CHAPTER 3 - AFFECTED ENVIRONMENT

Chapter 3 – Affected Environment

Introduction

This chapter summarizes the existing conditions and uses of the biophysical, social, and economic environments that may be affected by revision of the FC–RONRW Management Plan and associated Forest Plan amendments. The environment described in this chapter is the baseline for the comparisons in Environmental Consequences as described in Chapter 4.

Planning Area

The wilderness includes seven general land types: (1) lower river canyon lands; (2) upper river canyon lands; (3) rolling basin lands; (4) low relief fluvial lands; (5) steep volcanic lands; (6) steep granitic fluvial lands; and (7) glaciated lands. Elevations within the FC–RONRW range from less than 2000 feet in the river canyon bottoms to over 10,000 feet on the higher mountain peaks. Geological formations include river breaks and canyons (some up to 5000 feet deep), high mountains, meadows, rugged peaks, hot springs, and glaciated basins.

Wilderness

The River of No Return Wilderness was established in 1980 when Congress passed the Central Idaho Wilderness Act (CIWA). Senator Frank Church's name was added in 1984 in recognition of his efforts in establishing the wilderness. The Act permits continuation of certain uses that were established prior to the date of enactment, including aircraft landings, and using motorboats on the Salmon River. The CIWA also established the Special Mining Management Zone, where cobalt mining could become the dominant use.

The FC–RONRW is the largest, contiguous wilderness in the 48 adjacent United States and in the National Forest System. As the largest block of primitive and undeveloped land outside Alaska, the wilderness is of national importance. According to the CIWA, the FC–RONRW is to be preserved in its natural state for future generations. The purpose of wilderness is *"...to assure that an increasing population, accompanied by expanding settlement and growing mechanization, does not occupy and modify all areas within the United States and its possessions, leaving no lands designated for preservation and protection in their natural condition..."*(Sec. 2.(a) The Wilderness Act of 1964). It is *"...devoted to the public purposes of recreational, scenic, scientific, educational, conservation and historical use*" (Sec. 4.(b) Wilderness Act).

W&SRs within the FC–RONRW include the Salmon River, the Middle Fork of the Salmon River (Middle Fork River) and the Selway River which "...possess outstandingly remarkable scenic, recreation, geologic, fish, wildlife, historic, cultural, or other similar values. [They] shall be preserved in free-flowing condition, and ... they and their immediate environments shall be protected for the benefit and enjoyment of present and future generations" (Sec.1. (b) W&SR Act of 1968)

Human Uses

Aviation Use and Landing Strip Maintenance

Sixteen landing strips are located on public lands within the Wilderness including 12 on Federal and 4 on State land. Of the 12 on Federal land the Forest Service maintains 8. Seven are designated as public use landing strips and one is designated as private use landing strips.

The remaining four landing strips Dewey Moore, Mile Hi, Simonds, and Vines landing strips were all originally private landing strips, which provided access to private property. The Forest Service acquired the four different properties, including the landing strips, with the intention of managing these areas as wilderness. The intention was to allow these areas to revert to natural conditions with out use and maintenance. However, after the Forest Service took over the management of these landing strips, minor amounts of use occurred on these landing strips (see Table 3.1 for estimated use).

Table 3.1

Aircraft Use at Dewey Moore, Mile Hi, Simonds, and Vines Landing Strips

Landing Strip	Estimated landings 1971 *	Estimated landings 1998 **	Estimated landings Idaho Aviation Association 2000 ***
Dewey Moore	40	20	Many more
Mile-Hi	--	--	50
Simonds	50	10	Many more
Vines	40	10	Many more

* From Forest Service, no date, Idaho Primitive Area Study. In 1971 Dewey Moore, Simonds and Vines were located on private land. Mil-Hi was located on NF land and a state school section and was allowed, to provide access to adjacent private land, until the private land was purchased.

** Based on records and estimates from Ranger Districts, State Division of Aeronautics, University of Idaho, Idaho Fish and Game Department, and commercial pilots.

***From Idaho Aviation Association response to SDEIS, dated January 23, 2000.

This led the Forest Service to develop management direction for these four landing strips in the 1984 FC–RONRW Plan. This direction stated "*The four fields that have not been in regular use (Vines, Simonds, Dewey Moore, and Mile-Hi) will not be maintained for public use as landing strips. Their use will be discouraged, except in emergencies. Do not include on Wilderness Maps. Advise Idaho Diversion of Aeronautics not to include on aeronautical charts or directories. Notify air taxi and Fixed-Base Operators that the strips are to be used for emergency landings only*".

All four of these landing areas have been managed in accordance with the 1984 Wilderness Plan direction. These landing strips have never been "opened" to unrestricted public use or managed as public landing strips; however, there is evidence that the landing strips receive some use. All four landing areas are very small, marginal backcountry landing strips that require a great degree of flying skill as well as the proper aircraft (high performance short take-off and landing planes). The Forest Service does not consider them safe landing areas and does not allow Forest Service pilots to use these landing areas, unless it is an emergency. In addition, the Federal Aviation Administration does not recognize these landing strips as designated airstrips.

There has been some on-the-ground evidence noted that suggest there has been a minimal level of unauthorized maintenance done on these four landing strips since they were acquired in the early 70's and 80's. Over time, surface conditions have remained relatively static. There has been some unauthorized maintenance activities performed by aviation users which has allowed the landing strips to be kept in a more open condition.

Recreation

Recreation occurs on nearly all areas within the wilderness, including both the land and rivers. The various types of recreation use have different impacts on the wilderness. In addition to the landing strips discussed above, a network of system trails and rivers provides access and distribution of wilderness visitors. Trailheads adjacent to the wilderness influence the amount, types, and time of use within the wilderness.

The FC–RONRW has a rich history of human use. Scow pilots and aviators brought in provisions and supplies to miners, ranchers and outfitters. Aviators also transported people and supplies into the wilderness. Many people came to explore, hunt, fish and escape the more developed parts of the country, seeking solitude or primitive, unconfined recreation. Others entered the area during the Depression Era to eke out a living on the land. From the 1930's to wilderness designation in 1980, most of the area was managed according to primitive area regulations as the Idaho Primitive Area and the Salmon River Breaks Primitive Area. Today, the wilderness is a place where people can use traditional skills, such as horse and mule packing, wild river navigation, backcountry air travel, backpacking, self-reliance and off-trail-travel to enjoy the wilderness.

The end product of recreation management is the experience people have. The key to providing most experience opportunities is the setting and how it is managed. Managers can facilitate many desired experiences by the way access, remoteness, naturalness, facilities, social

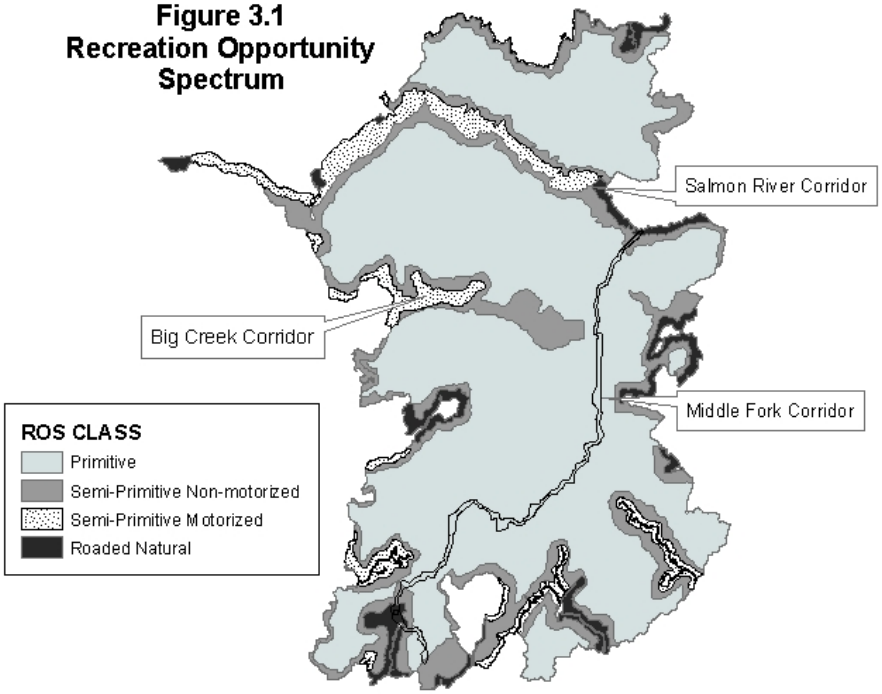
encounters, visitor impacts, and how visitors themselves are managed. Forest managers use the Recreation Opportunity Spectrum (ROS) as a tool for managing wilderness recreation. The ROS offers a framework for inventorying existing recreation opportunities, analyzing effects of other resource activities, estimating the consequences of management decisions on planned opportunities, linking user desires with recreation opportunities, identifying complementary roles of all recreation suppliers, developing standards and guidelines for desired settings and monitoring activities, and helping design integrated projects for Forest Plan implementation.

