

**An Assessment of Natural Resource  
Based Recreation  
in the Interior Columbia River Basin**

**A Report for the Eastside Ecosystem  
Management Project**

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## Preface

The following report was prepared by University scientists through cooperative agreement, project science staff, or contractors as part of the ongoing efforts of the Interior Columbia Basin Ecosystem Management Project, co-managed by the U.S. Forest Service and the Bureau of Land Management. It was prepared for the express purpose of compiling information, reviewing available literature, researching topics related to ecosystems within the Interior Columbia Basin, or exploring relationships among biophysical and economic/social resources.

This report has been reviewed by agency scientists as part of the ongoing ecosystem project. The report may be cited within the primary products produced by the project or it may have served its purposes by furthering our understanding of complex resource issues within the Basin. This report may become the basis for scientific journal articles or technical reports by the USDA Forest Service or USDI Bureau of Land Management. The attached report has not been through all the steps appropriate to final publishing as either a scientific journal article or a technical report.

## ACKNOWLEDGEMENTS

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## Social & Economic Factors Influencing Recreation

- \* Aging population with older aged individuals having much leisure time
- \* Increasing population levels though rate of increase in slowing
- \* Increasing ethnic diversity
- \* Population migration from urban to rural areas
- \* Narrowing of the middle class

## Future Demand for Recreation in the CRB

- \* Greatest demand will be for developed camping, family gatherings, visiting museums, bicycling, running/jogging, outdoor pool swimming
- \* Little increase in demand for gathering firewood and collecting berries

## Future Supply of Recreation in CRB

- \* Advantage over nation as a whole and areas immediately outside the Basin
- \* Greatest advantage lies in the amount of undeveloped and partially developed land settings
- \* As population levels increase in the Basin, availability of recreation opportunities is expected to decline

## Future Research Needs for Understanding CRB Recreation

- \* Need for improved methods for determining use levels as well as consistent data among and within natural resource agencies
- \* Need for better understanding of visitor characteristics
- \* Future research must identify visitors' non-consumptive values of recreation
- \* Need to identify improved methods for determining recreation demand
- \* Need to develop feasible methods and programs for the continuous monitoring and documenting of changes in the social, biophysical, economic and technological

## Executive Summary

### Current CRB Recreation Visitation

- \* Approximately 84 million visits to the Columbia River Basin in 1993
- \* Half of the visits transpired in a roaded natural/roaded modified setting
- \* Major recreation activities included day use activities and viewing scenery from motor vehicles
- \* Almost 60 million recreation visits to lands managed by the US Forest Service

### Economic Value of CRB Recreation

- \* Recreation visitors to the CRB are willing to pay approximately \$1.7 billion for recreation opportunities in 1993

### Economic Impact of CRB Recreation

- \* Over a million special recreation use permits issued in 1993
- \* CRB land management agencies collected \$14 million in special use permit revenues
- \* US Forest Service generated the greatest amount of revenue (\$7 million) from special use permits

### Major Issues Currently Effecting CRB Recreation

- \* Need for cooperation and coordination among land management agencies
- \* Funding
- \* Maintenance and development of facilities

### Trends in CRB Recreation Participation

- \* Recreation use appears to have steadily increased over the past fifteen years

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## GLOSSARY

### **Activity Occasion -**

A visit by one individual to a recreation area for recreation purposes during any reasonable portion or all of a 24 hour period of time. One person camping, fishing and swimming in the same day would be 3 activity occasions.

### **Columbia River Basin (CRB) -**

The assessment area includes all lands within the interior Columbia River Basin. The interior Columbia River Basin consists of those lands west of the continental divide, east of the Cascade crest, south of Canada, and north of the southern borders of Idaho and Oregon.

### **Direct Economic Effects of Recreation -**

The costs directly associated with travel to and during a recreation visit.

### **Eastside Ecosystem Management Project (EEMP) -**

A cooperative project between the USDA Forest Service and the USDI Bureau of Land Management which examines the social, physical, economic and biological needs and values within the interior Columbia River Basin. The project is also known as the Interior Columbia River Basin Ecosystem Management Project.

### **Economic Impact of Recreation -**

Financial activity and benefits received as a result of the economic activity associated with recreation engagements. Economic impact assessments often involve the analysis of direct recreation expenditures as well as the indirect and induced effects of recreation expenditures on the regional economy.

### **Economic Value or Benefits of Recreation -**

The amount of money an individual is willing to pay for a specific recreation activity or opportunity regardless of whether that product is marketed or not. Economic value is often assessed by examining an individual's willingness to pay for a specific product or opportunity.

### **Effective Recreation Opportunity Set (EROS) -**

An 12 class index of the amount and location of recreation resources, facilities and services available for public use. The index is relative to the number and location of population of a region.

### **Impact Analysis for PLANNing (IMPLAN) -**

A regional input-output model that can perform economic impact analysis to determine the economic impact of a specific industry upon a regional economy.

### **Indirect Economic Effects of Recreation -**

The secondary economic effects associated with direct recreation expenditures. Indirect economic impacts consist of the exchange of money which results from recreation expenditures. For example, grocers who sell food supplies to recreation participants must purchase additional food from their suppliers. The exchange of money between the grocer and supplier as a result of direct recreation purchases would be considered to be the indirect economic effects of recreation.

### **Induced Economic Effects of Recreation -**

Induced impacts result from the wages and salaries which the direct and indirect industries must pay to provide the initial product to the recreation consumer. Individuals who receive wages as a result of purchases of direct and indirect recreation purchases will most likely spend much of their wages on products within the region. Expenditures made by these individuals constitute induced economic impacts.

### **Primary Visits -**

A visit by one individual to a recreation area for the purpose of participating in one or more recreation activities for any length of time, where only the primary activity of the visitor is considered. One person camping, fishing and swimming who went to an area primarily to fish is counted once as an individual who fished on that visit.

### **Recreation Visitor Day (RVD) -**

A standardized measurement in 12 person-hours. An RVD may be one person visiting for 12 hours, 12 persons visiting for one hour each, or any other equivalent combination of individual visitation over a twelve hour period.

### **Recreation Opportunity Spectrum (ROS) -**

A recreation planning instrument that displays a range of recreational settings based upon physical, social and managerial characteristics. The ROS recognizes seven opportunity classes ranging from primitive recreation opportunities to urban recreation opportunities.

### **State Comprehensive Outdoor Recreation Plans (SCORP) -**

The Federal Land and Water Conservation Fund Act of 1964 made funds available to states for the "planning, acquisition and development of needed land and water areas and facilities." To obtain such funding, however, states are required to prepare an acceptable comprehensive outdoor recreation plan at least every five years.

### **Willingness to Pay -**

The willingness and ability of a consumer to sacrifice either income or other goods to gain or maintain the use of a resource.

## INTRODUCTION

State and federal land management agencies, along with the public have increasingly voiced concern about the conditions of forest lands and fisheries east of the Cascade crest. In response to this growing concern, the United States Department of Agriculture (USDA) Forest Service (USFS) and the United States Department of Interior (USDI) Bureau of Land Management (BLM) began the process of developing a comprehensive strategy for ecosystem management. This project, commonly known as the Eastside Ecosystem Management Project (EEMP), was designed to examine all the social, physical, economic and biological needs and values within the interior Columbia River Basin (CRB). Assessments of these specific components could direct an ecological approach to future natural resource planning and management activities within the CRB. An ecological management approach should assure that the relationships among all organisms (including humans) and their environment are considered in decision making.

The EEMP indicated a need to develop a framework approach to ecosystem management. One step of such a framework involves an assessment of the status of the natural resources within an ecosystem. Assessing the status of a natural resource base requires an examination of the broad spectrum of activities which

place a demand on the utilization of the resources within the ecosystem. The public's demand for specific forest or natural resource based products directs many of the activities occurring within an ecosystem. Ranchers demand lands for grazing. Farmers demand water resources for irrigation purposes. Logging and forest product companies rely heavily upon forested lands for timber products. Mining companies demand access and extraction rights to precious metals and materials on or beneath the earth's surface. The demand for these products are ultimately influenced by society's overall demands for such products. Land managers are left with the complex task of allocating specific lands for certain activities.

In addition to demands for agricultural, mining, and timber harvesting opportunities, society also desires to utilize natural resources for outdoor recreation purposes. Similar to their responsibility of allocating natural resources for extractive purposes (i.e. grazing, timber harvesting, mining), land managers are required to provide specific recreation opportunities. By participating in a variety of recreational activities, visitors to public lands can experience a multitude of recreation outcomes or benefits (i.e. increased physical health, family togetherness, risk taking, relaxation, escape, enjoyment of nature). To ensure that quality recreation opportunities are provided and specific experiences are obtained, management must be extremely sensitive to the quality of the natural resource base. If the quality or quantity of a land or water resource necessary for a specific

recreation experience changes, the opportunity for that experience could change significantly. Such a change may not only affect the initial recreation experience, but could also influence the demand and quality of related recreation opportunities and experiences.

This report is an assessment of the recreation occurring within the interior Columbia River Basin. Specifically, the objective of this assessment is threefold. First, the assessment examines in detail the current recreation situation within the CRB. Current demand levels for specific recreational activities, the supply levels of resources to meet those demands, and the economic contribution that recreation may provide to the CRB are examined in detail. Additionally, specific issues, attitudes and policies that may be influencing the level of participation and quality of recreation experiences within the CRB are discussed. Understanding the current levels of recreation use, the demand for specific recreational activities, and the desired recreational experiences should allow land managers to provide the public with quality recreational opportunities.

Secondly, the trends in recreation participation for the past fifteen years within the CRB are assessed. This trend analysis, specifically, examines past recreation use levels among the various state and federal land management agencies responsible for providing recreational opportunities within the CRB. These use trends within the Basin are compared to the use trends on a national level. Additionally, factors which may

potentially affect recreation trends, such as income levels and technology, are discussed. Knowledge of recreation trends should provide insight into how various external factors may influence participation as well as allow for speculation on future participation.

Therefore, the final objective of this assessment is to project the demand for future recreation use and its potential economic impact within the CRB. Specifically, the final section provides CRB recreation use projections for the year 2040 and examines the potential influence that specific issues, attitudes and policies affecting recreation may have on future use.

In its entirety, this assessment should provide the Eastside Ecosystem Management Project Social Science Team with general information concerning the current recreation situation, past recreation trends and the future of recreation in the CRB. This assessment is general in nature and site specific information, though incorporated into the general data, is not individually reported. A general description of outdoor recreation in the CRB should provide the Social Science Team with a portion of the background information necessary to develop an overall assessment of the social conditions in the CRB. The overall social assessment of the CRB will provide the base level data from which various management scenarios and alternatives may be evaluated.

#### **What is the Interior Columbia River Basin?**

The interior Columbia River Basin (CRB) consists of those

lands west of the continental divide, east of the Cascade crest, south of Canada, and north of the southern borders of Idaho and Oregon (see Figure 1 for map of CRB). The CRB contains approximately 140 million acres of land. These lands vary greatly in elevation, terrain, habitat type and rainfall levels. Some areas within the Basin are extremely populated while other areas have been designated as wilderness where humans may visit for short periods of time but may not reside. The CRB includes lands which are extremely fertile and provide great opportunities for agriculture, but also contains areas which remain extremely arid. Some areas of the Basin are heavily forested supplying opportunities for timber harvesting, while other areas have little or no vegetation.

Many rivers and streams flow throughout the Basin. Some rivers flow through deeply carved canyons, while other waters have been tamed by the need for hydroelectric power. Some rivers flow through wilderness areas while other rivers flow through large cities. Many fish species inhabit the waters



of the CRB providing abundant fishing opportunities. Several world class fly-fishing streams exist within the Basin. Many large lakes and reservoirs also provide a variety of fishing opportunities. A wide array of wildlife species inhabit the CRB. Big-game species, such as several varieties of deer and elk, grant prime hunting and wildlife viewing opportunities throughout the Basin. Many smaller mammals, such as beaver and bobcat are also abundant throughout the CRB. Additionally, the Basin is also home or a migratory stop for hundreds of species of birds.

