very rare or extirpated from the river. Non-native fish include the common carp, white sucker, fathead minnow, channel catfish, bullhead, largemouth bass, and others. The river enters Navajo Reservoir 20 miles downstream from Bayfield; and fish from Navajo Reservoir, including kokanee salmon, occasionally migrate into the lower Pine River (Southern Ute Indian Tribe, 1999, 2001).

#### 4.5.2 Environmental Consequences:

The Vallecito Reservoir fishery can be affected by variations in the amount of water in the reservoir and associated changes in water quality, available habitat, and productivity. To a greater extent, the Pine River fishery can be affected by flow levels. The Contract would allow for the use of up to 3,000 af of irrigation water for miscellaneous uses. Current use of this water for irrigation results in an estimated depletion to the San Juan Basin of 1,140 af (38 percent depletion rate for irrigation water) annually. Once fully used for M&I purposes, the depletion is estimated at 595 af<sup>7</sup>. While it is contemplated that a reduced depletion would occur if water was converted from irrigation to M&I uses, this assessment assumes that the historic depletion of 1,140 af would continue because the Contract simply allows for the use but does not implement it. There is no guarantee that any water would be used for miscellaneous uses.

Changes under the Contract represent an insignificant amount of change in Pine River flows (see Table 4), water distribution in the service area, and reservoir operations. For example, annual Pine River flows immediately downstream from Vallecito Reservoir varied from 116,400 af in 2002 to over 416,000 af in 1987 and therefore changing the use of 3,000 af of this water is relatively minor. In the long term, summer releases from Vallecito could increase by 10 cfs while winter flows could be reduced by an average of 16 cfs in November and 9 cfs in December to “restore” the water released under the Contract. January through May releases would be reduced by 1 to 4 cfs, and January and February would continue to have the lowest flows of the year. Winter flow levels will continue to periodically fall below recommended levels; however, historic minimum flows (pre-2002) would not have to be reduced as a result of the Contract. Reservoir levels would be slightly lower in the late summer and fall but should not have significant effects on reservoir productivity.

Overall, implementation of the Proposed Alternative is not projected to significantly change Vallecito Reservoir operations or Pine River flows; therefore, there should be no impacts expected to the respective fisheries under the Proposed Alternative.

Under the No Action Alternative, significant changes in the fisheries are not projected, although if development of new water sources occurred this could affect fisheries and river depletions, depending on which sources are developed.

---

<sup>7</sup> The 38 percent irrigation depletion is based on the Colorado Water Conservation Board’s STATEMOD hydrologic model of the Pine River Basin for the 1929-2003 water years. STATEMOD is a monthly and daily water allocation and accounting model capable of making comparative analyses of various historic and future water management policies in a river basin. M&I depletions are derived from an engineering report documenting compliance with the 1920 Act by Harris Water Engineering and is based on a 33 percent depletion from M&I uses diverted from the river and a 15 percent depletion from exchange uses.

## 4.6. Wetlands and Wildlife:

### 4.6.1 Existing Conditions:

The Pine River Project area contains diverse vegetation and wildlife resources that vary with changes in elevation and land use. Ponderosa Pine, mixed conifer and aspen forests occur at higher elevations near Vallecito Reservoir with pinon-juniper woodlands and grasslands/shrublands occurring at lower elevations. Overall, nine vegetation types can be identified in the area: grasslands, sagebrush, pinon-juniper woodland, mountain shrubland, oak brush, ponderosa pine woodland, mixed conifers, aspen, and riparian.

The Pine River supports a relatively healthy riparian zone consisting of native cottonwood and willow that provides important habitat and migration routes for a variety of birds and small mammals. Much of the Pine River area provides important deer and elk winter range and associated migration routes (BLM, 2002).

It is estimated that over 4,500 acres of wetlands occur in the area with approximately 1,100 of these associated with the Pine River and the remainder either naturally occurring in uplands or supported by irrigation (canal seepage, tailwater at end of fields, ditch banks) (Bureau of Reclamation, 2000). Over 50,000 acres of land have been developed for irrigation over the years and are irrigated from 200 miles of private canals and 150 miles of private distribution laterals. The Colorado Natural Heritage Program has identified several wetland areas of high biodiversity significance along the Pine River downstream from Bayfield (March, et al, 2004).