The spectrum has been divided into six major recreation classes for Forest Service use: urban, rural, roaded natural, semi-primitive motorized, semi-primitive non-motorized, and primitive. Wilderness is generally described by the primitive and semi-primitive ROS classes. Because of pre-existing uses (motorboats, aircraft, mining), perimeter roads, and roads in "cherry stem" and other in holdings, the FC-RONRW has areas of semi-primitive motorized and roaded natural ROS classes.

The criteria used to determine and map the ROS classes are described in the ROS Book (USDA Forest Service 1986). Managers use the matrices displayed in the "ROS Primer and Field Guide" (Toolbox in project record) for wilderness recreation project planning. The matrices establish maximum levels allowed to change for each indicator in a given setting.

Four ROS classes within the FC–RONRW have been identified and are displayed in Figure 3.1. The setting, descriptions, and acres in each of these classes are displayed in Table 3.2.

Figure 3.1
Recreation Opportunity Spectrum



Many opportunities exist within the FC–RONRW for wilderness-dependent recreation activities, from fishing at a high mountain lake in a remote and rugged setting, to a short day hike to a lake for an afternoon of fishing, swimming or picture taking. Some visitors seek the challenge of a multi-day horseback trip into a remote area for the pursuit of a trophy bull elk or of flying into a remote backcountry airstrip to hunt, fish, hike, take pictures and/or explore. Visitors may travel the backcountry on a trail system or choose to explore vast areas away from trails where they rely on the use of a map and compass to explore. The vast acreage of the wilderness provides many opportunities for self-reliance and the renewal of the mind and body.

Table 3.2

Recreation Opportunities within the FC–RONRW

ROS Class	Acres	Description
Primitive	1,665,625	The vast majority of the FC-RONRW falls into the primitive category. This part of the wilderness is predominantly the uplands and most of the human use is viewing of scenery, fishing, white water floating, and some hiking associated with trails.
Semi-Primitive Non-Motorized	415,213	These acres generally provide the buffer between true Primitive acres, and those acres where motorized use is permitted to occur (Salmon River, perimeter roads and trails). Recreation opportunities are generally the same as Primitive, however the location is closer to the influences of motorized use.
Semi-Primitive Motorized	181,360	These acres are predominantly in the Salmon River corridor and low standard road corridors generally associated with mining. They provide the unusual recreation opportunity to engage in jetboating within designated wilderness.
Roaded Natural	103,678	These inventoried acres are the result of setback buffers along perimeter and cherry stem roads, and are exposed to the influence (sight and sound) of motorized vehicles. The acres are actually managed as if they were semi-primitive non-motorized.
Total	2,365,876	Note: The total is greater than the total federal acres in the wilderness due to private in holdings being counted in ROS classes

Inconsistencies within the current ROS classifications

ROS classes are general descriptions that apply to relatively large land areas. Within these areas are site-specific uses or conditions that are not consistent with the ROS class. These variations are not significant enough to warrant a change of ROS class. They are best described as "inconsistencies" within the ROS class. Inconsistencies within the FC–RONRW are of two basic kinds – structures and uses. Inconsistencies are identified to disclose isolated conditions that, although not currently significant enough to warrant a change in ROS designation, reflect areas for future monitoring. Depending on desired management objectives, these areas would be considered for actions to conform to setting characteristics of the desired ROS class or future re-classification of the ROS class.

Naturalness

Naturalness is related to visual quality that on the vast majority of the area meets the Visual Quality Objective of "Preservation," which is most appropriate for designated wilderness. The few exceptions that exist are relatively small isolated instances and are primarily related to structures that are discussed below.

Facility and Site Management

Most, if not all, structures located in the wilderness remain as inconsistencies within the designated ROS class. They are generally small in scale, very site specific, and in many cases unobtrusive. The structures generally fall into one of four categories:

- Private property,
- Forest Service administrative sites,
- Historic structures, and
- Special use permit sites.

As for the private property, Forest Service policy is to obtain scenic easements on a willing seller basis. For the administrative sites, the Forest Service regularly analyzes sites to ensure that the structures present are the minimum necessary for administration of the wilderness.

The historic structures are covered by special language in the CIWA and once evaluated for historic significance and eligibility to the National Register of Historic Places, are assigned a management objective such as stabilization, restoration, rehabilitation, maintenance, disposal or leave to natural deterioration.

The structures under special use permit exist under tight restrictions concerning style, materials, colors, additional improvements, and so forth. The small magnitude of the effects of these isolated structures is not sufficient to require modification of the overall ROS class for the area that contains the structure.

Middle Fork River

Within the 96.3-mile segment between Boundary Creek launch site and the confluence with the Salmon River (designated Primitive) there are visible structures located at:

Six State and Private Parcels: Pistol Creek Ranch, Middle Fork Lodge, Satter Cabin, Hood Ranch, Mormon Ranch, and Flying B Ranch.

Three Administrative Sites: Indian Creek, Little Creek, and Bernard.

Three Historic Sites: Powerhouse Gulch, Joe Bump Cabin, and Tappan Ranch.

Salmon River

Within the 77.6-mile segment between Corn Creek launch site and Long Tom Bar (designated Semi-Primitive Motorized) there are visible structures located at:

Eleven Private Parcels: Allison Ranch, Yellow Pine Bar, Whitewater Ranch, Campbell's Ferry, Lemhi-China Bar, Painter Mine, Fivemile Bar, Mackay Bar, James Ranch, Shepp Ranch, and Polly Bemis Ranch.

Two Administrative Sites: Lantz Bar and Painter Bar.

One Historic Site: Rhett Creek.

Three Special Use Permit Sites: Stub Creek, Smith Gulch , and Arctic Creek.

Visitor Impacts

Visitor impacts exceed criteria in Primitive and Semi-Primitive Motorized settings in the Middle Fork and Salmon River corridors at approximately eight campsites, which are in Frissell Condition Class V.

Motorized Uses

Motorized jetboat use occurs in the Salmon River corridor and aviation use occurs at designated landing strips.

PAOT Capacity

Persons at one time (PAOT) capacity is calculated for a given area, such as a river corridor, based on coefficients contained within the Recreation Opportunity Planning Handbook. These coefficients are intended as general guidelines, not as stringent standards. In this planning effort PAOT numbers, along with other factors such as anticipated party size, length of stay, numbers of launches, water levels, campsite capacities and campsite distribution were used to indicate certain social conditions such as number and size of other groups likely to be encountered and general perceptions of crowded or congested condition. PAOT capacity as calculated is not a black or white number whereby being less than is okay but being greater than is not okay. More realistically, PAOT capacity is a general indication as to the ease with which a given ROS setting can be maintained over time. Other ROS criteria, describing the physical and managerial setting are often weighed more heavily than the social setting. This is due to the more permanent (difficult to change) nature of physical vs. social conditions.

The PAOT capacity for a Primitive setting in the Middle Fork of the Salmon River corridor would generally be about 290 persons at one time. The PAOT capacity for a Semi-primitive motorized setting in the Salmon River corridor would generally be about 900 persons at one time.

Rivers

Wild and Scenic Rivers

The 1968 W&SR Act designated the Middle Fork of the Salmon River as a component of the National W&SR system and the Salmon River from North Fork, Idaho downstream was designated for potential classification. In 1980 the CIWA designated the 79-mile segment from Corn Creek to Long Tom Bar as Wild River.

For additional information refer to Appendix D – Wild and Scenic Rivers Assessment of Outstandingly Remarkable Values.

River Recreation Existing Condition and Description

The current ROS classification on the Middle Fork of the Salmon River is Primitive. The current ROS classification on the Salmon River is semi-primitive motorized. A variety of opportunities is available for visitors in both river corridors. For example, during extremely low water flow levels after the high visitor use season on the Salmon River, motorized boat traffic, though allowed, may not occur because motorboats cannot negotiate the shallow areas of the river. White water nonmotorized boaters may choose such time periods to achieve a relatively primitive ROS white water experience on the Salmon River. Similarly, if the water flow levels are such that motorized boat travel is possible in time periods when visitor use is very low (after the summer high use season for example), a motorized boat traveler could then achieve a relatively primitive motorized river experience.