This natural diversity of the Columbia River Basin presents residents and visitors to the Basin with an extremely broad spectrum of recreational opportunities. Pristine wilderness resources provide visitors with opportunities for moments of solitude and primitive experiences, while urban centers within the Basin provide more organized forms of recreation, such as zoos and amusement parks. Given the diverse landscape, population levels and recreational opportunities throughout the CRB, many land resource management agencies under the authority of federal, state and local governments have been given the responsibility for managing public lands for recreational purposes. Some lands are under the jurisdiction of federal agencies such as the Bureau of Land Management and the US Forest Service, while other lands are administered by state, county or municipal organizations.

The majority of the federal lands within the CRB utilized for recreational purposes are administered by five federal

agencies. The US Forest Service within the US Department of Agriculture is responsible for approximately 46 million acres of land within the CRB. These lands are divided among three Forest Service regions, specifically, Regions 1, 4, and 6. The specific national forests are listed by region in Appendix A. The US Department of Interior oversees three agencies which are responsible for managing federal lands within the Basin. First, the Bureau of Land Management (BLM) administers approximately 26 million acres divided among twelve districts within the Basin (Appendix A). Secondly, the National Park Service is responsible for the management of fourteen national parks, monuments, reserves, historic sites and recreation areas totalling approximately 1.6 million acres of land (Appendix A). And lastly, the US Fish and Wildlife Service is responsible for 17 National Wildlife Refuges within the Basin.

The Army Corps of Engineers, overseen by the US Department of Defense, is responsible for managing 12 projects within the CRB. In 1991, approximately 220 recreation sites existed on lands administered by the Army Corps of Engineers. However, many of these sites were administered by other land management agencies, including the USFS, USFWS, the states of Oregon, Washington, and Idaho, and local entities such as counties, cities, and public utility districts. Appendix A includes only those sites which the Army Corps of Engineers is directly responsible for managing.

In addition to the federal land management agencies and

units listed in Appendix A, each individual state within the Basin also has state agencies responsible for managing public lands. For example, the Department of Lands and the Department of Parks and Recreation in Idaho manage large tracts of state lands for recreational purposes. Counties within the CRB also have jurisdiction over lands set aside for recreational purposes. Some counties have extensive park programs, while other counties tend to rely on state and federal lands for local recreation opportunities. And finally, municipalities within the CRB have local park and recreation staffs to manage and administer city and neighborhood parks.

#### **Current Recreation Situation in the CRB**

A major objective of the Eastside Ecosystem Management Project (EEMP) is to conduct a broad scale social and economic assessment of the resources within the CRB. The assessment will provide insight into the relationships within and among the ecological, social, cultural and economic systems currently and historically under operation within the CRB. An understanding of how these systems operate should be extremely useful in directing future management decisions in the CRB. A primary component of

such an assessment is to evaluate the impacts of recreation upon the ecology, economy, and communities of the CRB.

Prior to evaluating the impacts of recreation on the overall social and economic structure of the Columbia River Basin, it is necessary to examine current demand and supply levels of recreation within the Basin. Assessing the current levels of recreation demand and supply provides the necessary information for determining the economic contribution that recreation may have within the CRB. However, determining levels of demand for various recreation activities and opportunities has been and continues to be a difficult process (Clonts 1991). Demand is often defined by economists as a schedule of quantities of a product that an individual or group of individuals will purchase at various prices. Since recreation products (i.e. experiences or outcomes) vary across a wide variety of activities and settings, identifying specific demand levels or curves for recreation has been extremely complex.

Many recreation demand assessments often utilize levels of consumption or participation for a measure of demand. Unfortunately, simply employing consumption levels as indicators of demand tends to disregard a major element of demand: direct costs or the price of engaging in recreation. Typically, as costs increase, demand should decrease. Therefore, to truly assess recreation demand in terms other than consumption, a cost factor must be examined to ascertain the downward slope of the demand curve (i.e., as costs increase how quickly does demand

decrease). A common cost factor which is frequently examined to determine the slope of a demand curve is an individual's willingness to pay for a specific product (i.e. recreation activity). Thus, assessing recreation demand within the CRB requires a two step process: (1) identify current participation (i.e. the number of activity-specific recreation visits individuals took to the CRB) and (2) measure individuals' willingness to pay for specific recreational activities. Unfortunately, using current recreation participation levels as indicators of demand for recreation has several inherent limitations. Recreation behavior is extremely complex and difficult to explain. Many factors influence individuals' decisions on where, when, and how to engage in recreational activities. Examining participation levels to determine recreation demand often ignores the influence of external factors on decisions to participate. The following section examines the limitations associated with utilizing participation levels or measures of consumption as a proxy for demand will be discussed.

#### **Limitations of Using Consumption as Measure for Demand**

Many individuals may value the existence of a natural resource for reasons other than participation in recreation. Participation may actually be a by-product of a much deeper demand. Rolston (1988) suggests that humans value natural resources for many reasons other than recreational purposes. For

example, individuals may value their interaction with a natural resource for life support, cultural, aesthetic and spiritual reasons. The public may demand that opportunities other than engaging in recreational activities exist within the character of natural resources. Thus, estimating demand from participation levels ignores this indirect form of consumption.

Another limitation of using participation as an indicator of demand is that recreation use levels can be affected by a multitude of external factors. For example, if personal income increases or decreases, participation in recreational activities should adjust similarly. If the US economy enters a recession, personal income may decrease substantially. If personal income decreases, individuals will have less disposable income, thus influencing their participation in recreational activities. A decrease in personal income can influence participation levels in two ways. First, individuals may have similar rates of participation, but limit their participation to areas closer to home. Or secondly, individuals may travel to the same setting to engage in a particular activity, but have a shorter length of stay or make fewer trips to that area. Other factors which may influence participation levels are age, amount of leisure time, weather, social trends (fads), site conditions, crowding, etc. These factors which can enhance or reduce an individual's motivation to participation will be discussed in more depth later in this report.

A third limitation of estimating demand via participation

levels involves the issue of displacement. Participation rates indicate the quantity of the recreation product being consumed. Participation rates, however, provide no information on the quality of the product demanded. If the quality of a recreation site changes (i.e. due to impacts or the development of facilities) or the number of users increases, the character of the site may be significantly altered. As the attributes of a particular site change, some users may become dissatisfied with the recreational opportunities the altered setting now provides. These individuals may seek alternative sites for their desired recreational experience. Recreation users usually demand a particular setting and experience, in addition to a specific activity. If the desired setting and experience exist in an area of similar distance from the user's home, the individual may choose to participate in his/her recreational activity at this substitute site.

However, if an alternative site does not exist, the individual may chose to not engage in that recreational activity at the prior site, thus being displaced. The demand for the activity, setting and experience still exist, unfortunately the supply to meet that demand does not. Using participation levels as a measure of demand fails to capture this portion of demand that may exist. Additionally, assessing demand via participation assumes that individuals are participating in their desired recreational activity within their most preferred recreational setting. If the most preferred setting does not exist, some

individuals may still choose to continue to participate in a recreational activity within this setting even though it is not the most preferred. Using participation as a demand proxy often fails to assess the public's true demand for activities and settings.

Survey research has addressed the first two limitations discussed. However, much of the research has been restricted to small scale assessments rather than large regional assessments. The third limitation, the issue of displacement, has been more difficult to assess since it is nearly impossible to determine what users have been displaced or are consuming a less than preferred product. To address these issues, current research is focusing on identifying demand for "recreation products" rather than actual participation in a specific activity.

Though not the most preferred method for determining recreation demand, an examination of the amount of participation in specific recreational activities can provide a general approximation of the demand for recreation. As indicated earlier, assessing recreation demand requires a two step process: (1) identify current participation and (2) determine individuals' willingness to pay for specific recreational activities. The following two sections identify current participation levels in the CRB and utilize resource pricing figures from the recent 1990 Resources Planning Act assessment to determine individuals' willingness to pay for recreation experiences in a variety of CRB settings.

## Current Participation

The first step in identifying recreation demand is to examine current participation levels or consumption patterns for various recreation activities within the CRB. To assess participation rates in the CRB four distinct data sources were examined. First, the State Comprehensive Outdoor Recreation Plans (SCORP) for the four major states included within the CRB were examined. SCORP's provide general information on recreation participation in selected activities by state regions. Since the CRB includes only portions of the states of Washington, Oregon, and Montana, the breakdown of statistics by state region was extremely useful. However, SCORP's do not provide agency specific data (i.e. participation rates by agency). Thus, the second source of participation rate data was obtained from specific governmental agencies responsible for managing public lands within the CRB. This data was collected from individual Forests, BLM Districts, National Parks, etc.

Thirdly, for situations where data was not received from a specific management unit, current participation rates were obtained from public documents, such as the US Army Corps of Engineers *Columbia River Systems Operation Review*. And lastly, to determine the influx of non-CRB residents who travel to the area for recreation purposes, the US Fish and Wildlife Service database from the 1991 Survey of Hunting, Fishing and Non-consumptive Use and 1993 international survey data from the US

Travel and Tourism Administration were examined.

State Comprehensive Outdoor Recreation Plan (SCORP) Use Data<sup>1</sup>

To understand the current demand for recreation activities in the Columbia River Basin, we can look at the SCORP documents for the states of Oregon, Washington, Idaho, and Montana. The documents provide general information on resident participation in selected recreation activity categories across the CRB. Three of the four states (Oregon, Washington, and Idaho) conducted regional recreation demand studies in 1987 in conjunction with the *Pacific Northwest Demand Survey*. A mail survey questionnaire was administered to a random population of residents within each state to measure current recreation participation and make projections about future use. From this demand survey each of the three states produced a statewide comprehensive recreation plan. Montana conducted a recreation needs assessment in 1985 which provided information for that state's 1988 SCORP.

The resulting four SCORP documents, Recreational Needs Bulletin: Oregon State Comprehensive Outdoor Recreation Plan (Oregon State Parks and Recreation Department 1991), Washington Outdoors: Assessment and Policy Plan 1990-1995 (Interagency Committee for Outdoor Recreation 1990), 1990 Centennial Edition Idaho Outdoor Recreation Plan (Idaho Department of Parks and

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<sup>1</sup>The following review of SCORP participation rates was prepared by Karen Perault, Outdoor Recreation Planner, Prineville District, Bureau of Land Management.

Recreation 1989), and 1988 Montana State Comprehensive Outdoor Recreation Plan (Montana Department of Fish, Wildlife and Parks 1988), were examined to determine the levels of recreation participation in various activities. Since the CRB only includes portions of the states of Oregon, Washington and Montana, participation rates for only those areas within the CRB were evaluated. These three states had regional assessments which closely followed the boundaries of the CRB. The regions of interest in eastern Oregon were Region 10 (Wasco, Hood River, Sherman, Gilliam, Wheeler, Jefferson, Deschutes and Crook counties); Region 11 (Lake, Malheur and Harney counties); Region 12 (Morrow, Umatilla, Union, Wallowa, Grant and Baker counties). Eastern Washington consisted of Region 3 (Chelan, Douglas, Okanogan, Kittitas, Yakima, Adams, Grant, Lincoln, Benton, and Franklin counties) and Region 4 (Ferry, Pend Oreille, Stevens, Spokane, Whitman, Asotin, Columbia, Garfield, and Walla Walla counties). And lastly, the regions of interest in Montana were Region 1 (Lincoln, Flathead, Sanders and Lake counties) and Region 2 (Mineral, Missoula, Powell, Ravalli, Granite, Deer Lodge and Anaconda counties).