### 4.6.2 Environmental Consequences:

The amount of Project water made available for miscellaneous uses under the Proposed Alternative is a very small percentage of water presently used for irrigation as discussed previously. Therefore, no major change in wildlife habitat or wetlands supported by irrigation or irrigation facilities is predicted. Likewise, significant changes in Pine River flows are not projected and thus wetlands and other habitat supported by the Pine River are not likely to be affected. Spring flows, important for riparian vegetation maintenance, would not be affected. Increases in summer flows in the river upstream from Bayfield would not be large enough to benefit riparian areas.

Under both the No Action and Proposed Alternatives, the continued trend toward smaller land tracts; increased natural gas production; increased housing; and associated developments such as roads, utilities, and support services in the project area will affect wildlife habitat and wetlands, and these effects could be significant if the current trends continue. Habitat and migration corridors will be reduced and become more fragmented with an overall reduction in the quality of wildlife habitat in the area.

#### 4.7 Endangered Species:

##### 4.7.1 Existing Conditions:

The Fish and Wildlife Service (2005) has provided the following list of threatened or endangered species that may occur within the influence of the subject project:

Bald Eagle	<i>Haliaeetus leucocephalus</i>	Threatened
Canada Lynx	<i>Lynx canadensis</i>	Threatened
Colorado pikeminnow	<i>Ptychocheilus lucius</i>	Endangered
Razorback sucker	<i>Xyrauchen texanus</i>	Endangered
Southwestern willow flycatcher	<i>Empidonax traillii extimus</i>	Endangered
Knowlton's cactus	<i>Pediocactus knowltonii</i>	Endangered
Mexican spotted owl	<i>Strix occidentalis lucida</i>	Threatened
Black-footed ferret	<i>Mustela nigripes</i>	Endangered

In 1998, the Fish and Wildlife Service (Service, 1998) prepared a biological opinion on the Vallecito Water Company, which would have used approximately 2,000 af of Pine River Project water for M&I uses. This opinion estimated that this conversion would reduce depletions from 1,320 af annually to 660 af. This project was never implemented as discussed previously.

##### 4.7.2 Environmental Consequences:

Table 6 summarizes Reclamation's conclusions on anticipated effects of the Proposed Alternative on listed species:

Table 6. Anticipated Effects on threatened or endangered species.

Species (Common Name)	Status	Anticipated Effects of Proposed Alternative and No Action Alternative
Bald eagle	Threatened	No effect
Canada lynx	Threatened	No effect
Colorado pikeminnow	Endangered	May affect, likely to adversely affect
Razorback sucker	Endangered	May affect, likely to adversely affect
SW willow flycatcher	Endangered	No effect
Knowlton's cactus	Endangered	No effect
Mexican spotted owl	Threatened	No effect
Black-footed ferret	Endangered	No effect

The "likely to adversely affect" conclusion on endangered fish is based on the continued depletion from the San Juan River even though the Proposed Alternative would not increase depletions from present levels.

Effects under the No Action Alternative are expected to be similar to effects under the Proposed Alternative.

The bald eagle is a common winter visitor to southwest Colorado including the Pine River drainage. The eagles are attracted to Vallecito Reservoir during the fall kokanee salmon run, congregating largely at the upper portions of the reservoir near the Vallecito and Grimes Creek inflow areas where most of the spawning kokanee move. Eagles are also distributed along drainages in La Plata County during the winter utilizing carrion, fish, and other food sources. Nesting occurs in several locations in La Plata County (Lyon, 2004), and nesting has been reported along the Pine River in the Ignacio vicinity (BLM, 2002). The Proposed Alternative is not anticipated to have any effect on the eagle because changes in river flows and reservoir operations are not projected to affect riparian areas or food sources used by the eagles.

The Canada lynx has recently been reintroduced to Colorado with the San Juan Mountains, including areas a few miles from Vallecito Reservoir, being reintroduction areas. Lynx use of the forested areas around Vallecito Reservoir is therefore likely to occur. Some of the lynx wander significant distances from release sites and may pass through the project irrigation area. However, because areas of irrigation and projected M&I use are generally at low elevations and are highly developed for human use, there is little potential to provide suitable habitat for this species and no effect is projected.

The Colorado pikeminnow and razorback sucker do not occur in the Pine River drainage (Southern Ute Indian Tribe, 1999 and 2001) but are found in the San Juan River downstream from Navajo Reservoir. Critical habitat has been designated on the San Juan downstream from Farmington, New Mexico. The San Juan River Basin Recovery Implementation Program for the endangered fish was initiated in 1992 to conserve populations of the fish in the San Juan Basin consistent with the Endangered Species Act and to proceed with water development in the basin. The Recovery Program published Flow Recommendations for the San Juan River in 1999 (Holden, 1999), and Reclamation and the Service are working to meet these recommendations through operations of Navajo Dam and Reservoir in such a manner to meet base and spring peak flows.