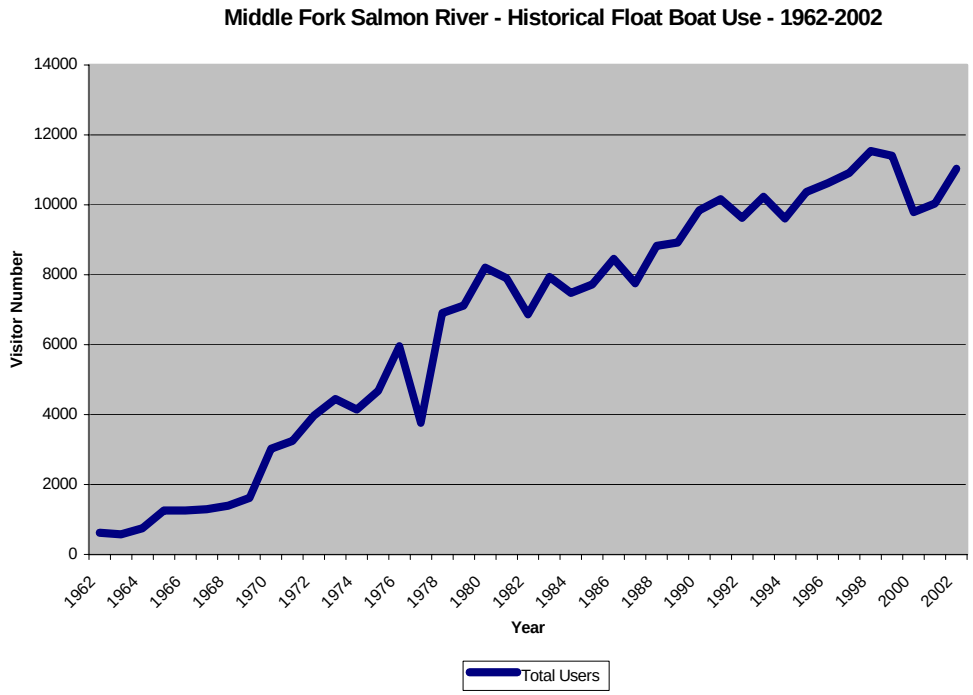
Current River Use levels

The Forest Service has been collecting use information on the Middle Fork since 1962 and on the Salmon River since 1980.

Middle Fork Use levels

Figure 3.2 shows year round use on the Middle Fork from 1962 to 2002.

Figure 3.2



The seasonal averages for use on the Middle Fork from 1991 to 1995 (excluding averages for 1992, for which use figures are incomplete) are contained in Table 3.3. There is no measurable use from December 1 to February 28 but total use exceeds 10,000 persons per year. During the summer season, May 24 to September 10, the average number of people per commercial launch (22.6) is over twice that for noncommercial launches (10.8).

Table 3.3 Middle Fork Use 1991 –1995 by Season							
	Dec 1 Feb 28	March 01 – May 23		May 24 – Sept 10		Sept 11 – Nov 30	
	No measurable use	Noncom	Com	Noncom	Com	Noncom	Com
Average Number of Launches/day		1.5	0.1	3.0	2.0	0.3	0.3
Total Number of People/Season		1176	160	3630	5060	122	316
Average Trip Length/days		5.6	4.3	6.4	5.7	7.5	5.4
Average # of people per launch		6.8	18.7	10.8	22.6	4.5	12.5
Average # of craft per launch		*	*	6.5	5.3	*	*
Average # of people per boat		*	*	1.7	4.4	*	*

*Data not Available

Salmon River Float Boat Use levels

Figure 3.3 shows use for float boaters during the summer season on the Salmon River from 1984 to 2002.

The seasonal average use figures for the Salmon River from 1991 to 1995 are shown in Table 3.4. Like the Middle Fork, there is no measurable use during the winter months. Noncommercial floaters on the Salmon River average 11.3 people per launch during the summer months. Commercial party sizes during the same period on the Salmon River are 16.7

Figure 3. 3

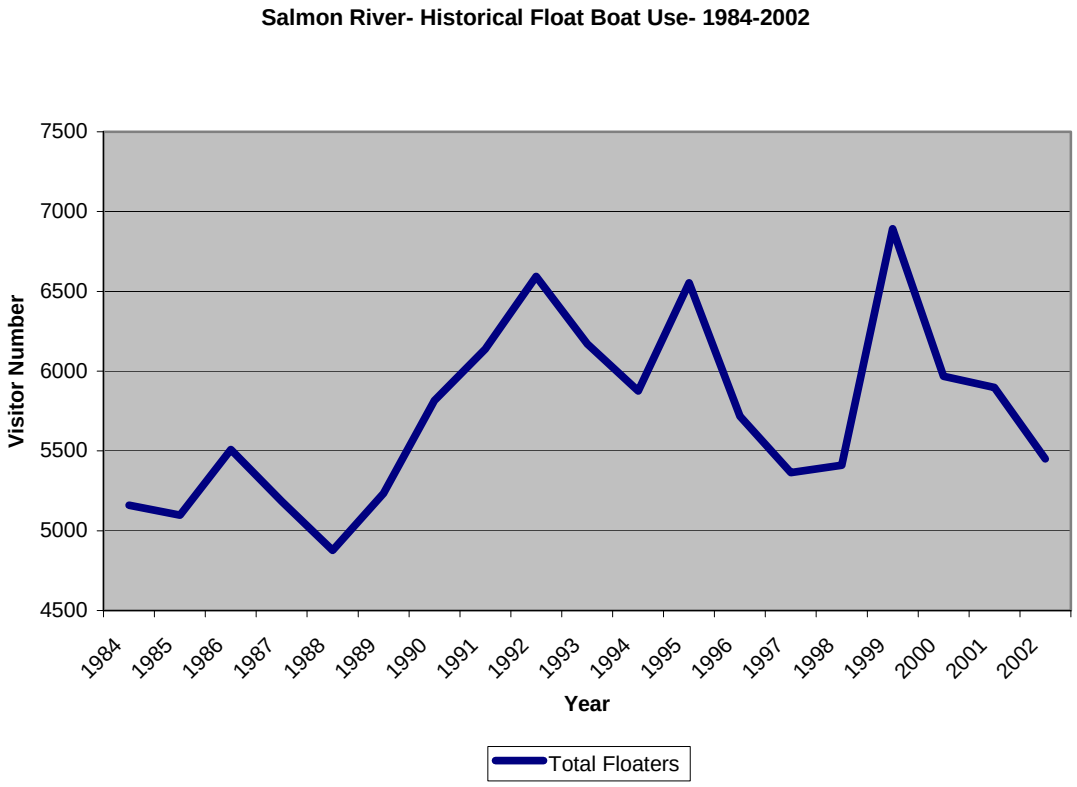

Salmon River- Historical Float Boat Use- 1984-2002
Visitor Number
7500
7000
6500
6000
5500
5000
4500
1984
1985
1986
1987
1988
1989
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
Year
Total Floaters

Table 3.4

Salmon River Float Boat Use 1991-1995 by Season

Variable Measured	Dec 1 - Feb 28		Mar 1 - May 23		May 24 - Sep 10		Sep 11 - Nov 30	
	Noncom	Com	Noncom	Com	Noncom	Com	Noncom	Com
Average Number of Launches	No recorded use		1.0	0.5	3.2	2.6	1.02	0.5
Total Number of People/Season			828	1104	3036	4692	819	1092
Average Trip Length/Day			5.7	4.9	6.0	5.4	5.9	4.9
Average number of people per launch			8.5	4.9	11.3	16.7	8.5	11.9

Jetboat Use

Commercial and Noncommercial

All jetboat use on the Salmon River is based on 1978 use levels. Use levels for 1978 were developed for three distinct groups of jetboaters: noncommercial recreational jetboaters (noncommercial), commercial jetboaters, and private inholders who access their property by jetboat (ingress/egress). Each user group has a separate permitting system (Fuellenbach, 1978 Jetboat Use Levels).

Table 3.5 displays Salmon River commercial and noncommercial jetboat use allowed by season.