Table 1 indicates the various recreation participation rates for the four states within the CRB. Similar activities were grouped together to form twelve activity categories.

Participation data is presented in terms of activity occasions. An activity occasion is defined as participation in a given activity by one person for any part of a 24 hour period. One

individual participating in three different activities during one day would be tallied as three "activity occasions".

Since survey methodologies varied among the four state SCORPs, a grand recreation participation level for the entire CRB could not be calculated. Nevertheless, recreation use data obtained from the four SCORP documents provides a general picture of the types and levels of recreation use occurring throughout the CRB (Table 1). The most frequently engaged in activities appear to be day use activities and activities occurring on trails. Specifically, recreation visitors in Oregon appear to engage extensively in day use activities, camping and the use of trails. Participation levels were lowest in motorized winter sports and both non-motorized and motorized boating activities. Day use also was the most popular activity for eastern Washington with over 4 million activity occasions in 1987. Non-motorized winter sports, fishing, use of trails, motor viewing and camping were also popular activities in which to engage. Similar to participation levels in eastern Oregon, motorized winter sports and non-motorized boating appear to be least popular activities.

The most prevalent recreation participation among Idaho residents was engagement in day use activities. Fishing, trail use, motor viewing and camping also had high levels of participation. Similar to Washington and

Table 1--Recreation participation levels within CRB based on State Comprehensive Outdoor Recreation Data, 1987.

| Recreation activity                 | State  |                   |                   |                         |
|-------------------------------------|--|-------------------|-------------------|-------------------------|
|                                     | E. Oregon  | E. Washington     | Idaho             | W. Montana <sup>1</sup> |
|                                     | -----Number of activity occasions <sup>a</sup> ----- |                   |                   |                         |
| Trail use <sup>b</sup>              | 3,186,168  | 1,694,000         | 5,948,000         | 4,098,300               |
| Camp <sup>c</sup>                   | 3,280,136  | 1,294,000         | 4,164,700         | 642,400                 |
| Hunt <sup>d</sup>                   | 1,210,487  | 803,000           | 3,530,100         | 642,000                 |
| Fish <sup>e</sup>                   | 1,889,479  | 1,725,000         | 6,009,800         | 1,092,000               |
| Nonmotor boat <sup>f</sup>          | 501,049  | 295,000           | 1,312,800         | 253,200                 |
| View wildlife                       | 1,023,468  | 607,000           | 3,521,300         | 1,295,700               |
| Day use <sup>g</sup>                | 3,822,286  | 4,096,000         | 10,113,100        | 1,240,600               |
| Motor boat <sup>h</sup>             | 421,896  | 774,000           | 2,189,900         | 422,300                 |
| Motor viewing                       | 1,605,285  | 1,413,000         | 4,447,300         | N/A                     |
| ORV use <sup>i</sup>                | 1,481,523  | 850,000           | 3,929,800         | 431,600                 |
| Nonmotor winter sports <sup>j</sup> | 915,659  | 1,951,000         | 3,691,000         | 540,000                 |
| Motor Winter Sports <sup>k</sup>    | 137,898  | 281,000           | 1,459,300         | 120,000                 |
| <b>TOTAL</b>                        | <b>19,475,334</b>                                    | <b>15,763,000</b> | <b>50,317,100</b> | <b>10,778,100</b>       |

N/A=no data available

<sup>a</sup> Activity occasions=participation in a given activity for one person for any part of a 24 hour period.

<sup>b</sup> Trail use includes bicycle riding off-road, day hiking, backpacking on and off trails and horseback riding.

<sup>c</sup> Camp includes by boat, with and without pack stock, with an organized group and in a recreation vehicle and tent with motorized vehicle.

<sup>d</sup> Hunt includes big and small game, waterfowl, upland birds and bow hunting.

<sup>e</sup> Fish includes freshwater boat and bank or dock.

<sup>f</sup> Nonmotor boat includes canoeing, kayaking, rafting, sailing, windsurfing, sailboarding and lake and river boating.

<sup>g</sup> Day use includes beach use, climbing, mountaineering, outdoor photography, picnicking, swimming and visits to interpretive centers.

<sup>h</sup> Motor boat includes waterskiing and lake and river boating.

<sup>i</sup> Off-road vehicle use includes ATV, dunebug and fourwheel driving and motorcycling.

<sup>j</sup> Non-motor winter sports include cross-country and downhill skiing, sledging, snowboarding, snow play and ice skating.

<sup>k</sup> Motor winter sports include snowmobiling and ATV driving in the snow.

<sup>1</sup> 1985 data

Oregon, Idaho residents exhibited the lowest participation rates in non-motorized boat use and motorized winter sports.

Recreation participation data for Montana is based on a 1985 telephone survey. Extremely high levels of participation in trail use activities in western Montana. Additionally, recreationists frequently participated in viewing wildlife, day use activities, and fishing. Non-motorized boating and motorized winter sports had fairly low participation levels in western Montana.

Thus, recent SCORP data suggests that residents of the CRB are actively participating in a variety of recreational activities. Participation data suggests that day use activities such as picnicking, swimming, climbing, visits to interpretive centers, and outdoor photography are extremely popular throughout the entire CRB. Though actual participation rates vary among the four states within the CRB, when activities are ranked by participation levels, few differences exist among the states. These results suggest that the residents of the CRB are fairly homogeneous in their preferences for particular recreational activities.

SCORP's provide a very general understanding of recreation participation among the residents of the four CRB states. However, SCORP's do not provide detailed participation levels among the various land agencies responsible for managing public lands throughout the CRB. The following section provides a description of the methods involved in collecting participation

data from each specific state and federal management unit within the CRB, as well as the specific participation levels for the 12 activity categories examined in the above SCORPs.

#### Agency Use -- 1993

SCORP's provide an overview of the amount of recreation participation occurring among the four states within the CRB. However, the recreation occurring on lands within the CRB is dispersed over a broad spectrum of land types. A variety of public agencies with different management agendas are responsible for providing recreation opportunities on these lands (see Appendix A). How much recreation currently occurs on the lands managed by each of the land units listed in Appendix A?

This section describes the level of recreation participation for selected activities occurring on specific lands within the CRB. To obtain information on recreation use, the recreation staff for each national forest, BLM district, national park, refuge and recreation site was queried about the number of recreation visits occurring within their specific resource area. Specifically, managers were asked to provide recreation use data for the twelve activity categories described in Table 1. Additionally, use levels were to be reported by six Recreation Opportunity Spectrum (ROS) classes.

Currently, the ROS recognizes seven opportunity classes, ranging from primitive recreation opportunities to urban

recreation opportunities. These opportunities are defined by setting characteristics such as access, non-recreational uses, on-site management, social interaction, acceptability of impacts, and acceptable levels of regimentation (Clark and Stankey 1979). The ROS User's Guide (US Department of Agriculture 1982) provides a detailed description of how the characteristics of setting may influence various opportunities and experiences. Only six ROS classes were of primary interest in this assessment: primitive, semi-primitive non-motorized, semi-primitive motorized, roaded natural, roaded modified, rural/urban. The rural and urban ROS classes were combined to form one class.

Each specific management unit within the CRB was asked to (1) identify and delineate current recreation opportunity spectrum classes within their unit, (2) estimate current recreation visits by averaging use data for 1991, 1992, and 1993 for the twelve activity categories, and (3) provide information on the number of recreation permits (i.e. camping, firewood, etc.) issued within their jurisdiction and resulting revenues generated from these permits. The information received from this request provided information on the current existing supply of recreation opportunities across the CRB as well as estimated recreation participation for each activity category.

Requests for recreation use data were sent to 88 specific land management units. Appendix B provides a list of the specific national forest, park, BLM district, wildlife refuge, and state lands department which received a request for

recreation use data as well as the data request forms. Sixty-six (75%) management units responded with usable data. Five additional units (all state land management offices) indicated that they did not have recreation use data available. Seventeen units (two BLM districts, 2 National Parks, one Army Corps of Engineer Office, 5 US Fish and Wildlife Service Refuges and several state land management offices) failed to respond to the information request. Since all the management units within the CRB did not have recreation use data or did not respond to the inquiry, participation rates reported in this assessment maybe slightly underrepresented.

Additionally, the data received from the various agencies had several inherent limitations. Managers were requested to report recreation use in terms of recreation visits. A recreation visit is defined as the use of a recreation area by one individual for purposes of participating in one or more recreation activities for any length of time in which only the primary activity for the visitor is recorded. Assessing participation in terms of visits provides the best measurement term for estimating the economic impact of recreation.

Unfortunately, field units often measure recreation use in a variety of terms (i.e. activity occasions, recreation visitor days ((RVDs))). Thus, the measurement terms of the recreation data varied extensively among the responding agencies.

To make the data consistent, agencies were asked to indicate how they measured recreation use, and if the data was reported in

terms other than primary visits, it was converted. The three most frequent measurement terms for reporting recreation use are trips, activity occasions, and recreation visitor days (RVDs). For the purposes of this assessment, trips are equal to primary visits (only the primary reason for visiting is recorded). To convert activity occasions to primary visits, Walsh (1986) presents the following formula: primary visits equal the number of activity occasions divided by the average number of recreation days per trip. Recreation visitor days (RVD) were converted to primary visits by multiplying RVDs by 12. That result is then divided by the average number of hours per recreation day for that activity. This figure is subsequently divided by the average number of days per trip. Information on average number of recreation days per trip was obtained from IMPLAN (Impact Analysis for PLANing), a regional input-output model which can generate reports about a region's industry activity. Average number of hours per recreation day were obtained from Forest Service statistics. Unfortunately, no method exists for determining what the primary reason for visiting an area might have been. Though the conversions provides a tool for creating consistent terms, the conversion does not provide a means for identifying a person's primary activity.

Another limitation of the data received from the various management units involved the manner in which various agencies reported use statistics for the six ROS classes. Some units reported use levels in terms of three ROS classes rather than the

more traditional six classes. Other units provided a breakdown of recreation use by the six ROS classes. Thus, recreation participation levels could not be reported for the six classes for the entire CRB. Total recreation participation amounts subsequently were limited to three ROS classes: primitive/semi-primitive (both non-motorized and motorized), roaded natural/modified and rural/urban. Data from those units which reported use by the six classes was grouped together to form three classes.

Table 2 provides the overall number of recreation visits reported for those management units which responded. Recreation visits are reported for each of the twelve activity categories as they occurred within a specific ROS class. Over 83 million recreation visits occurred in the CRB during 1993. Data suggests that most visits occurred within the roaded natural/roaded modified class. The most frequently engaged in recreation activities occurred on lands throughout the CRB were day use activities (i.e. picnicking, nature study, interpretive visits, swimming, etc.), trail use and motorviewing. These results are similar to the data reported in the SCORPs in that day use activities were reported as the most frequently engaged in activities.<sup>2</sup> Motor viewing, however, did not rank as high in popularity in 1987 (SCORP

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<sup>2</sup>Unfortunately, the participation levels reported by the SCORPs cannot be directly compared to the data provided by the management units. SCORPs report participation levels in activity occasions while management units reported participation in terms of recreation visits.