For more specific information about the endangered fish, please consult the San Juan River Flow Recommendation Report (Holden, 1999).

Any depletion of water is considered an adverse effect on these fish. Even though there is no new depletion or no increase in depletions under the Proposed Alternative, the ongoing depletions from the water use is considered adverse; and thus Reclamation has concluded that the Proposed Alternative “may affect, likely adversely affect” these species. Neither the No Action nor the Proposed Alternative would affect Reclamation’s ability to meet the flow recommendations in the future.

The southwestern willow flycatcher nests in dense riparian vegetation and is thus vulnerable to impacts associated with modification of riparian habitats such as channelization, recreational development, grazing, and agricultural conversion (Kingery, 1998). Critical habitat has not been proposed in the project area.

Sogge et al., (2002) reported only four nesting territories in the San Juan Basin. In recent years nesting of willow flycatchers has been confirmed along the Pine River on the Southern Ute Reservation downstream from Bayfield.

Because the Proposed Alternative will not measurably alter Pine River streamflows or irrigation distribution operations, no effect is projected on riparian habitat or potential habitat of this species.

Knowlton's cactus is found on rolling, gravelly hills in pinon-juniper-sagebrush communities and is only known from one location on the border of La Plata County and San Juan County, New Mexico (Lyon, 2004). Most, or possibly all, plants are in New Mexico. Since the state boundary is unsurveyed, the presence of the species in Colorado is not certain. The known occupied habitat is now protected by the Nature Conservancy. The Proposed Alternative would not affect habitat of this species.

The Mexican spotted owl occurs in rocky canyons and forested mountains generally below 9,500 feet. Very limited nesting has been reported in Mesa Verde National Park and in south-central mountains in Colorado (Kingery, 1998) but is not reported from the project area. Potential habitat does occur in isolated canyons in portions of La Plata County. Potential habitat of this species would not be affected by the Proposed Alternative.

The black footed ferret occurs in northwestern Colorado, Utah, and Wyoming and is being managed through a reintroduction program. There is no evidence of presence in the project area and no effect is anticipated.

#### 4.8 Cultural Resources:

##### 4.8.1 Existing Conditions:

Cultural resources are physical or other expressions of human activity or occupation. Such resources (hereby referred to as historic properties) include culturally significant landscapes, prehistoric and historic archaeological sites and isolated artifacts or features, historic structures, human burials, sacred sites, and areas of important cultural value to existing communities (traditional cultural properties (TCPs)). Historic Properties that are eligible for inclusion in the National Register of Historic Places (NRHP) are protected under the National Historic Preservation Act of 1966, as amended in 1992 (NHPA), and may also be protected under the Native American Graves Protection and Repatriation Act of 1990 (NAGPRA), the American Indian Religious Freedom Act, and Executive Order 13007, Protection of Native American Sacred Sites, and other state, agency, city, or tribal laws and policies.

There is a wide range of cultural resources in the Pine River Project Area (PRPA), and through recent studies for other projects by Reclamation (Mabry et al, 2002 and Pfertsh and Neely, 2005) and BLM (2002, 2004) there is a large amount of cultural resources background information to evaluate the Proposed Alternative.

The PRPA is in the Northern San Juan River basin, a geographic and cultural region well known for its archaeology and contemporary/historical Native American and Euro American heritage. The PRPA includes the Pine River drainage from Vallecito Reservoir to where it enters Navajo Reservoir at the Colorado-New Mexico state line, a portion of the Salt Creek drainage to the west, and portions of the lower Piedra River and Sambrito Creek drainages to the southeast. Prominent cultural/archaeological features adjacent to or within the project area include the Navajo Reservoir Archaeological District to the south and southeast, and the Spring Creek (Zabel Canyon) Archaeological District to the east. Immediately to the west is the Ridges Basin Archaeological District, site of the Animas–La Plata Project, currently under development. The southern part of the PRPA is on the Southern Ute Reservation.

The mobile hunter-gatherer Paleo-Indian and Archaic (9,000 to 500 B.C.) groups were followed by the pre-Puebloan and Ancient Puebloan (A.D. 1 to 1300) (Anasazi) culture. This is followed by the Post-Puebloan/Protohistoric (Ute and Athabascan) Period (A.D. 1300 to 1840). Historic patterns (1664 to Present) related to the Spanish frontier, Ute conflicts and Reservation, mining, railroading, ranching, farming, logging, and water development have also been documented. TCPs affiliated with both the Ute and contemporary Puebloan Tribes are also extant.