Table 3.5

Salmon River Maximum Jetboat Use

	Winter		Spring		Summer		Fall	
	Com	Noncom	Com	Noncom	Com	Noncom	Com	Noncom
Launches per day	Unlimited				18	15*	Unlimited	
Length of stay (days)	1	10	1	10	1	10	1	10
Maximum number of people per party	Unlimited				30		Unlimited	
Maximum PAOT/Day	Unlimited				540	64	Unlimited	
PAOT/Day/Season	Unlimited				604		Unlimited	

* Fifteen BUD per week or 2.14 BUD/day

From June 20 to September 7, the number of commercial jetboats that can be on the water is 18. Much of the use of commercial jetboats results from the demand by float boaters for jet-back shuttle services. While the numbers of boats are limited, the number of jetboat trips per day is not regulated.

Noncommercial jetboat use available during the summer season is 15 boat-use days per week. This level of opportunity is very close to the 1978 jetboat use level; see Appendix F – Executive Summary 1978 Jetboat Use Levels on the Salmon River.

Jetboat use levels outside the control period are not regulated.

Jetboat Use for Private Land Access

The 1978 use levels for ingress/egress to private land are based on the number of deeded and recorded parcels in 1980. At that time approximately 13 jetboats were being used. In 2003, 22 ingress/egress permits were issued.

As private lands within the Salmon River corridor and along the South Fork of the Salmon River are developed and/or subdivided, there could be an increase in jetboat use associated with ingress/egress privileges depending on how "reasonable access" is defined and what method of access is authorized.

Based on 1980 levels of deeded and recorded properties permitted ingress/egress use could increase to about 67 boats.

Painter Bar Road

Generally, roads near the FC–RONRW evolved from Indian trails and trails established to supply the mines of the area. In most cases where a mine existed, often a trail and later a road was established. As soon as roads could be built, wagon freight and stagecoach lines supplanted horse and mule trains. Roads that now serve as major access routes to the wilderness boundary were once wagon roads with a long history of serving the area's mining districts.

In this process we are analyzing the Painter Bar Road (Road 222K). Painter Bar Road once served as access to the Painter Bar Mine and Homestead. The Forest Service acquired the homestead. Currently there are approximately 15 motor vehicles per month that utilize Painter Bar Road for access to the dispersed campsites on the Salmon River as well as access for some private landowners. In addition, there has been an increase in the recreational use of the road by ATVs. This use is heaviest during the summer months and typically originates from the private in-holders.

Painter Bar Road proceeds for approximately 2.95 miles upstream from its junction with road 222 near Mackey Bar to a point just prior to Painter Bar. Road 222K is a native surface road managed for high clearance vehicles. It is open for travel on a yearlong basis. From milepost 0 to 0.3 it accesses several campsites. Beyond milepost 0.3 it is a primitive road. At the end of the road the travelway converts to trail #96, which proceeds through Painter Bar and upstream along the Salmon River.

Economics

A primary zone of economic influence associated with the FC–RONRW includes parts of four counties, Custer, Idaho, Lemhi and Valley. This zone identifies the area where, because of its ties to the wilderness, most of the social and economic effects of a management plan would occur. It is in these counties where income, employment, and other socio-economic effects are most directly related to the use and management of the wilderness.

The secondary zone of influence includes the counties immediately surrounding the primary zone and those counties with major transportation corridors leading to the wilderness. Many users reside in these counties or travel through them to reach the FC–RONRW. The counties in the secondary zone include Adams, Blaine, Boise, Butte and Jefferson counties in Idaho, and Ravalli County in Montana.

The populations of the four counties in the primary zone of influence increased in all counties during the 25-year period from 1969 to 1994, and growth is expected to continue over the next 20-40 years.

Certain jobs in the recreation, ranching and mining fields are dependent on various resources of the wilderness. Without such resources the people with these jobs would have a difficult time

maintaining their preferred job or lifestyle. Many people in surrounding communities have come to the area in pursuit of a lifestyle that is afforded by the presence of abundant wilderness resources. Management policies altering the access, allocation or availability of these resources could affect this group. Table 3.6 displays baseline economic information for jobs and earnings by community.

Table 3.6

Baseline Earnings and Jobs by community, 1998*

Community	Total Earnings ($1000)/Jobs
Salmon	45,165/2304
North Fork	1,920/177
Challis**	31,987/192
Stanley	2,769/192
Riggins	9,881/588

*Based on information and analysis documented in the Planning Record.

**The mining sector alone accounts for 44 percent of the earnings and 31 percent of the employment in Challis.

Several unique features attract increasing numbers of visitors to the wilderness. Examples are the Middle Fork and Salmon Rivers, fishing, hunting, and scenic and historic areas. Steelhead fish runs attract people from throughout Idaho and the United States. These people often stay for a week in surrounding communities, thus supporting local businesses with their purchases.

Cultural Resources

Native American Indians have occupied the area of the present day FC–RONRW for thousands of years. Archaeological evidence suggests that ancient Indians have been hunting and gathering in the area of the Middle Fork of the Salmon River for approximately 8,000 years (Pavesic 1978:9). In historic times, two tribal groups have been recorded as primary users of the central Idaho mountains along the Salmon River and it tributaries: the Nez Perce and the Tukudika (a group of Northern Shoshone also referred as the Sheepeaters).

Present Native American use is mostly restricted to hunting, fishing, and gathering along the edges of the wilderness due to poor access. Within the last few years a concerted effort to provide administrative trips for Shoshone-Bannock Tribal Council and staff members to discuss cultural resource management issues was undertaken. Within the last year Nez Perce Tribal Council and staff members have also started revisiting the Middle Fork and Salmon Rivers.

Historic uses within the FC–RONRW include early fur trade, Sheepeater Indian War, mining, homesteading, grazing, recreation, Forest Service Administration, Civilian Conservation Corps (CCC), transportation, and communication. Associated sites include trappers cabins, Sheepeater war battle and camp sites, homestead cabins and outbuildings, stock driveways and improvements, hunting and outfitting lodges, ranger stations, lookouts, CCC constructed buildings and trails, Thunder Mountain and Three Blaze Trail, and numerous Forest Service phone lines.

Heritage Resources

The CIWA requires conducting a cultural resource management program within the FC–RONRW and Salmon River component of the National W&SR System. The purpose of the program is to protect archaeological sites and interpret those sites for the public benefit through activities that are compatible with preservation of wilderness and W&SR values identified for protection in the CIWA. Recently, direction under this program was updated through the FC–RONRW Programmatic Agreement in which both Forest Service Regions, the four Forests that administer the FC–RONRW, the Advisory Council on Historic Preservation, Idaho State Historic Preservation Officer, Shoshone-Bannock Tribe and Nez Perce Tribe consulted regarding National Historic Preservation Act management of the FC–RONRW cultural resources. The updated direction is shown in Appendix H - Programmatic Agreement and applies to all alternatives in this FEIS.

Using the FC–RONRW Heritage database at the Salmon-Challis NF it is possible to summarize some basic management information regarding archaeological and historical sites in the W&SR corridors (Table 3.7). To date inventory of the two river corridors has been fairly complete and while more sites are found each time an inventory is performed, the totals in the Table are fairly accurate. Native American archaeological sites are prominent features of the river landscape.

Unfortunately, probably less than 10 percent of the uplands inventory has been completed and so the figures in Table 3.7 under represent the true size of the archaeological and historical resource. If the slightly more reliable estimate of 164 acres per site for the Salmon-Challis NF (based on actual contract survey acres vs. total site count) is used to estimate the number of sites in the FC–RONRW uplands that has less than 45 percent slope (549,929 acres), we might expect over 3353 sites to be located in the entire FC–RONRW. If we subtract the number of sites identified to date from this number and assume there are few remaining sites to be found in the river corridors we should still have about 1956 sites left to locate in the uplands of the FC–RONRW. The distribution of actual sites was used as a percentage and applied to the expected number of sites to provide a distribution by type for Table 3.7. Both figures show a reversal of historic sites being more common in the upland areas. This maybe due to the difficulty of

finding lithic scatters and other Native American sites in the vegetation of the wilderness. Less than seven percent of the known sites are found in cherry stems or inholdings.

Table 3.7
Number of Documented Sites in the FC-RONRW by Management Unit

Site Type	Salmon River	Middle Fork	Uplands (Actual)	Uplands (Estimated)	Inholdings/Cherry Stems*
Native American	159	159	196	675	19
Historic	43	59	337	1161	92
Both	39	46	20	69	8
Unknown	11	4	15	52	2
Total	252	268	568	1956	121

*Cherry stems are nonwilderness buffers that parallel roads into the interior of the Wilderness.