Table 2--Total recreational visits<sup>a</sup> and ranking in 1993 for three ROS classes in the Interior Columbia River Basin by activity.

| Recreation activity           | Total visits and ranking  |    |                             |    |                   |    |                   |    |
|-------------------------------|---------------------------|----|-----------------------------|----|-------------------|----|-------------------|----|
|                               | Primitive & Semiprimitive |    | Roaded natural and modified |    | Rural and urban   |    | Total             |    |
| Trail use <sup>a</sup>        | 2,720,831                 | 2  | 2,260,068                   | 5  | 809,284           | 5  | 5,790,183         | 5  |
| Camping                       | 1,827,743                 | 3  | 4,417,286                   | 3  | 1,937,574         | 4  | 8,182,603         | 3  |
| Hunting                       | 1,265,169                 | 6  | 1,662,648                   | 6  | 191,256           | 9  | 3,119,073         | 7  |
| Fishing                       | 1,471,454                 | 5  | 3,693,121                   | 4  | 651,934           | 7  | 5,816,509         | 4  |
| Nonmotor boating <sup>b</sup> | 188,087                   | 12 | 918,784                     | 12 | 186,916           | 10 | 1,293,787         | 12 |
| Viewing wildlife <sup>c</sup> | 469,442                   | 10 | 1,148,939                   | 8  | 415,286           | 8  | 2,033,667         | 9  |
| Day use <sup>d</sup>          | 5,168,345                 | 1  | 13,426,517                  | 2  | 8,521,752         | 1  | 27,116,614        | 1  |
| Motor boating <sup>e</sup>    | 558,839                   | 7  | 969,750                     | 11 | 748,934           | 6  | 2,277,523         | 8  |
| Motor viewing <sup>f</sup>    | 1,695,668                 | 4  | 14,471,164                  | 1  | 2,824,147         | 3  | 18,990,979        | 2  |
| Off-road vehicle (ORV)        | 554,595                   | 8  | 1,082,777                   | 9  | 138,755           | 12 | 1,776,127         | 10 |
| Winter sports <sup>g</sup>    | 528,552                   | 9  | 1,576,501                   | 7  | 3,626,415         | 2  | 5,731,468         | 6  |
| Snowmobiling                  | 375,167                   | 11 | 1,006,333                   | 10 | 161,131           | 11 | 1,542,631         | 11 |
| <b>Total</b>                  | <b>16,823,892</b>         |    | <b>46,633,888</b>           |    | <b>20,213,384</b> |    | <b>83,671,164</b> |    |

<sup>a</sup> Hiking, biking, horseback riding and other such nonmotorized trail use.

<sup>b</sup> Canoeing, kayaking, rafting, drift boating, and other such nonmotorized boating.

<sup>c</sup> Nonconsumptive wildlife viewing, photography and feeding.

<sup>d</sup> Picnicking, nature study, interpretive visits, photography, collecting objects and special forest products, swimming, wading, and other such day uses.

<sup>e</sup> Motorized boat sightseeing, water skiing, and other such uses.

<sup>f</sup> Motorized sightseeing and exploring by vehicle.

<sup>g</sup> Winter sports other than snowmobiling.

<sup>h</sup> Visit = a visit by one individual to a recreation area for the purpose of participating in one or more recreation activities for any length of time in which only the primary activity of the visitor is recorded.

data), as it does currently according to agency data. The activities with the lowest participation levels appear to be non-motorized boating, snowmobiling, and off-road vehicle use. SCORP data ranked these activities similarly in 1987.

The primitive/semi-primitive setting drew the fewest recreation participants within the CRB. Those who visited this setting most frequently engaged in day use activities and the use of trails for hiking, biking, horseback riding or other non-motorized activities. Since much of the land within the primitive/semi-primitive class consists of areas designated for non-motorized recreation, participation levels in motorized activities, such as snowmobiling, off-road vehicle use, and motor boating were fairly low. However, the activity with the lowest participation levels in the primitive/semi-primitive class was non-motorized boating, such as canoeing, kayaking, rafting, etc.

The roaded natural/roaded modified class attracts the greatest number of visitors within the CRB. Visitors to the roaded natural/roaded modified class most frequently engaged in motorized sightseeing and exploring lands by vehicle. Most of the motor viewing which occurs on public lands takes place on lands within the roaded natural/roaded modified class (14.5 million visits). Many visitors to this class also engaged in day use activities (13.5 million). The least frequently engaged in activities were both non-motorized and motorized boating and snowmobiling.

Individuals who visited rural/urban settings for

recreational purposes tended to participate most frequently in day use activities. Visitors to rural/urban setting preferred to view wildlife rather than hunt wildlife. Much less fishing occurs within the rural/urban class than the roaded/natural. Winter sports, such as cross-country and downhill skiing, sledding, snowboarding, and ice skating, were frequently engaged in within the rural/urban class. Winter sports often require developed facilities to occur and large population levels to support the cost of these facilities. Another frequently engaged in activity for the rural/urban class was motor viewing. Off-road vehicle use, snowmobiling and non-motorized boating were the least participated in activities for this ROS classification.

Appendix C contains recreation use statistics for each of the specific management units by recreational activity and ROS class. For example, Table C-1 includes the number of visits per management unit within the primitive class for each of the twelve activity categories. The tables contained in Appendix C report use data for those management units which reported their use by six ROS classes as well as those units which reported use by three ROS classes. Data is only reported for those management units which reported participation within each specific ROS class. These tables have been separated to provide the most detailed information concerning use as possible.

Table 3 indicates the number of visitors to lands managed by each specific agency in 1993. The US Forest Service provided recreational opportunities to the greatest number of visitors.

Most of the recreation occurring on Forest Service lands took place on lands classified as Roaded Natural/Roaded Modified. Further examination of the data presented in Appendix C suggests that the most frequently engaged in recreational activity for this land classification was "viewing scenery from a vehicle" (13.8 million visits) and day use activities (8.7 million visits).

Table 3. Total recreational visits\* in 1993 for each land management agency in the CRB by ROS class.

| Land Management Agency       | Total Visits and Percentages by ROS Class |    |                             |    |                 |    |            |    |
|------------------------------|---|----|-----------------------------|----|-----------------|----|------------|----|
|                              | Primitive and Semi Primitive              | %  | Roaded natural and Modified | %  | Rural and Urban | %  | Total      | %  |
| US Forest Service            | 11,074,626                                | 66 | 37,347,382                  | 80 | 10,677,506      | 53 | 59,099,514 | 71 |
| Bureau of Land Management    | 828,329                                   | 5  | 3,905,329                   | 8  | 1,326,027       | 7  | 6,059,685  | 7  |
| Nat.                         | 1,739,25                                  | 1  | 3,042,54                    | 6  | 598,514         | 3  | 5,380,31   | 6  |
| US Fish and Wildlife Service | 818,985                                   | 5  | 421,621                     | 2  | 378,800         | 2  | 1,619,406  | 2  |
| Army Corps of Engineers      | 0   | 0  | 0                           | 0  | 2,158,155       | 10 | 2,158,155  | 3  |
| State Agencies               | 2,362,695                                 | 14 | 1,917,016                   | 4  | 5,074,382       | 25 | 9,354,093  | 11 |

|       |                |                |                |                |
|-------|----------------|----------------|----------------|----------------|
| Total | 16,823,8<br>92 | 46,633,8<br>88 | 20,213,3<br>84 | 83,671,1<br>64 |
|-------|----------------|----------------|----------------|----------------|

\*Visits= a visit by one individual to a recreation area for the purpose of participating in one or more recreation activities for any length of time. Only the primary activity for the visitor is recorded.

The Bureau of Land Management (BLM) provided over 6 million visits to the public with a majority of the recreation occurring on Roaded Natural/Roaded Modified lands. Fishing was the most popular activity (approximately 1.5 million visits) on these lands. Similarly, visitation to National Park Service lands occurred primarily in a Roaded Natural/Roaded Modified setting. Day use activities were most prevalent (2.7 million visits). The US Fish and Wildlife Service (USFWS) was the only agency in which a majority of recreational use took place within the Primitive/Semi-primitive land classification. Day use activities and viewing wildlife were the most frequently engaged in activities, 250,000 and 232,000 visits respectively.

Lastly, the Army Corps of Engineers only provided recreational opportunities within the Rural/Urban land setting. Most of the Corps' recreation sites in the CRB are near hydroelectric projects. The extensive developments near the recreation sites resulted in a majority of Corps lands being classified as Rural/Urban. Recreation participation most frequently involved day use activities. State agencies provided approximately 10 million recreational visits within the CRB. Half of these visits occurred on rural and urban lands and consisted primarily of day use activities.

Some federal and state land management agencies did not respond

to the request for use statistics or did not have data available in the form requested. Various government documents were used to examine the most recent published data on recreation participation for those agencies which did not provide the requested information. The US Army Corps of Engineers (1994) recently completed the *Columbia River System Operation Review*. One segment of the Corps review was a detailed assessment of recreation occurring on Corps of Engineers (COE) sites throughout the Columbia River System. The review provides detailed information on recreation use occurring on various COE sites throughout the CRB. Table 4 provides the most recent use level statistics available. The Portland COE office did respond to the initial information request, thus, three Corps sites' 1993 visitation levels are incorporated into the use levels reported in

Table I. Visitation rates at Army Corps of Engineers sites throughout the Columbia River Basin. (1991 data).

| <u>Project Site</u><br><u>(1991)</u>    | <u>Recreation Visitor Days</u> |
|---|--------------------------------|
| Libby Dam/Lake Koochanusa               | 188,900                        |
| Grand Coulee Visitor Center             | 508,000                        |
| Albeni Falls/ Lake Pend Oreille         | 456,900                        |
| Dworshak Dam                            | 212,200                        |
| Chief Joseph                            | 207,400                        |
| Rock Island Dam and Lake                | 730,200                        |
| Rocky Reach Dam and Lake                |                                |
| 1,368,900                               |                                |
| Lower Granite Dam                       |                                |
| 1,691,200                               |                                |
| Little Goose Dam                        | 202,800                        |
| Lower Monumental Dam                    | 136,000                        |
| Ice Harbor Dam                          | 502,800                        |
| McNary Dam/Lake Wallula                 | 2,747,500                      |
| John Day Dam/Lake Umatilla              | 2,407,500                      |
| The Dalles Dam/Lake Celilo <sup>a</sup> | 2,653,900                      |

Tables 2 and 3. Though many recreation sites exist within many of the Army Corps Project sites, participation rates are reported for only those sites which are directly managed by the COE. The COE does not define recreation use by specific ROS classifications. As indicated earlier, most COE sites are fairly developed or are located near dam projects. Since most COE recreation sites are in the proximity of much development, most COE recreation opportunities would be classified within the rural/urban ROS class. Additionally, the COE does not report participation rates for specific activities. Thus, participation rates are the total use levels (reported in recreation visitor days) by site for 1991.

This section has provided a fairly detailed estimate of current

recreation participation levels throughout the CRB. The recreation data collected from the many land management agencies through out the CRB provides the best estimate of current use levels for various recreational activities. However, the data collected provides little information as to who is participating in recreational activities in the CRB and what benefits they seek from engaging in recreational activities. The following section examines the extent to which specific recreational activities are engaged in by residents and non-residents of the CRB.

#### Non-Resident Visitors to the CRB

The CRB is home to many unique wonders. From the deeply carved canyons of the Snake River to the majestic peaks of the northern Rockies, many visitors are drawn to the area to experience the beauty and diversity of the region's natural resources. Though many of the individuals who engage in recreational activities within the CRB also call the CRB home, other persons travel extensive distances to participate in the recreation opportunities which result from the area's natural richness. The following section examines non-resident travel to the CRB. Specifically, this section examines international visitation and non-resident travel to the CRB.

#### International Visitation to the CRB

International visitation is difficult to assess. Visitors are free to enter the United States from an extraordinary number of portals. To determine the extent of foreign visitation to the four

states within the CRB, several sources of international data were examined. Statistics Canada provides the United States Travel and Tourism Administration (USTTA) with Canadian travel data drawn from Canada's *International Travel Survey of Canadian Residents*.

Unfortunately, Statistics Canada could not provide international tourism data specific to the CRB, thus information reported is for the four state area of Washington, Oregon, Idaho and Montana.