While there are over 10,000 years of human existence represented in the region, the Basketmaker III and Pueblo I (A.D. 500 to 900) time periods are the most strongly represented historic property types in the PRPA. Of the 169 recorded Anasazi components in the Pine/Piedra drainages on the Southern Ute Reservation, 119 date to the Basketmaker III/Pueblo I time periods (BLM 2002). These time periods represent early village formation and a dependence on agriculture. By the beginning of the 10<sup>th</sup> century A.D. a sharp decline in Puebloan occupation occurred (Lipe et al, 1999) and the area of the PRPA and stretching to Ridges Basin was largely depopulated for unknown reasons. This is supported by excavation results from Navajo Reservoir and, more recently, the ALP. In contrast, points further east and west (e.g., Chimney Rock and Mesa Verde) continued to be occupied by Puebloans into the 13<sup>th</sup> century A.D.

In the northern PRPA, the lands surrounding Vallecito Reservoir, evidence of a Puebloan occupation of any kind is scarce.

#### 4.8.2 Environmental Consequences:

The area of potential effect is the river corridor from Vallecito Dam to the Pine River Canal diversion point, approximately 4 miles south of Bayfield. Point(s) of diversion, to be determined later, would occur somewhere between those locations. The release of water from Vallecito Dam would have no potential to cause effects because it represents an insignificant amount of change in Pine River flows and would not result in new bank impacts along the river corridor. Potential effects could occur at the point(s) of diversion. If diversion of water is through an existing diversion facility, there is no potential to cause effects because no new ground disturbing activity would take place. However, if it involves construction of a new diversion facility and/or improvements to an existing

diversion facility, there are potential impacts. Those proposed undertakings, once identified, would undergo standard cultural resources review under applicable laws and policies. Because the area(s) of potential impact are rather small, it is anticipated impacts will be avoided or minimized in the event that historic properties are identified. The review would be limited to the diversion facility itself because, as stated earlier, neither distribution of water nor approval of water use is a part of the Proposed Alternative.

Under the Proposed Alternative, this action authorizes the District to use up to a total of 3,000 af of Project water for M&I and miscellaneous uses. As indicated above, future use of additional Project water would be subject to additional NEPA compliance, and therefore, additional cultural resources review.

#### 4.9 Recreation:

##### 4.9.1 Existing Conditions:

Vallecito Reservoir is a popular recreation area with nature observation, hiking, picnicking, boating, fishing, and waterfowl hunting as popular activities. Recreation facilities are administered by the District and the Forest Service. Reservoir visitation surveys have not been completed at the reservoir; however, annual use is estimated in the 75,000-100,000 visitor day range (Reclamation, 1996). Recreation use has been temporarily affected in recent years by a forest fire that resulted in closures of some recreation sites around the reservoir for safety reasons.

When filled in the spring, the reservoir has 2,720 surface acres to support recreation. On average, the reservoir is drawn down 6 feet by the beginning of July to supply downstream irrigation water, another 8 feet by August, and 6 more feet by September, for a total of 20 feet during the primary recreation use season (Reclamation, 1996).

In the long-term, visitor use numbers and the quality of recreation are affected by the surface acreage of the reservoir during the recreation season, quality of the recreation facilities, protection of the local scenery, and the fishing success.

Downstream from the reservoir, most lands are privately owned or part of the Southern Ute Indian Reservation. Stream fishing occurs for trout along the Pine River, and the river corridor provides a scenic setting for outdoor activities. The city of Bayfield manages a park along the Pine River.

##### 4.9.2 Environmental Consequences:

No significant effect on recreation is projected from the Proposed Alternative. Streamflow changes would be insignificant and would not affect recreation. Late season reservoir levels would be lower under the Proposed Alternative than under the No Action Alternative as discussed in the hydrology section; however, changes are not of a magnitude to affect recreation facilities or use. Overall, recreation use at the reservoir under the No Action and Proposed Alternatives is projected to increase due to increased

development in the area, and the recreational value of the Pine River corridor downstream from the reservoir should increase with the increased population in the area.

#### 4.10 Indian Trust Assets (ITAs) and Environmental Justice:

##### 4.10.1 Existing Conditions:

The United States has a trust responsibility to protect and maintain rights reserved by or granted to American Indian tribes or Indian individuals by treaty, statutes, and executive orders. ITAs can include water rights, trust lands, mineral resources, and hunting and fishing rights.