Archaeological excavations within the FC–RONRW have been undertaken relatively rarely and unsystematically. Several excavations have focused on pithouse features along the Middle Fork and Salmon Rivers at Big Creek (Leonhardy and Thomas 1983 and Frye 2000) Corn Creek (Holmer and Ross 1985), seven campsites along the Middle Fork (Trowbridge 1989) and at Pungo Creek (McGuire and Matz in progress). These excavations provided mixed results and various interpretations of the origins of the depressions, including animal wallows, looting pits, tree throw, large ovens or roasting pits, ephemeral summer structures, and formal but simple pithouses. Other excavations include those at Dagger Falls (Torgler 1994), Smith Gulch (Henrickson 1987), and Coyote Springs (Frye 2002). They documented important hunting and fishing locations along the Middle Fork and Salmon rivers, and an upland hunting camp, respectively. Unfortunately, this small sample limits the type of analysis and level of study required to provide in-depth analysis of site significance, condition, and management actions.

Native American and historic sites within the FC–RONRW are relatively varied and densely distributed along the river canyons and major tributaries. Native American sites include pithouse villages, trails, Ponderosa pine peeled trees, talus pits, burials, pictographs, stone rings, bighorn sheep traps, and lithic scatters. While work with the Shoshone-Bannock and Nez Perce Tribes is underway to identify properties of traditional use or religious values, further consultation to identify these areas in either a programmatic or site specific manner is necessary. Cultural themes important for understanding the history of the FC–RONRW include early fur trade, Sheepeater Indian War, mining, homesteading, grazing, recreation, Forest Service Administration, Civilian Conservation Corps (CCC), transportation, and communication.

Associated sites include trappers' cabins, Sheepeater war battle and camp sites, homestead cabins and outbuildings, stock driveways and improvements, hunting and outfitting lodges, ranger stations, lookouts, CCC constructed buildings and trails, Thunder Mountain and Three Blaze Trail, and numerous Forest Service phone lines.

Within the area of the Painter Bar Road there are six Native American archaeological sites, including a pit house village, a rock shelter and several open campsites. Two sites, identification numbers 10IH309 and 10IH310, are within or immediately adjacent to the roadbed. Both sites are unevaluated, but may be considered eligible to the National Register of Historic Places.

Many of the airstrips in the FC–RONRW were constructed by the CCC and constitute cultural resources themselves. The list of Forest Service-managed landing strips consists of Bernard, Cabin Creek, Chamberlain, Cold Meadows, Dewey Moore, Indian Creek, Mahoney, Mile-Hi, Simonds, Soldier Bar, and Vines. The Crofoot, Falconberry Ranch, Butts Point, Hida Ridge, Phantom Meadows, and Hoodoo landing strips have been closed or allowed to deteriorate to the point that they are no longer usable. The Dewey Moore, Mile-Hi, Simonds, and Vines landing strips were privately owned until acquired by the Forest Service.

The Dewey Moore landing strip was constructed as part of a homestead originally settled around the turn of the century. The Forest Service removed the cabin and other features in 1976 and the site was determined ineligible to the National Register of Historic Places in 2000 (Kingsbury 2000). The Mile Hi landing strip was constructed as part of a homestead settled at an unknown date. The associated buildings were burned in the fires of 2000 and therefore, the site is recommended as not eligible to the National Register of Historic Places (Kingsbury 2000). The Simonds landing strip was constructed on a homestead settled at an unknown date. The buildings were removed subsequent to the 1981 inventory by J. Barton and recommended as ineligible by Kingsbury in 1993. The landing strip at Vines was part of a historic homestead originally settled prior to 1908 and patented in 1913. While the site was originally determined to be eligible to the National Register of Historic Places, it was burned in the 2000 fires and subsequently determined ineligible (Kingsbury 2000).

Biophysical Resources

River Campsite Conditions

Campsites on the Middle Fork and the Salmon River were inventoried, using modified Frissell Condition classes that added additional aspects of river camps including bank erosion, boat pullouts and satellite trails. The following campsite descriptions were used for rivers:

Class I - Site looks natural with little or no sign of pullout.

Class II - Well-defined pullout with little or no vegetation loss in other areas.

Class III - Obvious pullout area and vegetation loss. No satellite areas. Slight damage to trees and brush on the site.

Class IV - Multiple, well-worn pullout and vegetation loss. Satellite sites and trails present.

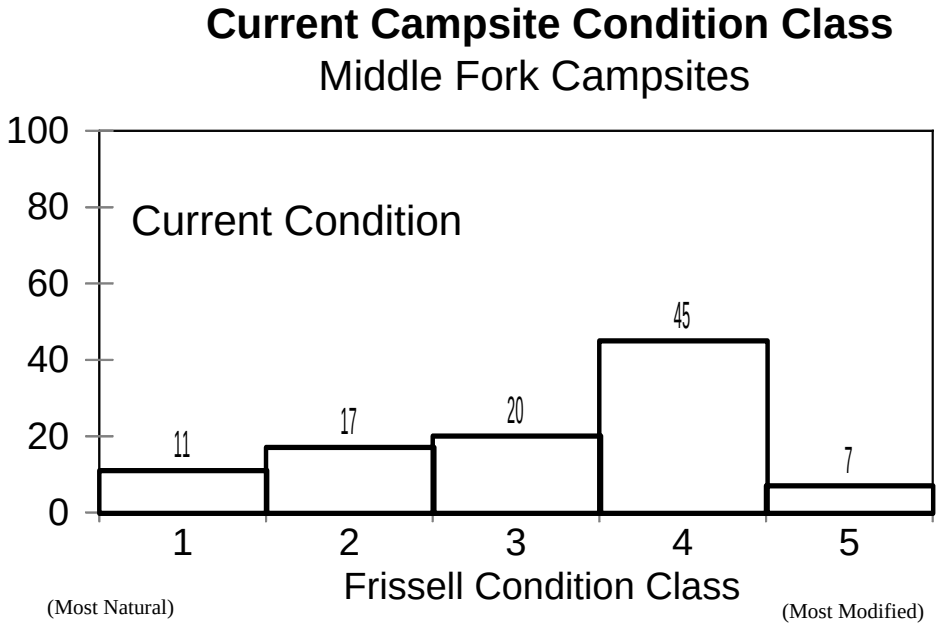
Class V - Obvious bank erosion with several satellite areas and several trails. Extensive human damage to vegetation. No firewood on site/surrounding area.

For more information see Appendix E - Frissell Campsite Condition Class Standards.

Campsite Conditions on the Middle Fork Salmon River

There are 101 campsites along the Middle Fork Salmon River. Figure 3.4 displays Frissell Condition class by percent of campsites.

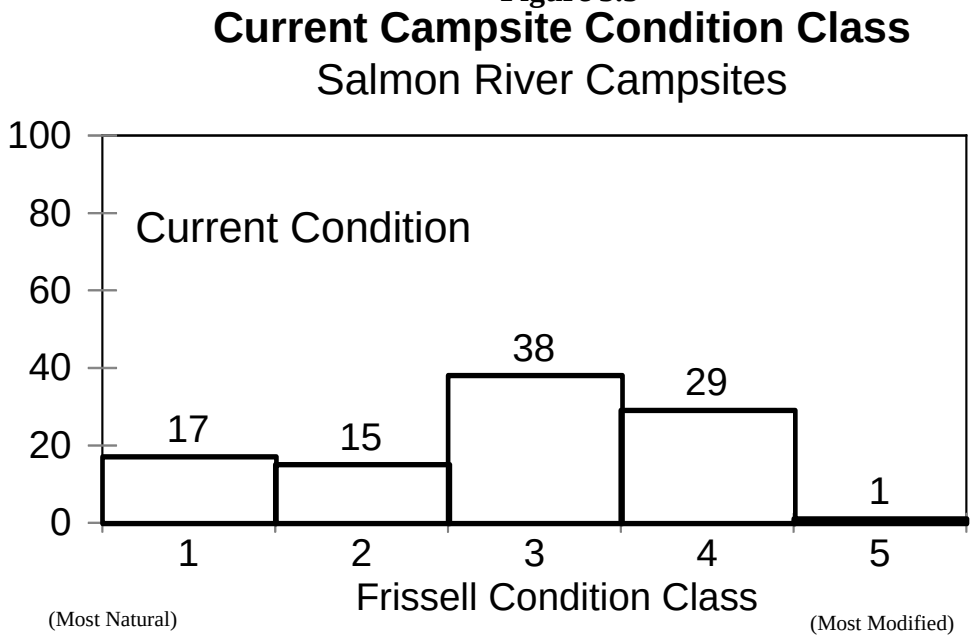
Figure 3.4



Campsite Conditions on the Salmon River

Of the 128 campsites along the Salmon River, 53 have not been rated using Frissell Condition class ratings. The other 75 campsite conditions are shown below in Figure 3.5.