Information on other foreign visitors was obtained from an independent research firm (CIC Research, Inc.) which gathers international travel data from the USTTA's *Survey of International Air Travellers* and data from the Immigration and Naturalization Service (INS).

Since Canada borders the extreme northern boundary of the CRB, Canadian travel to the CRB region should be expected to be relatively high. Overall, Canadians made 18.6 million visits to the United States in 1992 (USTTA 1993). The number of Canadian visits to the US in 1992 decreased approximately 2.7% from 1991. This was the first decline in visitation in 5 years. Previously, visitation had been steadily increasing with a 5 year average visitation growth of 11.8% annually.

The drop in Canadian visitation may have been a result of the weak Canadian dollar. To combat the drop in visitation due to the poor value of the Canadian dollars, some tourist areas within the CRB have begun to accept Canadian dollar at par (i.e. outlet shopping mall in Post Falls, Idaho). Thus, if Canadian visitation decreased because of the low exchange rate during 1992, visitation levels

should be expected to increase in the future if some tourist facilities are willing to accept the Canadian dollar at par.

Canadian visitation to the CRB also decreased in 1992 with the greatest decline occurring in the state of Idaho, 56% decrease from 1991. Table 5 indicates the number of Canadian visitors to each of the four states included in the CRB. Travel statistics were not available on a county-wide basis, thus visitation can only be reported at the state level. Data suggests that Washington had the greatest number of Canadian visitors, while Oregon received the fewest. Average length of visits were fairly consistent among the four states with visitors to Oregon staying the longest in the United States. A majority of the visitation to the four states in the CRB occurred during the months of April to September.

Table II. 1992 Canadian Visitation to Washington, Oregon, Idaho and Montana.<sup>a</sup>

| Travelling<br>in<br>State<br>Months <sup>b</sup> | 1992<br>Visits | % Change<br>1992/1991 | Average Nights<br>Per Visit | %<br>to area<br>Summer |
|--|----------------|-----------------------|-----------------------------|------------------------|
| Washington                                       | 2,321,200      | -13.0%                | 2.8                         | 64%                    |
| Oregon   | 397,400        | -19.5%                | 3.5                         | 58%                    |
| Idaho  | 433,000        | -56.0%                | 2.8                         | 75%                    |
| Montana  | 989,600        | - 5.7%                | 2.9                         | 74%                    |

Table 6 indicates the reasons why Canadians travelled to the northwestern United States. Overwhelmingly, most Canadians travelled

to the states of the CRB for vacation. Very few Canadians travelled to the region for business purposes. Thus, it could be assumed that since Canadians are travelling to the northwestern states for vacation purposes, most individuals engaged in some recreational activity during their stay. Unfortunately, data indicating the activities in which Canadians engaged while in the states of the CRB does not exist.

**Table III. Canadians' Purpose of Trip by State (1992).<sup>a</sup>**

| <u>State</u><br><u>Total</u> | <u>Business</u> | <u>Visit</u><br><u>Friends/Relatives</u> | <u>Vacation</u> | <u>Other</u> |
|------------------------------|-----------------|--|-----------------|--------------|
| Washington<br>2321.2         | 145.4           | 419.0                                    | 1473.5          | 283.2        |
| Oregon<br>397.4              | 38.9            | 55.8                                     | 290.2           | 12.3         |
| Idaho<br>433.0               | 19.3            | 23.6                                     | 353.9           | 36.2         |
| Montana                      | 23.7            | 102.3                                    | 753.5           | 110.0        |

In addition to Canadians, many visitors from other countries also visit the Columbia River Basin. In 1993, approximately 123,000 foreign visitors, other than Canadians, travelled to the CRB (CIC Research, Inc. 1994).<sup>3</sup> Of these visitors, 78,000 visitors were estimated to be residents of Europe, 30,000 travellers from Asia and 15,000 individuals from a variety of nations. Table 7 indicates the countries or continents from which travellers to the CRB reside. A

<sup>3</sup>Data specific to the CRB area.

majority of the foreign visitors to the CRB reside in western Europe, specifically Germany and the United Kingdom. Additionally, a large percentage of the visitors to the CRB reside in Japan.

Table IV. Country of residence for travellers to the CRB (1993).

| <u>Country</u>                     | 1993<br><u>Estimated # of Visits</u> | <u>Percent</u> |
|------------------------------------|--------------------------------------|----------------|
| Germany                            | 26076                                | 21.2           |
| United Kingdom                     | 30135                                | 24.5           |
| Netherlands                        | 5412                                 | 4.4            |
| Other Western Europe               | 20295                                | 16.5           |
| Eastern Europe                     | 369                                  | 0.3            |
| Caribbean                          | 246                                  | 0.2            |
| South America                      | 984                                  | 0.8            |
| Central America                    | 1845                                 | 1.5            |
| Africa                             | 738                                  | 0.6            |
| Middle East                        | 984                                  | 0.8            |
| Far East (except Japan)            | 7995                                 | 6.5            |
| Japan                              | 21156                                | 17.2           |
| Oceania<br>(Australia/New Zealand) | 6765                                 | 5.5            |

Table 8 indicates the main reason why foreigners visited the United States in 1993. Data does not indicate whether the main reason for travel was to occur within the CRB or elsewhere in the United States. Some visitors may engage in their primary activity in an area other than the CRB and visit the Basin for other reasons. Though the information presented in Table 8 may not be specific to the CRB, the data does provide knowledge on travel motivations. Overall, almost 50% of the foreign travel to the US was primarily for vacation purposes. Europeans' primary motivations for visiting the US were vacation oriented, while Asians tended to travel primarily for business purposes. Though the figures presented are based on

travel to the US, it could be assumed that similar motivations for travel to the CRB by international visitors may also exist.

Table V. Main Purpose of Foreign Travel to the United States 1993 (in percent).

| <u>Purpose of Trip</u><br><u>Asians</u> | <u>All Travellers</u> | <u>Europeans</u> |
|---|-----------------------|------------------|
| Business<br>52.8                        | 25.8                  | 15.6             |
| Convention/Conference<br>5.1            | 3.4                   | 2.2              |
| Spouse's Business<br>1.9                | 0.6                   | 0.3              |
| Study/Teaching<br>7.2                   | 5.4                   | 4.6              |
| Vacation/Holiday                        | 49.8                  | 59.3             |

International travellers other than Canadians spent an average of 7.3 nights in the CRB. Eighty-one percent of the international visitors to the CRB had previously been to the United States, thus indicating a substantial level of prior US travel experience and knowledge. Foreign travellers to the CRB had five major ports of entry into the US. Twenty percent entered the country via San Francisco. Much of the entry through San Francisco originated in Asia. Fifteen percent of the visitors to the CRB originated their travel in Los Angeles. In addition to these two ports of entry, eleven percent entered the county via New York City, ten percent through Seattle and ten percent through Chicago. Thus, foreigners

travelling to the CRB are entering the country from a wide variety of cities.

Table 9 indicates the leisure activities that international visitors engaged in while visiting the CRB. Shopping (85.7%) and dining in restaurants (71.1%) were the most frequently engaged in activities. Sixty-seven percent of international travellers visited a national park while in the CRB. Additionally, touring the countryside (55.7%), visiting historical places (54.8%) and camping/hiking (26.4%) were activities in which international visitors frequently engaged.

Slight but subtle differences existed in the leisure activities engaged in by Europeans and Asians. Asians tended to prefer activities associated with larger cities. A large number of Asians engaged shopping, sightseeing in cities, and dining in restaurants. Since Asians tended to travel primarily for business purposes, leisure activities of this nature would be expected. Europeans frequently engaged in city oriented activities, but also had high participation rates in outdoor recreation activities such as touring countryside, visiting national parks and historic places.

Table VI. Leisure activities\* in which international visitors engaged in while visiting the CRB during 1993 (in percent).

| <u>Leisure Activity</u><br><u>Asia</u>   |      | <u>All Overseas</u> | <u>Europe</u> |
|--|------|---------------------|---------------|
| Amusement/Theme Park<br>14.3             |      | 24.0                | 26.1          |
| Art Gallery/Museum<br>17.2               |      | 34.7                | 39.2          |
| Attend Sports Event                      | 17.5 | 20.5                | 7.3           |
| Camping/Hiking                           | 26.4 | 29.1                | 16.7          |
| Casinos/Gambling                         | 17.2 | 17.6                | 12.0          |
| Concert/Play/Musical                     | 15.3 | 15.8                | 11.5          |
| Cruises, 1 Night +                       | 0.7  | 0.5                 | 0.9           |
| Dining in Restaurants                    | 71.1 | 71.8                | 64.6          |
| Golf/Tennis                              | 7.9  | 4.3                 | 18.9          |
| Guided Tours                             | 19.6 | 21.1                | 16.0          |
| Hunting/Fishing                          | 13.9 | 16.3                | 7.5           |
| Nightclub/Dancing                        | 11.3 | 12.7                | 3.0           |
| Ranch Vacations                          | 11.6 | 15.3                | 3.8           |
| Shopping                                 | 85.7 | 88.6                | 76.8          |
| Sightseeing in Cities                    | 72.8 | 74.8                | 70.6          |
| Snow Skiing                              | 12.7 | 12.0                | 14.9          |
| Touring Countryside                      | 55.7 | 63.3                | 28.3          |
| Visit Historical Places                  | 54.8 | 60.2                | 33.8          |
| Visit National Parks                     | 67.0 | 76.6                | 39.9          |
| Visit American Indian Communities<br>2.4 |      | 23.9                | 30.8          |

Given the data provided by Statistics Canada, the US Travel and Tourism Administration and CIC Research, it is estimated that foreigners make approximately 4,264,200 visits to the CRB or four state CRB region. Future research needs to examine methods for collecting both residency and international data specific to the county level. Until socio-demographic data is provided on a small scale (i.e. county level), assessing recreation use by place of residence or specific visitor characteristics will remain difficult.

#### CRB Resident Recreation Use Versus Non-Resident Use

Similar to the problems associated with examining international visitation to the CRB, determining recreation use levels for residents and non-residents can be extremely difficult. Unless land management agencies conduct indepth studies, little is known about the residence of recreationists. Several recreational activities, however, require that users obtain a license prior to actual participation. For example, all states require hunting and fishing licenses. Examining the number of resident versus non-resident licenses purchased for hunting and fishing can indicate where hunters and anglers reside. Another source of information on resident and non-resident recreation participation is the US Fish and Wildlife Service which conducts the *National Survey of Fishing, Hunting, and*

*Wildlife-Associated Recreation.* The survey, conducted approximately every five years, gathers information on the number of anglers, hunters and nonconsumptive wildlife<sup>4</sup> users in the US. The following data is based upon the 1991 survey (USFWS 1993). Data was available at the state level only, thus data is not specific to the CRB.

Table 10 provides participation levels for fishing, hunting and non-consumptive wildlife activities occurring in the states of Washington, Oregon, Idaho and Montana. Overall, 6.2 million individuals engaged in wildlife-oriented activities within the four CRB states. Washington had the highest levels of use for the three wildlife oriented activities. Idaho had the lowest levels of participation. Non-consumptive wildlife activities were more popular than hunting and fishing for all four CRB states.

Table 10 also indicates the percentages of resident use versus non-resident use for each state and activity. Since non-resident hunting and fishing licenses are often quite costly, recreationists usually tend to hunt and fish within their state of residence. Montana, however, appeared to have more non-resident anglers than resident in 1991. Twenty-six percent of the non-resident Montana anglers resided in California. Additionally, a large number of Washington (13.5% of nonresident anglers) and Idaho (5.9% of nonresident anglers) residents fished in Montana in 1991.<sup>5</sup> Montana

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<sup>4</sup>Observing, feeding, photographing wildlife (Does not include viewing wildlife while pleasure driving).