The Southern Ute Indian Tribe has the right to 1/6 of the water stored in Vallecito Reservoir. This water is used to irrigate over 17,000 acres on the Southern Ute Indian Reservation. The Pine River Indian Irrigation Project's water is not included in the water proposed to be made available for miscellaneous uses. Case No. W-1603-76B established the Tribe's reserved water rights in the Pine River, including rights in Vallecito Reservoir.

The Pine River is within the San Juan River Basin and other tribes in the area, including the Jicarilla Apache Nation, the Navajo Nation, and the Ute Mountain Ute Tribe, have water rights or water rights claims in the Basin. The Navajo Nation has substantial quantities of water resource ITAs in the San Juan River Basin based on historic agreements and reserved water rights claims. The Jicarilla Apache Nation established legal rights to San Juan River Basin Water that are based on the Jicarilla Apache Tribe Water Rights Settlement Act of 1992. The Southern Ute and Ute Mountain Ute Indian Tribes' water rights were quantified under the Colorado Ute Indian Water Rights Final Settlement Agreement.

Tribal trust lands of the Southern Ute Indian Reservation lie within the Pine River drainage and include mineral resources and natural gas reserves.

Whereas ITAs deal primarily with Indian lands and natural resources, Environmental Justice considers any adverse effect on minority and low-income populations in the analysis area and may include Indian populations as well. An example would be the inadequate drinking water supply on portions of the Navajo Nation southwest of the project area.

##### 4.10.2 Environmental Consequences:

As stated previously, Reclamation has concluded that the Southern Ute Indian Tribe's 1/6 portion of stored water in Vallecito Reservoir would not be impacted by the Contract because the Tribe's water would not be included in the water to be made available for miscellaneous uses. The hydrological analysis contained in Section 4.2.1 shows that the Tribe's full allocation in any given year would still be available to the Tribe and would not be released to meet the demands resulting from the use of water for miscellaneous

uses. Also, as stated in the Contract, the Contract shall in no way limit the Tribe's right to fully use its allocation of stored water. The Tribe's portion of Project water is determined each year by allotting to it 1/6 of the stored water based on the maximum content of the reservoir in that year. Also 1/6 of any additional water stored during the year after the maximum content is reached is allocated to the Tribe. That accounting method would remain unchanged under the conditions of the Contract, unless the District and the Tribe agreed to make changes. While Reclamation has concluded that the Contract would not impact the Southern Ute Indian Tribe's water, the Tribe does not fully concur. The Tribe has stated however that any negative impact may be avoided through new, improved reservoir accounting methods agreed upon by the District and the Tribe. The District and the Tribe have initiated discussions regarding the accounting system.

Because the Proposed Alternative will not result in new or additional depletions within the San Juan River Basin and will protect the Tribe's interest in Vallecito Reservoir, there is no potential effect to tribal water rights or claims. The Tribe's water in Vallecito Reservoir will not be reduced in any amount by the Proposed Alternative. The ability of downstream Navajo Reservoir operations to meet endangered fish flow recommendations would not be affected and this ability is important for Endangered Species Act compliance for ITA-related water use and development of all four Indian Tribes and Nations.

Based on the nature of the Proposed Alternative and the No Action Alternative, there are no Indian Trust Assets or Environmental Justice concerns in the project area that would be affected by either Alternative.

## 5. ENVIRONMENTAL COMMITMENTS

Any additional future use of Project water for M&I purposes beyond the 3,000 af addressed by this EA, including any Minor Uses water totaling greater than the 2,000 af as described in the Contract and any Third-Party Contracts for greater than the initial 1,000 af as described in the Contract, will require additional NEPA and 1920 Act compliance. The District will not take any actions through the Contract which are not in conformance with the NEPA document as determined by Reclamation for the Contract without additional NEPA compliance. Also, any water uses proposed outside of the service area would be subject to additional NEPA and 1920 Act Compliance.

If a water lease involves construction of a new diversion facility and/or improvements to an existing diversion facility on the Pine River, there would be potential impacts to historic resources. Those proposed undertakings, once identified, would undergo standard cultural resources review under applicable laws and policies. Since the area(s) of potential impact are rather small, it is anticipated impacts will be avoided or minimized in the event that historic properties are identified. The review would be limited to the diversion facility itself because, as stated earlier, neither distribution of water nor approval of water use is a part of the Proposed Alternative.