Figure 3.5



Changes to campsites, either improving or degrading their condition, occur over time. For this reason, campsite conditions are best addressed by describing the trend. The trend can be described as: maintaining the current condition, improving the condition or moving toward additional deterioration of campsite condition. This could result in shifts to the campsite condition classes.

For the most part, river recreationists have very high standards for maintaining environmental quality and do not leave behind litter, food, and waste or cause malicious impacts by cutting vegetation or constructing camp furniture. When they occur, these kinds of impacts take away the sense of a natural setting, but most can be and often are corrected in a few hours by the next group to occupy that site. For purposes of this analysis, the types of campsite impacts that are addressed are soil compaction, loss of the integrity of cultural sites, loss of vegetation and transport of exotic species. More people either in the form of larger groups, or greater occupancy over time such as increased spring, fall or summer use can cause these impacts, especially if larger groups begin to occupy campsites that best accommodate smaller groups. These impacts can only be corrected by management action or by nature over a long period of time.

In terms of campsite impacts, some notable differences were found between the campsites on the two rivers. The Middle Fork campsites appeared to be somewhat smaller than the Salmon River campsites and are more likely to extend above high water. These conditions contribute to their

higher levels of satellite tent sites, social trailing, bare ground, vegetative impacts, and greater potential to impact cultural resources, all of which suggest more long-term effects.

On the other hand, Salmon River campsites tend to occupy beaches below the high water line, resulting in less impact to vegetation, more sand and rock, and less impact from satellite tent sites and social trails. Salmon River campsites also get refreshed periodically during the spring run off when most traces of human visitation are erased by high water.

River Campsite - Physical Capacity

The physical capacity of the river addresses the numbers of campsites, their size, and the capability of those sites to accommodate visitors to the river corridor.

Campsites capacities on the Middle Fork and the Salmon Rivers have turned out to be one of the most important factors in analyzing consequences of different alternatives. There are a finite number of suitable campsites in the river corridors.

River capacity is much like a motel, there are a certain number of rooms, a certain number of beds in each room, and these can accommodate a given number of people for a night. Of course, a motel room can accommodate more people than it was designed for a night. Kids can sleep on extra bunks and on the floor. Come the next morning the room will look as if it accommodated extra folks, and the experience of sharing a room that exceeded its capacity will have changed the experience for the occupants.

Translated to river campsite capacity, placing medium or large groups on sites suited to small groups will have a physical impact over time on the campsite condition. Likewise, having two different parties assigned to the same campsite for a given night may also change the experience for those occupants.

Physical capacities are also dependent on a multitude of other variables; like water levels, physical suitability for new campsites, protection of cultural resource values, and distribution of sites along the river to accommodate visitors as they travel through the corridor. On both the Middle Fork and the Salmon River, the most limiting factor in campsite capacity is when water levels are “high,” which is greater than 5 feet on the Middle Fork and 4 feet on the Salmon. This occurs during 24 percent of the high use season on the Middle Fork and 19 percent on the Salmon. Because many of the Salmon River campsites are below the high water line, the capacity of these sites is very susceptible to change in water levels and high flow scour and deposition.

Camp capacity has, in the past, been reduced at some sites to allow for the protection of certain cultural resources. Further impacts to cultural resources at river campsites are mitigated by preserving natural conditions at other cultural sites.

Capacity, in relation to distribution of campsites to accommodate river visitors, can also be influenced by convergence of floaters. Convergence occurs when parties travel at varying rates. In other words, a party that launched on Monday and spends six nights on the river will be

overtaken, and will compete for campsites within the same stretch of river for at least one night, by a party launching on Tuesday and staying five nights. This has the effect of increasing the number of parties in any given portion of the river and in increasing the physical capacity needed in that portion of river to accommodate visitors. Convergence can also occur when parties enter a river from a tributary, such as floating into the Middle Fork from Big Creek.

Generally the distribution of campsites on the Rivers is adequate to meet or exceed use levels typical of the last five years. The exception is the lower portion of the Middle Fork Salmon River known as the Impassable Canyon. The Impassable Canyon has a limited number of campsites and limited capacity for new sites. During some days of the peak season, medium and large river parties are assigned sites with less capacity. Some larger sites may be assigned to two river parties to be shared for a night. There are several techniques that can be used to manage convergence at campsites. These include, but are not limited to:

- Establishing a reservation system which allows parties to know in advance which campsites would be available each night as they travel down the river;
- Assigning campsites by group size so only large parties can use large camps;
- Restricting lay over days, which allow one party to use a campsite for more than one night;
- Building new camps, where possible;
- Reducing use levels to a point where convergence is insignificant; or
- Enforcing campsite sharing.

Each of these could be used as mitigation if needed for any of the alternatives in the FEIS.

Table 3.8 displays the capacity for both the Middle Fork Salmon and Salmon Rivers campsites. The Table includes variables to account for changes in campsite size based on water level or mitigation to protect cultural resources.

Table 3.8

River Campsite Capacity

	Middle Fork of the Salmon River		Salmon River	
	Number of Camps by Water Level		Number of Camps by Water Level	
	≤ 5 feet	>5 feet	≤ 4 feet	>4 feet
Current Camp Inventory				
# Large camps	56	38	47	33
# Medium camps	10	20	27	10
# Small camps	35	23	18	2
Total All Camps	101	81	92	45
Camp Inventory of sites that contain Cultural Resources				
# Large camps	38	25	27	18
# Medium camps	2	10	10	4
# Small camps	11	6	4	0
Total Cultural Resource sites	51	41	41	22
Total All Camps Less Cultural Sites	50	40	51	23

For more information see Appendix G – Campsite Locations and Capacities.

Water Quality

Existing conditions

The area directly affected is within the FC–RONRW and includes both the Salmon River and Middle Fork of the Salmon River. These rivers and their tributaries provide natural conditions that range from good to excellent in terms of water quality for domestic use, recreation and wildlife. Natural sediment producing events most commonly occur following stand replacement forest fires and high intensity storms. These impacts are generally short-term, and over time are self corrected. Chemical analysis of the Wilderness' water shows most to be soft and highly susceptible to degradation. This puts additional emphasis on the need to protect the lakes and streams of the area, thus protecting their natural ability to support aquatic species.

Indirect effects to water quality have resulted from mineral and energy development in or adjacent to the FC–RONRW including the following: Thunder Mountain area creeks, Monumental Creek, Pistol Creek, Seafoam Creek, Yellowjacket Creek, Lost Packer, Jordan Creek and Parker Mountain area and from dirt roads built within the South Fork of the Salmon River that flows down through the wilderness, creating long-term sedimentation within the ecosystem.

Water monitoring activities have been taking place since 1973 on the Middle Fork and since 1978 on the Salmon River. The Middle Fork has been tested for nitrate, nitrogen, phosphate, phosphorus, conductivity, total fecal coliform, fecal streptococcus, and ph and water temperature. The Salmon River was tested for fecal coliform. Collected data does not show the presence of excessive or unusual chemical elements. Fecal coliform is sporadically present, but there is no consistency of levels or location, which would indicate problem sources or unusual contamination levels.

Judicious use of administrative regulations such as human waste pack-it-out requirements on the rivers, managing recreational uses adjacent to rivers and streams, stringent minerals operations plans, and user education are feasible actions to maintain water quality.

The EPA and the State maintain a listing (the 303(d) list) of water bodies believed to be water quality limited. Exceeding state water quality standards for sediment can cause a stream to be listed. Given the lack of sediment data, a stream can be listed if its water quality is considered to impair the beneficial uses designated for the stream (Chapter 8, FC–RONRW Draft AMS, August 21, 2002). Table 3.8 displays the stream segments of 303(d) listed waterbodies found within the Wilderness.