<sup>5</sup>See Appendix D for the specific state of residence for anglers, hunters and non-consumptive users per CRB state. Figures are state-wide, not specific to the CRB region.

also had the highest percentages of non-resident hunters for the four states of the CRB. Almost 20% of Montana's non-resident hunters resided in Pennsylvania. Many Washington (11%), California (8%) and Wisconsin (8%) residents also travelled to Montana for hunting opportunities. Since non-consumptive wildlife activities rarely involve a fee, many non-residents travelled to the states of the CRB to observe, feed or photograph wildlife. Almost seventy percent of the non-consumptive users in Montana were non-residents. Most of the non-resident non-consumptive users in Montana resided in California. Many Washington and Florida residents also travelled to Montana to engage in non-consumptive wildlife activities. Idaho (49.2%) and Oregon (45.6%) also had high non-resident participation in non-consumptive activities.

Overall, twenty percent of the recreationists engaging in wildlife oriented activities were not residents of the four CRB states. Examining who participates in specific recreational activities in the CRB helps to identify the specific recreational demands of visitors to the CRB. Understanding the characteristics and demands of recreational visitors to the CRB should allow land managers to provide more quality experiences to the public. Additional research needs to identify visitor characteristics for a variety of activities, not just hunting, fishing, and non-consumptive uses. The more knowledge land managers possess concerning their clients, the greater their ability to provide a quality product.

Table 10. 1991 Participation levels in fishing, hunting, and non-consumptive wildlife activities in Washington, Oregon, Idaho and Montana. (resident versus non-resident use in percent)

| State      | Fishing  | Hunting                                  | Non-consumptive Activities                 | Total                                      |
|------------|--|--|--|--|
| Idaho      | 364,572<br>Res <sup>a</sup><br>(63.6)<br>NR <sup>b</sup><br>(36.4)   | 192,704<br>Res<br>(81.9)<br>NR<br>(18.1) | 381,519<br>Res<br>(50.8)<br>NR<br>(49.2)   | 938,796<br>Res<br>(62.2)<br>NR<br>(37.8)   |
| Montana    | 341,933<br>Res<br>(48.0)<br>NR<br>(52.0)                             | 222,896<br>Res<br>(70.7)<br>NR<br>(29.3) | 557,756<br>Res<br>(31.1)<br>NR<br>(68.9)   | 1,122,586<br>Res<br>(44.1)<br>NR<br>(55.9) |
| Oregon     | 717,298<br>Res<br>(72.0)<br>NR<br>(28.0)                             | 252,544<br>Res<br>(93.8)<br>NR<br>(6.2)  | 881,654<br>Res<br>(54.4)<br>NR<br>(45.6)   | 1,851,497<br>Res<br>(66.6)<br>NR<br>(33.4) |
| Washington | 994,989<br>Res<br>(87.7)<br>NR<br>(12.3)                             | 247,791<br>Res<br>(95.4)<br>NR<br>(4.6)  | 1,058,210<br>Res<br>(75.6)<br>NR<br>(24.4) | 2,300,991<br>Res<br>(83.0)<br>NR<br>(17.0) |
| Total      | 2,418,793<br>R <sup>c</sup><br>(82.7)<br>NonR <sup>d</sup><br>(17.3) | 915,937<br>R<br>(91.0)<br>NonR<br>(9.0)  | 2,879,141<br>R<br>(70.6)<br>NonR<br>(29.4) | 6,213,871<br>R<br>(78.1)<br>NonR<br>(21.9) |

<sup>a</sup> Residents of that particular state.

<sup>b</sup> Non-residents of that particular state.

<sup>c</sup> Residents of one of the four CRB states.

<sup>d</sup> Non-residents of the four CRB states.

### Visitation from Metropolitan Areas Proximal to the CRB

Deller and Miller (1994) examined the extent to which residents of three metropolitan areas (Seattle, Portland and Salt Lake City) travelled to the CRB for recreational purposes. Data specific to the CRB was difficult to obtain, but several studies have examined visitation to the four states of the CRB from these metropolitan areas. Seattle and Portland are located fairly close to the western border of the CRB (approximately 30 and 40 miles, respectively). Salt Lake City is approximately 110 miles south of the southeastern boundary of the CRB. Due to the close proximity of these major metropolitan areas to the CRB, it is expected that residents of these cities would represent a significant portion of the non-resident recreation visitors to the CRB.

### CRB Recreation Visitation by Seattle Residents

Montana Department of Fish, Wildlife and Parks (1994) indicated that approximately 17.5% of the Seattle residents who purchased or obtained hunting and/or fishing licenses in Montana during 1993 engaged in recreational activities within western Montana (i.e. west of the Continental Divide). Though only a small percentage of the Seattle visitors to Montana actually engaged in recreation within the CRB, it is assumed that a vast percentage of them travelled through the CRB en route to Montana.

A study on the Cle Elum and Naches Districts of the Wenatchee National Forest located in Washington state indicated that 47% (2040) of the visitors resided in western Washington, 51% (2228 visitors)

resided in eastern Washington and 2% (87) resided in other states (Burke 1994). Since these districts are located on the extreme western edge of the CRB, it is understandable that almost

fifty percent of the recreational use is engaged in by individuals who reside on the west slope of the Cascades.

#### CRB Recreation Visitation by Portland Residents

A study of Oregon resident travel determined that a vast percentage of the resident visitation to eastern Oregon was engaged in by individuals who resided in the Portland area (Dean Runyan Associates 1989). Similarly, a study of sno-park users in eastern Oregon indicated that 25 percent of the individuals resided west of the Cascade crest (Povey 1994). Though this percentage is not specific to the Portland area, it is assumed a large percentage reside in the northwestern portion of Oregon, the most populated portion of the state. Another study examined the percentage of western Oregonians who hunted in eastern Oregon (Johnson 1991). Forty-two percent of the hunters in eastern Oregon resided in western Oregon, 52% resided in eastern Oregon and 6% were not residents of the state of Oregon.

Lastly, data from Montana Department Fish, Wildlife and Parks suggests that of 280 Portland residents who purchased hunting and/or fishing licenses in Montana during 1993, none hunted or fished in areas west of the Continental Divide. While this may be possible, it is quite surprising, since over 17% of the Seattle residents who

hunted or fished in Montana did so west of the Divide. Thus, one would assume that at least one Portland resident would either hunt or fish west of the Divide.

#### CRB Recreation Visitation by Salt Lake City Residents

No research has examined the travel of Salt Lake City visitors to the Columbia River Basin. However, Montana Fish, Wildlife and Parks visitor data indicates that approximately 10% (34 recreation visitors) of the Salt Lake City residents who purchased hunting and/or fishing licenses in Montana during 1993 participated in recreational activities within the CRB.

#### Proximate Metropolitan Visitor Summary

Though much data is lacking, studies suggest that persons outside the CRB travel to the area for recreational purposes. The close proximity of Seattle and Portland to the CRB provides many individuals with easy access to the recreational opportunities which exist within the Basin. Though Salt Lake City is farther from the CRB borders than Seattle or Portland, data suggests that Salt Lake residence are attracted to the Montana region of the CRB for fishing and wildlife purposes.

Assessing all the available information on the resident versus non-resident recreational use of the Columbia River Basin would involve extensive energy, time and cooperation. Many recreation studies often assess resident versus non-resident use of public lands. Residence has been recorded within both site specific

research (i.e. district, forest, drainage, etc.) and general area assessments (i.e. state travel surveys). However, data on visitor residence is often only collected to provide demographic information about visitors. Information about recreation visitors' residence is often a very minor objective of recreational studies. Additionally, when residency is reported within studies, findings tend to be reported on a statewide basis rather than specific county or municipality.

Many data bases containing information on the residency of CRB visitors currently exist. Though the work would be overwhelming, compiling a data base on visitor residence, destination and activities participated in may provide valuable information for understanding who visitors to the CRB are, where they reside and what activities they like to engage in while in the CRB.

The previous sections provide a general approximation of recreation participation within the CRB based on several data sources. As indicated earlier, demand consists of two factors: consumption and price. Price for recreation opportunities is often assessed by measuring individuals' willingness to pay for specific opportunities (Walsh 1986). Individuals' willingness to pay for recreation is identical to a dollar value for the benefits individuals receive from engaging in recreation activities. The following section examines the expected benefits of recreation (i.e. what outcomes do recreation users seek above and beyond on-site

participation?), the non-consumptive values of public lands (i.e. what values does the public place on natural resources other than a desire to engage in outdoor recreation activities?) and the willingness to pay values for specific recreation activities.

### **Expected Benefits of Recreation**

As indicated previously, a wide variety of recreation is occurring on public lands within the CRB. Current participation rates suggest that individuals demand a wide variety of recreation activities, settings and experiences. However, participation rates provide little or no insight into why people engage in recreation activities. What benefits do users seek from engaging in recreation? What motivates individuals to participate in particular recreational activities? What values do recreation users hold for specific types of recreation benefits?

The following discussion is divided into three areas. The first area will examine the personal and social benefits associated with engaging in recreational activities. This discussion also will include those benefits which individuals may gain from the mere existence of a natural resource. These types of benefits can be gained without the user ever having to actually step foot on a specific recreation site. The second portion of this section examines the values which individuals place on recreational activities and the natural resource land base. These values are discussed in terms of an individual's willingness to pay for a particular activity, recreational setting, and/or experience.

Lastly, this section examines specific factors (i.e. income) or issues (i.e. user conflicts) which may influence recreation participation rates.

#### Personal, Social, Economic and Environmental Benefits of Recreation

Lee and Driver (1992) recently introduced the concept of benefits-based management (BBM). One major objective of this management approach is to provide a greater understanding of the demands and needs of recreation visitors. Historically, recreation management has focused on providing recreation experiences to the public by offering opportunities for a wide array of recreational activities across a broad spectrum of settings. However, few land management agencies attempt to incorporate recreation outcomes or benefits into their management schemes. Benefits-based management provides a solid tool for sensitizing management to the desires or demands of recreationists for specific recreational outcomes. Understanding the specific personal and social benefits which individuals desire from participating in recreation activities may lend insight into the true demands or motivations for recreation. Additionally, understanding the benefits of recreation may suggest a more realistic view of the true value individuals and society place on recreation.

Lee and Driver (1992), who has led much of the research on the benefits of recreation, identify four major types of benefits derived from recreation participation. First, personal benefits are the benefits experienced directly by the individual engaging in a

particular recreation activity. Personal benefits usually consist of physiological benefits (i.e. better physical health) and psychological benefits. Psychological benefits include better mental health (i.e. reduced stress), strengthened self-concept or image (i.e. greater self-confidence), improved cognitive skills (i.e. opportunity to problem solve), and greater personal appreciation (i.e. sense of control or freedom).

Second, individuals can obtain socio-cultural benefits from recreation resources. Socio-cultural benefits include a vast domain of social and community benefits. Interacting with the environment and other individuals in an atmosphere other than the daily routine can result in greater awareness of the environment, culture and society. Increased understanding of culture or nature can reduce social tension and allow for mutual acceptance among individuals with differing political and social agendas. Thus, a major socio-cultural benefit of recreation often is increased social cohesion. Additional socio-cultural benefits might also include greater cultural awareness, community pride, family bonding, tolerance of others, sensitivity and environmental awareness.

Lee and Driver (1992) identify the third benefit of recreation to be economic. Aggregating the personal benefits derived from engaging in recreation can create several economic benefits. One such benefit may be increased work productivity which may result from many individuals having greater self-confidence which may have been acquired while engaging in recreational activities. Increased work productivity may also be an outcome of better problem solving

abilities which were strengthened during recreation participation. Lastly, better personal health among recreation visitors may lessen of the demand for public mental and physical health subsidies.