Table 3.9 - 303 (d) Listed Water bodies within the FC–RONRW

HUC	WQLSEG Name	Boundaries	Year List	Yr TMDLDU	Unknown	Sediment	Length
Upper Middle Fork/Salmon							
17060205	6808 Bear Valley Crk	Wilderness Bdy to Mdl Fk Salmon	1996	2005	0	1	1.52
17060205	5055 Dagger Creek	Headwaters to Bear Valley	1996	2005	0	1	7.72
17060205	2805 Elkhorn Crk	Headwaters/ Middle Fk Salmon	1996	2005	0	1	7.41
17060205	5149 Porter Crk	Headwaters to Elk Crk	1996	2005	0	1	6.17

Middle Salmon/Chamberlain		Boundaries	Year List	Yr TMDLDU	Unknown	Sediment	Length
17060207	5018 Big Mallard Crk	Headwaters to Salmon River	1996	2000	0	1	18.77[1]
17060207	3349 Crooked Crk	Headwaters to Salmon River	1996	2000	0	1	21.25[2]
17060207	5099 Jersey Crk	Headwaters to Salmon River	1996	2000	0	1	7.65[3]
17060207	5109 Little Mallard Crk	Headwaters to Salmon River	1996	2000	0	1	8.78[4]
17060207	5156 Rhett Crk	Headwaters to Salmon River	1996	2000	0	1	8.39[5]
17060207	3346 Salmon River	Corn Crk to Cherry Crk	1996	2000	1	0	76.9

[1] Approximately 4 miles of the listed length is within the FC-RONR Study Area.

[2] Approximately 1/4 miles of the listed length is within the FC-RONR Study Area.

[3] Approximately 1 1/2 miles of the listed length is within the FC-RONR Study Area.

[4] Approximately 1/4 miles of the listed length is within the FC-RONR Study Area.

[5] Approximately 2 miles of the listed length is within the FC-RONR Study Area.

		Boundaries	Year List	Yr TMDLDU	Unknown		Length
17060208	South Fork Salmon River	Station Creek to Salmon River	1996	2000	0	1	2.38[6]
17060208	South Fork Salmon River	Wilderness boundary to Station Creek	1996	2000	0	1	8.77

These stream segments were listed in 1996. All these streams were listed based on concerns that sediment was a limiting factor, with the exception of the Salmon River from Corn Creek to Cherry Creek, which was listed because of unknown pollutants.

Subsequent assessment was reported in the Middle Fork - Chamberlain Creek Subbasin Assessment and Crooked Creek Total Maximum Daily Load revised December 2002. This document reports Crooked Creek was delisted for sediment and that Big Mallard, Little Mallard, Jersey, and Rhett Creeks exhibited good macroinvertebrate scores and low sediment and should be delisted. The Salmon River was found to have a low sediment yield and a lack of other documented problems within the subbasin, which indicated the river should be de-listed.

The South Fork of the Salmon River Subbasin Assessment shows attainment of water quality criteria for sediment. Review of the biological data and sediment impacts to aquatic habitat indicates that the historical habitat conditions within the South Fork are reestablishing and currently meet the Idaho water quality standards for sediment. Based on these results, the Idaho Department of Environmental Quality (DEQ) is removing all waterbodies from the 303(d) list with exception of the South Fork (mainstem). Remaining uncertainties suggest that the 1991 standards for sediment should continue to be implemented in the future. There is a concern that existing roads and sediment sources may cause water quality violations in the future. There is a desire to insure that water quality standards are attained and that beneficial uses are supported in the future.

Assessment for the upper Middle Fork Subbasin is scheduled in 2005 and 2006. (Personal communication with Troy Saffle, Regional Water Quality Manager, Idaho Falls Regional DEQ Office.)

[6] Approximately 1/4 miles of the listed length is within the FC-RONR Study Area.

Fisheries

Threatened, Endangered or Sensitive Species (TES)

The Salmon River, Middle Fork and their tributaries, as well as the lakes within the wilderness boundary, provide migration, spawning habitat for adult and rearing habitat for juvenile anadromous salmonids. The rivers and lakes provide habitat for all life stages of resident fish that are present.

The Idaho Department of Fish and Game regulates fishing within the wilderness. The Department generally prohibits fishing for wild anadromous salmonids or bull trout and allows only catch and release for other resident fish species in the Middle Fork and its tributaries. Anadromous salmonids found in the FC–RONRW include Snake River spring/summer Chinook salmon, Snake River sockeye salmon, and Snake River steelhead. In the Salmon River and in lakes, creel limits and seasons for resident fish and hatchery steelhead have been established.

In the past, the Idaho Department of Fish and Game has stocked fish in wilderness lakes. The number of lakes that they have stocked has declined primarily due to the expense of the program. Approximately 161 lakes within the FC–RONRW have been stocked in recent years. Lakes are primarily stocked with indigenous west slope cutthroat trout flown in by fixed wing aircraft. Approximately 26 lakes are stocked with rainbow trout, California golden trout, or Montana grayling. Fish are mainly stocked as fry. A complete list of all stocking records may be found at the IDFG web site:

http://www2.state.id.us/fishgame/fish/fishstocking/stocking/

Fisheries habitat within the FC–RONRW is in natural or near natural conditions.

The Snake River spring/summer Chinook salmon, Snake River steelhead trout, and Columbia River bull trout are listed as threatened under the ESA. The Snake River sockeye salmon is listed as endangered under ESA. West slope cutthroat trout is currently listed on the Regional Foresters Sensitive Species list. All of these species are found within the FC–RONRW. Snake River Sockeye salmon only migrate through the wilderness portions of the Salmon River. Snake River spring/summer Chinook salmon, Snake River steelhead trout, and Columbia River bull trout migrate, spawn and rear within the Salmon River, Middle Fork and most of their tributaries.

The primary causes for the decline of anadromous salmonids are thought to include fluctuations in ocean productivity, hydroelectric dams on the Snake and Columbia Rivers, habitat degradation, water withdrawals for irrigation, predation, over fishing, and high river temperatures. These are sometimes referred to as the four H’s, Habitat, Hydro, Hatcheries, and Harvest. Columbia River bull trout have been primarily affected by habitat degradation, hybridization with introduced brook trout, fishing and a reduced anadromous prey base.

Subsequent to the listing of the Snake River spring/summer runs of Chinook salmon and the designation of their critical habitat, an Interim Strategy for Managing Anadromous Fish-producing Watersheds in Eastern Oregon and Washington, Idaho, and Portions of California (PACFISH) was developed. Its purpose was to provide uniform standards and guidelines during the development of new projects or proposals to ensure that they would have minimal or no negative affects on anadromous fish or their habitat.

The PACFISH guidelines amended the existing Forest Plan direction and focused on eliminating or reducing direct and indirect effects to fisheries and riparian habitats. There is an expectation that similar long-term guidance would be developed during Forest Plan revisions that will replace the interim PACFISH guidelines. Therefore, PACFISH and the Forest Service Manual 2670.5, which provide direction for the protection of TES fish species and their habitat, would be applied to each alternative until Forest Plan revisions are complete. The Boise and Payette NFs have recently completed the revisions of their Forest Plans, incorporating the aquatic conservation strategy that replaces PACFISH.

TES consultations for ongoing activities have been completed and all existing projects have been screened for compliance with PACFISH standards and guidelines. Basin-wide fish habitat inventories have been conducted on most major tributaries within or near the FC–RONRW. The Idaho Department of Fish and Game collects fisheries population data in the Middle Fork on an annual basis. These habitat inventories and fish population data provide baseline information needed to determine if changes are occurring due to human activities.

Table 3.9 lists aquatic Management Indicator Species (MIS) within the FC–RONRW.

Table 3.9 Aquatic MIS species for the National Forests within the FC-RONRW	
National Forest	**Aquatic Species**
Bitterroot	Westslope cutthroat
Boise and Payette	Bull trout
Challis	Anadromous fish Resident fish Aquatic macro-invertebrates
Nez Perce	Westslope cutthroat trout Westslope cutthroat trout Summer run steelhead Spring Chinook salmon
Salmon	Salmon and steelhead Trout Aquatic macroinvertebrates

Wildlife

The wide elevation range of the FC–RONRW, with its accompanying climatic variations, full spectrum of vegetative communities and rugged topography, results in a diverse array of habitats and niches for many species of flora and fauna. Predominant habitat types vary from sagebrush/grass, ponderosa pine/bluebunch wheatgrass or Idaho fescue, and Douglas fir/ninebark or snowberry at lower and mid-elevations to subalpine fir/grouse whortleberry and alpine habitat types at higher elevations. Fires have continually altered the landscape and created brush fields, large lodgepole pine stands, extensive snag patches, and variations of all vegetative age classes within each of these habitat types.