Lastly, Lee and Driver (1992) indicate that the environment can benefit substantially from recreation. Interaction with the environment through recreation can produce an environmental ethic. Individuals can learn how ecosystems operate and how humans are dependent on natural resources for survival. Interaction with the environment also can provide visitors with an understanding of the diversity of natural resources, as well as how species within ecosystems are interdependent. As individuals become more knowledgeable by interacting with the environment, some individuals may feel inclined to become politically active in environmental issues.

Individuals who do not interact with the environment on-site can also obtain benefits from a natural resource base. Many individuals learn about natural resources and recreation by reading books, watching television, attending lectures and talking with other people. Though no direct interaction occurs with the environment, individuals can obtain similar benefits as individuals who actively engage in recreation participation. These individuals can develop greater appreciation for the natural environment, increase their personal knowledge of natural systems, and affiliate with people holding similar interests. Though no activity was engaged in, indirect consumers of recreation lands receive benefits from the

existence of these lands.

Though several studies examining benefits-based management are currently being conducted throughout the country (Bruns et al., 1994), no research has identified the personal and social benefits that visitors to the CRB may obtain from recreational engagements. Most research on recreation benefits has been extremely general in nature -- how does an individual and society benefit from recreation and leisure? Little research has examined whether the type and amount of benefits differ among various locations, users, and activities. To determine the benefits of recreation within the CRB, future research may need to assess directly the personal, social, economic and environmental benefits of recreation in the CRB. Information of this nature should help managers take a more benefits-based approach to managing public lands for recreation.

Identifying the benefits of leisure allows managers to more fully understand the value of recreation. Historically, the analysis of recreation benefits has been restricted to the sites or areas adjacent to the sites on which activities occurred. However, knowledge of the long term benefits of recreation provides a greater understanding of the impacts recreation may have on society. The following section examines the economic values which individuals hold for various recreation activities and settings. An understanding of the values which humans hold for the environment should provide managers with information on what conditions the public desires on particular lands within the CRB.

## Economic Value of Recreation

The economic benefits of recreation can be seen as a subset of the larger set of social benefits described above. Confusion often exists as to the difference between financial benefits and economic benefits. Financial benefits are the actual dollars which are exchanged between buyers and sellers. Economic benefits, on the other hand, describe an individual's potential and actual willingness to pay for an opportunity. Thus, economic value is defined as the amount of money which an individual is willing to pay for any product regardless of whether the product is marketed or not. This value does not have to be collected in a monetary form. Willingness to pay is simply the willingness and ability of a consumer to sacrifice either income or other goods to gain or maintain the use of a resource.

Engaging in recreational activities usually provide utility or satisfaction to people. As the demand for a specific recreation activity, setting, experience or outcome increases, supply levels decrease. If supply levels decrease, the resource becomes scarce, thus indicating the resource has economic value to society. This economic value can considerably exceed financial value. For example, hunters are required to purchase elk tags and licenses prior to hunting. The financial values of these fees discloses very little about the economic value of elk hunting to both hunters and society. Hunters may be willing to pay significantly greater amounts of money for the opportunity to hunt elk. Similarly, many individuals enjoy viewing elk without the desire to necessarily hunt them. No fees are

charged for elk viewing. However, many individuals would be willing to pay some amount of money to observe an elk in the wild. Thus, viewing elk has an economic value. In public land allocation decisions concerning the maintenance of elk habitat versus some other competing use the most appropriate measure would be the economic value of elk, not the financial returns from elk harvesting.

Economic values exist for all aspects of recreation: activities (consumptive, non-consumptive, on-site, off-site), settings (primitive, urban), experiences (enjoying scenery, learning about nature) and benefits (improvement of physical health, increased self-confidence, greater work productivity). Randall and Stoll (1983) suggest that the total economic value of recreation is comprised of several types of economic values: existence, bequest, option and recreational values. Existence value is the economic benefit that one receives from simply knowing that recreation opportunities exist. Another economic value, bequest value, is the willingness to pay to ensure that recreational resources will exist for future generations. Option value is one's willingness to pay to secure the availability of a resource for use in the future. Option value differs from bequest value in that option values are the amount individuals will pay to ensure that they, not future generations, may use the resource in the future. Recreation values are individuals' willingness to pay to currently engage in an activity within a particular setting (i.e. willingness to pay to hike in a wilderness area).

Adding these four types of economic value can produce a total aggregate value for a specific resource. For example, Walsh (1986)

presents the total economic value that Coloradan households are willing to pay for the recreational use and environmental protection of a specific natural resource. He reports that a Colorado household is willing to pay \$55 for a wilderness area. Thirty percent of the total economic value consists of bequest value. Another twenty-four percent consists of existence value, 22% option value and twenty-four percent recreational value. It is fairly clear to see how a knowledge of the public's specific economic values for a resource can direct agencies to manage lands for desired conditions.

#### Measuring Economic Benefits of Recreation

As the discussion above suggests, economic values are important for understanding the comparative value of various land uses. Economic values can assist land managers in making difficult resource allocation decisions. Additionally, economic values can be extremely useful to communities, counties, state land agencies, federal agencies, recreation users and recreation entrepreneurs who seek to make wise management decisions or to understand current and pending policies which will affect land use. Despite the significant level of importance that economic values may have on resource management in the CRB, few economic analyses have been conducted to identify specific economic values in the CRB and their impact on recreation. This section estimates the economic value of recreation in the CRB.

In measuring the benefits of resources, methods must be chosen that allow for comparison between marketed and non-marketed resources. To obtain consistency in valuation, economists use values

measured from consumer demand curves and business supply or cost curves. In both cases, net willingness to pay (WTP) is the proper measurement of benefits.

Two methods exist for assessing individuals' WTP for specific resources. The WTP of recreationists can be estimated by either the travel cost method (TCM) which is a demand estimation procedure or the contingent valuation method (CVM) which is a market simulation approach. The TCM assumes that demand curves can be derived from travel costs which serve as a proxy for price. The CVM, on the other hand, involves asking users directly how much they are willing to pay for a specific recreational opportunity. Both methods are highly recommended for performing benefit cost analysis (US Water Resources Council 1979, 1983; Walsh 1986).

For the purposes of determining individuals' demand or willingness to pay for recreational opportunities within the CRB, WTP values were obtained from previous economic studies which utilized the CVM approach. The 1990 Resources Planning Act (RPA) Program provides detailed information on individuals' willingness to pay for specific recreational opportunities. However, the data provided in the RPA is reported in 1990 dollars. To determine current economic values of recreation, WTP values had to be updated to 1993 dollars using the Consumer Price Index. Additionally, WTP values were reported in terms of recreation visitor days. To convert WTP values to visits in 1993 dollars the following conversion formula was used:  $(\text{WTP value}^6 \text{ per RVD}/2.5)*1.1653$ . WTP values for the CRB were

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<sup>6</sup>Obtained from 1990 RPA Program Report.

determined by averaging WTP values across the three Forest Service Regions (Northern (1), Intermountain (4) and Pacific Northwest (6)). Thus, WTP values should closely reflect the actual WTP values of CRB users.

Table 11 contains the average willingness to pay values for the twelve activity categories for which participation levels were assessed. Data suggests that individuals are willing to pay approximately \$56 dollars for fishing opportunities. Additionally, winter sports (\$36), snowmobiling (\$36), viewing wildlife (\$38) and hunting (\$35) all reflect fairly high WTP values. It is interesting to note that recreation users are willing to pay more to view wildlife than hunt wildlife. Individuals reported the lowest WTP for camping (\$5) and motor boating (\$5) opportunities. Persons desiring non-motor boating opportunities indicated that they would be willing to pay more than individuals desiring motorized boating opportunities. Implicit in these average values are a broad spectrum of experiences, such as those classified by ROS. The values reported are activity specific, not ROS class specific. Therefore, the values reported in Table 11 do not reflect the variety of values which individuals may hold for different environmental settings.

However, RPA values do suggest that activities occurring within wilderness settings are valued higher than activities occurring outside of wilderness. Since the RPA willingness to

pay values were not reported for specific settings, we can only assume that recreation users most likely are willing to pay more for activities occurring within more primitive classes than more developed classes. Nevertheless, RPA willingness to pay values indicated in Table 11 can be used to estimate a general recreation value

Table 11--Average willingness to pay recreational values by activity.

| Recreation activity                     | Average WTP Value <sup>a</sup>                 |
|---|--|
|   | -----1993 dollars per visit <sup>b</sup> ----- |
| Trail use <sup>c</sup>                  | 12   |
| Camping                                 | 5  |
| Hunting                                 | 35   |
| Fishing                                 | 56   |
| Nonmotor boating <sup>d</sup>           | 10   |
| View wildlife <sup>e</sup>              | 38   |
| Day use <sup>f</sup>                    | 23   |
| Motor boating <sup>g</sup>              | 5  |
| Motor viewing <sup>h</sup>              | 7  |
| Off-road vehicle (ORV) use <sup>i</sup> | 12   |
| Winter sports <sup>j</sup>              | 36   |
| Snowmobiling                            | 36   |

<sup>a</sup> Values are from the 1990 RPA program (except for day and ORV use) and are averaged across the Northern, Intermountain, and Pacific Northwest Regions. Values per recreation visitor day (RVD) were converted to value per visit in 1993 dollars using the following formula: (value per RVD/2.5)\*1.1653).

<sup>b</sup> Primary visit=a visit by one individual to a recreation area for the purpose of participating in one or more recreation activities for any length of time, where only the primary activity for the visitor is considered.

<sup>c</sup> Hiking, biking, horseback riding and other such nonmotorized trail use. These uses in Wilderness areas are valued higher, therefore, the RPA Wilderness values were averaged in with the hiking and horseback riding values.

<sup>d</sup> Canoeing, kayaking, rafting, drift boating, and other such nonmotorized boating.

<sup>e</sup> Nonconsumptive wildlife viewing, photography and feeding.

<sup>f</sup> Picnicking, nature study, interpretive visits, photography, collecting objects and special forest products, swimming, wading, and other such day uses. The RPA program does not provide a value for this grouping of activities, therefore, the value from FEMAT (1993) was used.

<sup>g</sup> The value used for motor boat sightseeing, water skiing, and other such uses was the RPA value for mechanized travel and viewing scenery by boat.

<sup>h</sup> The value used for motorized sightseeing and exploring by vehicle was the RPA value for

mechanized travel and viewing scenery by land.

<sup>1</sup> The value used for ORV use was taken from FEMAT (1993).

<sup>2</sup> Winter sports other than snowmobiling.

for each ROS class within the CRB based on participation levels previously reported.

To determine the economic value of recreation in the CRB the willingness to pay values presented in Table 11 were multiplied by the participation levels (Table 2 and Appendix C) obtained from the agencies throughout the Columbia River Basin. The tables in Appendix E indicate the overall estimated economic values for each recreation activity by ROS class. Table 12 provides a summary of the economic values for the three ROS classes<sup>7</sup> discussed in the section on participation levels.

Overall, in 1993, recreation in the CRB has an economic value of 1.69 billion dollars. Thirty-seven percent of the overall economic value can be attributed to day use activities. Visitors to the CRB are also willing to pay extensively for fishing, winter sports, motor viewing and hunting opportunities. Boating opportunities, both motorized and non-motorized, had the lowest economic value of all the activities. Since boating had relatively low participation levels within the CRB (see Table 2) and fairly small willingness to pay values, it appears logical that boating would render the lowest economic value among the twelve activity categories.