The FC–RONRW is both large enough and diverse enough to provide all habitat requirements for most of the indigenous animal species. Exceptions include species that are, by nature, migratory such as neotropical migratory songbirds and waterfowl. Portions of all available habitats may be directly and/or indirectly affected by this proposed management plan since it covers the entire FC–RONRW. Effects will be most pronounced at portals such as trailheads and airstrips, along access corridors including the Middle Fork and the Salmon River, and near administration sites and designated special use campsites, all places where humans congregate. Effects will be almost non-existent in the vast majority of the Wilderness where humans seldom visit.

Further information on the habitats and wildlife species of the FC–RONRW are found in Appendix I - Wildlife.

Plants

Threatened, Endangered, and Sensitive (TES) Plants

Under the provisions of the ESA, Federal agencies are directed to conserve endangered and threatened species, and to ensure that actions authorized, funded, or carried out by them are not likely to jeopardize the continued existence of any threatened, endangered, or proposed species, or result in the destruction or adverse modification of their critical habitat.

According to US Fish and Wildlife Service species list updates #1-4-02-SP-911, 1-4-02-SP-908, and 1-4-02-SP-983 (September 3 and September 30, 2002), the Payette, Salmon-Challis, Nez Perce, Bitterroot, and Boise National Forests have no documented occurrences or potential habitat for any Threatened and Endangered plant species in the FC–RONRW.

Sensitive Plant Species

Forest Service Manual 2670.5 defines sensitive species as "those plant and animal species identified by a Regional Forester for which population viability is a concern, as evidenced by significant current or predicted downward trends in population numbers, density, or habitat capability that reduce a species/existing distribution." In 2670.22, management direction for sensitive species is, in part, to ensure that species do not become threatened or endangered because of Forest Service actions, and to maintain viable populations of all native species.

According to lists of Sensitive plant species lists maintained by Forest Service Regions 1, 4, and the Idaho Conservation Data Center (ICDC) database records for known populations, there are **five rare plant species know to occur in the FC–RONRW that are designated as Sensitive** in Region 1, 4, or both: candystick (*Allotropa virgata*), Payson's milkvetch (*Astragalus paysonii*), Cascade reedgrass (*Calamagrostis tweedyi*), giant helleborine (*Epipactis gigantea*), and Lemhi penstemon (*Penstemon lemhiensis*).

Fifteen other species have potential habitat in the wilderness. These species are: tall swamp onion (*Allium validum*), lanced-leaved moonwart (*Botrychium lanceolatum* var. *lanceolatum*), northern moonwart (*Botrychium pinnatum*), beautiful bryum (*Bryum* calabryoides), leafless bug on-a-stick (Buxbaumia aphylla), green bug on-a-stick

(*Buxbaumia aphylla*), Buxbaum's sedge (Carex buxbaumii), Henderson's sedge (Carex *hendersonii*), Cetraria lichen (*Cetraria subalpina*), clustered Lady's slipper (*Cypripedium fasciculatum*), Idaho douglasia (*Douglasia idahoensis*), puzzeling halimolobos *(Halimolobos perplexia* var. *perplexa*), bank monkey flower (*Mimulus clivicola*),

Mendocino sphagnum (*Sphagnum mendocinum*), and Idaho strawberry (*Waldsteinia idahoensis).*

For more detailed information see Appendix J - Plant Species and Plant Effects.

Other Rare Plant Species

One rare plant species known to occur in the FC–RONRW is designated as a Forest Service Watch species in Region 4: **Lewisia kelloggii,** *(Kellogg's lewisia, or Kellogg bitterroot).*

There are 13 other rare species present in the FC–RONRW. They are ***Astragalus vexilliflexus*** var. ***vexilliflexus*** (bent-flower milkvetch), ***Sedum borschii*** (Borsch's stonecrop), ***Botrychium simplex*** (least moonwort), ***Botrychium lineare*** (slender moonwort), ***Hackelia davisii*** (Davis' stickseed), ***Lobaria scrobiculata*** (pored lungwort), ***Helodium blandowii*** (blandow's helodium), ***Ribes wolfii*** (Wolf's currant), ***Salix glauca*** (gray willow), **Sanicula *graveolens*** (Sierra sanicle), ***Triantha occidentalis* ssp**. ***brevistyla*** (short-style tofieldia), and ***Pilophorus acicularis*** (nail lichen). These species have no official Forest Service status. However, they are protected through agreement with the Payette NF. There is potential habitat for all 13 species and three species with known occurrences.

Management Indicator Species

Management Indicator Species (MIS) are key species that represent life forms and have habitat requirements similar to other groups of plants. They are species for which populations and habitat objectives can be established, and will be tracked as indicators of habitat capability. The selection of MIS involves identifying issues and concerns about species and their special habitat needs, and whether this may be influenced significantly by management practices resulting from land use allocations. These species may be identified as economically important and occur throughout the forest. They can be used to predict the continued viability of other species in the planning area, and the populations and habitat of the species can be technically and feasibly monitored.

Only the Challis NF Forest Plan identified any plants as MIS. Listed below are the six plants identified as MIS:

Artemisia tridentata, (Big sagebrush) – subspecies *tridentata*, *vaseyana*, and *wyomingensis.*

- The increase in sagebrush overstory over natural levels of approximately 20 percent indicates a decreasing ecological range condition.

Purshia tridentata (Bitterbrush)

- Important wildlife winter forage

Agropyron spicatum (Bluebunch wheatgrass) and ***Festuca idahoensis*** (Idaho Fescue)

- Indicative of climate rangeland conditions

Achillea millefolium (Western Yarrow) and ***Cirsium arvense*** (Canada Thistle)

- Indicative of disturbance in riparian areas

The big sagebrush, bitterbrush, bluebunch wheatgrass, and Idaho fescue are management indicator species that depict changes in the ecological habitats for range or wildlife species. Changes in the habitat conditions for these species are the result of management activities that either increase or decrease these plant species. There are no existing activities or proposed actions in any of the alternatives that would manipulate habitat vegetation. Therefore, these four MIS plants will not receive any further analysis.

There is habitat with the FC–RONRW where western yarrow and Canada thistle could and do occur due to disturbances in riparian areas. Increases in the number of these plant species indicates increasing disturbance in the riparian habitat. Riparian areas where disturbance has or could occur, as a result of the proposed actions, will be analyzed in Chapter 4.

Air Quality

Management of air quality within the wilderness includes monitoring to ensure that outside influences are not degrading the air quality beyond the Clean Air Act Class II standards.

The air quality affected by the proposed management plan is both directly above the FC–RONRW lands and rivers and above lands adjacent to them. This area is called the wilderness "airshed." Most often changes in air quality occur from forest fires burning in or around the wilderness. Adjacent lands and rivers that are affected by changes in air quality within the FC–RONRW airshed are drainages of Marsh Creek, Panther Creek and the Salmon River above Panther Creek. Other areas that may be affected include the North Fork area, Salmon Valley, Lemhi Valley, Salmon River drainage between Salmon and Challis, the upper Salmon River drainage including Stanley, the Sawtooth Wilderness and the Sawtooth National Recreation Area. Other wilderness airshed adjacent or near to the FC–RONRW are managed by the Clean Air Act on a stringent air quality standard.

Air quality in the FC–RONRW has generally been excellent in the past since effects on air quality have been mostly caused by natural occurrences such as forest fires. Given the vast expanse of unroaded and natural terrain in the wilderness, airborne pollutants in the FC–RONRW airshed from manufacturing, mining or roads have been scarce to nonexistent in historic times. In pre-European times air quality was determined solely by natural events and by occasional smoke from human-caused fires.

In more recent times air quality has depended on activities occurring outside as well as inside the wilderness. Many years of fire suppression activities and 10 years of drought have produced larger wildfires recently in and around the FC–RONRW. Accumulated smoke from two or more forest fires burning simultaneously has affected all of the FC–RONRW and adjacent airshed within the last 10 years.

In spite of outside influences and forest fires, air quality in the FC–RONRW, which is a Class II airshed, is generally quite good compared to the Class I airshed in the lower 48 states. Good air quality is characteristic of the greater Idaho region.