Though WTP values were not setting specific, economic values can be examined among the three ROS classes based on the various participation levels. Economic values do vary somewhat among the

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<sup>7</sup>Results can only be presented in terms of three ROS classes since many agencies only reported participation within 3 classes.

three ROS classes. Since over half the recreation participation occurring in the CRB occurs on lands within the roaded natural/roaded modified, these lands have the greatest economic value. The total economic value of each the three ROS classes is

Table 12-Total economic values for recreation in 1993 for the ROS classes in the Interior Columbia River Basin by activity.<sup>a</sup>

| Recreation activity           | Primitive and semiprimitive   | Roaded natural and modified | Rural and urban | Total         |
|-------------------------------|-------------------------------|-----------------------------|-----------------|---------------|
|                               | Net annual value <sup>b</sup> |                             |                 |               |
|                               | ----- 1993 dollars-----       |                             |                 |               |
| Trail use <sup>d</sup>        | 32,649,972                    | 27,120,816                  | 9,711,408       | 69,482,196    |
| Camping                       | 9,138,715                     | 22,086,430                  | 9,687,870       | 40,913,015    |
| Hunting                       | 44,280,915                    | 58,192,680                  | 6,693,960       | 109,167,555   |
| Fishing                       | 82,401,424                    | 206,814,776                 | 36,508,304      | 325,724,504   |
| Nonmotor boating <sup>e</sup> | 1,880,870                     | 9,187,840                   | 1,869,160       | 12,937,870    |
| Viewing wildlife <sup>f</sup> | 17,838,796                    | 43,659,682                  | 15,780,868      | 77,279,346    |
| Day use <sup>g</sup>          | 118,871,935                   | 308,810,000                 | 196,000,296     | 623,673,231   |
| Motor boating <sup>h</sup>    | 2,794,195                     | 4,848,750                   | 3,744,670       | 11,387,615    |
| Motor viewing <sup>i</sup>    | 11,869,676                    | 101,300,000                 | 19,769,029      | 132,938,705   |
| Off-road vehicle (ORV) use    | 6,655,140                     | 12,993,324                  | 1,665,060       | 21,313,524    |
| Winter sports <sup>j</sup>    | 19,027,872                    | 56,754,036                  | 130,550,940     | 206,332,848   |
| Snowmobiling                  | 13,506,012                    | 36,227,988                  | 5,800,716       | 55,534,716    |
| Total                         | 360,915,522                   | 887,996,322                 | 437,782,281     | 1,686,685,125 |

<sup>a</sup> Implicit in the average value figures taken from table 9 are a variety of experiences, such as those classified by the Recreation Opportunity Spectrum (ROS). However, the figures are not specific to any ROS class because, unfortunately, the data are not collected that way.

<sup>b</sup> The product of the average value per visit multiplied by the total number of recreational visitor days across all ROS classes was converted to 1993 dollars using the average annual Consumer Price Index for 1993 (CPI-U=144.5).

<sup>c</sup> The product of the average expenditure per visit multiplied by the total number of recreational visitor days across all ROS classes was converted to 1993 dollars (CPI-U=144.5).

<sup>d</sup> Hiking, biking, horseback riding and other such nonmotorized trail use.

<sup>e</sup> Canoeing, kayaking, rafting, drift boating, and other such nonmotorized boating.

<sup>f</sup> Nonconsumptive wildlife viewing, photography and feeding.

<sup>g</sup> Picnicking, nature study, interpretive visits, photography, collecting objects and special forest products, swimming, wading, and other such day uses.

<sup>h</sup> Motorized boat sightseeing, water skiing, and other such uses.

<sup>i</sup> Motorized sightseeing and exploring by vehicle.

<sup>j</sup> Winter sports other than snowmobiling.

directly proportional to the participation occurring within each class.

Further examination of the economic values of activities by class indicate some interesting findings. Trail use has a greater economic value in the primitive/semi-primitive class than the other two classes. Similarly, winter sports have a relatively large economic value in the rural/urban class but exhibits a moderate value in the other two classes. Additionally, hunting provides little of the economic value of recreation within the rural/urban class, but adds significantly to the economic value of recreation in the other two classes. In the rural/urban class, recreation participants have a greater value for viewing wildlife than hunting wildlife. Lastly, sightseeing and exploring by vehicle provides a significant portion of the value of recreation occurring on roaded natural/roaded modified lands. This activity, however, adds extremely little value to the recreation occurring on primitive/semi-primitive lands.

Much of the value reported in Tables 11 and 12 is influenced by the amount of participation which occurred on the lands within the CRB during 1993. If participation levels change significantly, economic value would shift accordingly. For example, if participation in day use decreased significantly for the year 1994, the overall economic value of recreation should also decrease significantly. Economic value could perhaps remain constant if WTP values increased while participation levels

decreased. However, WTP values increase at a slow rate per year, less than 0.3 percent a year (USDA, Forest Service 1990).

Therefore, participation levels can significantly influence the overall economic value of recreation in the CRB. The following section examines specific issues which may enhance or detract from individuals engaging in recreational activities.

### Issues Affecting Recreation Participation

As discussed earlier, estimating demand from consumption levels assumes that all individuals desiring recreational experiences are participating in their most preferred activity. However, past research has indicated that some individuals substitute alternative activities, settings and experiences for their desired activity, setting and/or experience (Iso-Ahola 1986). Some visitors may decide to forego recreation participation because their desired experiences does not exist. Thus, participation levels may not adequately describe actual demand.

To understand how individuals decide to participate in recreational activities, one must first examine the motives behind the desire to engage in recreational activities. In other words, why do people participate in recreational activities? Most recreation participation is driven by motivations to obtain a desired psychological condition (Stankey and Schreyer 1987). To experience a desired psychological state individuals must choose an appropriate activity and setting that will most likely

provide the desired experience. For example, if an individual wants to experience a state of solitude, they may choose to camp in a primitive, remote setting.

Iso-Ahola (1989) suggests that two fundamental dimensions to recreation motivations exist: seeking personal/interpersonal intrinsic rewards and escaping personal/interpersonal environments through leisure experiences. A few of the intrinsic rewards that recreational users seek include sense of challenge, self-confidence, feelings of competence, increased self-understanding, relaxation, socialization, achievement, and discovering new things. The other dimension of recreation motivation, the need to escape from everyday problems, troubles and routines, includes the desire for experiencing solitude, trying new things, seeing new places, and interacting with persons other than those who are a part of one's everyday life. These two dimensions, seeking and escape are not independent of each other, but instead interact with one another to motivate persons to seek participation in leisure activities.

Once people are motivated or feel the desire for escape or the need to seek intrinsic personal rewards, how do they decide what recreational activities and settings will produce the desired experience? Harris and others (1985) presented a behavioral model of recreation choice in their evaluation of angler's site preferences. The model (Figure 2) indicates the process by which recreation users choose to visit a particular setting. The first requirements of the model are that an

individual holds specific personal characteristics, possesses motivations to engage in recreation and has well-developed attitudes toward the recreation activity, setting and experience.

The model suggests that individuals search for and examine alternative sites given their motivations and preferences. Individuals' perceptions of various site attributes along with personal constraints, such as time, money, energy, guides recreation users to decide where they will engage in a specific activity. The model further suggests that individuals evaluate their experience with a particular activity within a specific setting. The evaluation of the experience is then integrated as knowledge within the recreation user and may influence future recreation decisions.

As the model below suggests, individuals often are restricted by constraints such as time and money. The following discussion examines a few of the many constraints or factors which facilitate recreation participation. Since research on factors which influence recreation participation has



been conducted in a variety of settings, the following is a general discussion of participation and is not specific to the Columbia River Basin. Some individuals choose not to participate in recreational activities. However, other individuals may wish to engage in recreational activities, but certain barriers exist which do not allow them to do so.

Cordell and others (1990) suggest three barriers to recreation participation exist. First, individuals often experience various constraints during their life span which reduce the amount of recreation engagements and the type of recreation. For example, participation in certain recreation activities diminishes drastically during individuals' child bearing years. Growing families with small children and added expenses often alter the amount and type of recreation in which they choose to engage. Additionally, as individuals grow older and often face physical constraints, participation in recreation tends to decrease. Recreation participation patterns of older individuals also tend to change. Older individuals tend to travel further for recreation opportunities, seek more developed campgrounds and stay at one destination for longer periods of time than younger recreation participants.

Secondly, Cordell and others suggest that socio-economic factors such as age, education, leisure time, and income influence recreation participation. Recreation participants' age levels tend to be negatively related to participation (Walsh 1986). As individuals grow older participation in some

recreational activities tends to decrease. For example, younger individuals tend to participate more frequently in physically demanding recreational activities such as snow and water skiing, backpacking, and mountain biking than older persons. However, participation in some activities is not affected by the age of individuals. Participation levels in activities such as viewing wildlife, sightseeing, driving for pleasure, visiting zoos, picnicking and fishing is similar for a variety of age groups.

On the other hand, education levels are positively related to participation levels. Individuals with higher education levels tend to participate more frequently than individuals with lower levels of education. Walsh (1986) also indicates that recreation knowledge levels are positively related to participation. Frequent engagement in a recreation activity often results in "learning by doing". This informal education often leads to an increased or consistent level of recreation demand.

As with most consumer behavior, time and money are often barriers to consumption. If one lacks the leisure time to participate in recreation, even though motivation exists, recreation participation most likely will not occur. Having annual vacation time significantly increases the probability of participating in recreational activities. Similarly, if the financial resources do not exist, participation will not occur. A vast percentage of individuals who visit recreation areas tend to belong to middle income groups. As income increases

participation in some recreational activities decreases. Individuals with more disposable income tend to travel further and stay longer than middle income persons. High income persons tend to not engage in some recreational activities (i.e. consumption of "inferior goods" decreases) since more desirable alternative products are more easily affordable (Walsh 1986).

The last constraint to recreation participation which Cordell and others (1990) discuss involves specific attributes which may affect particular recreational opportunities. Often factors such as travel distance to nearest recreation facilities, amount of information available to the public about recreational opportunities, and recreation site characteristics can all influence an individual's decision about recreation participation. For example, a constraint on participation is the distance one must travel to resource areas. People engage in recreation activities more frequently in recreation settings that are close to home than settings that are far from their residence. Persons residing relatively near a recreation area are far more likely to participate in recreational activities.

The availability of information about recreational opportunities can also greatly influence recreation participation decisions (Stynes 1982). If much information exists, individuals will have a broad spectrum of potential sites and activities to experience. The wide array of choices should drastically increase the probability that an individual will be able to match their desired experience with a specific setting. Information

can be an extremely effective tool for dispersing recreation users among a variety of sites. Participation levels at specific sites can often be increased or decreased by the amount of information available to recreation users. However, if information is lacking, recreation use tends to be restricted to those areas which are most advertised.

Similarly, social influences can affect recreation decisions. Individuals rarely engage in recreation activities alone. Recreation is a very social phenomenon often occurring in a group context, thus subjecting individuals to experience group dynamics. Recreation decisions can be greatly influenced by the individuals within a recreation group. Research suggests that inexperienced participants tend to be more susceptible to social influence than experienced recreation users (Cockrell and others 1984). In other words, less experienced individuals are often likely to accept the decisions that more experienced group members make concerning recreation.

The factors limiting recreation participation discussed above tend to be personal constraints which direct an individual's decision making process concerning leisure behavior. In addition to personal constraints, setting attributes can also greatly influence recreation choice behavior. Factors such as site access, perceived crowding, conflicts among user groups and land uses, facility maintenance, and area management policies can all greatly influence individuals' decisions to participate in recreational activities. Site access can directly influence

individuals' recreation decisions. If access to a site is difficult (i.e. long hike, rough roads, major expenses), visitation to the site is expected to be relatively low. However, if access is fairly easy and cost effective, visitation is expected to high.

Some have argued that the formal designation of public lands as wilderness or rivers as wild and scenic may increase visitation. The designation of the land may attract individuals to a resource area (Becker 1981). However, McCool (1985) indicated that formal designation of a Montana wilderness had little effect on visitation rates within the area. Formal designation of an area does result in certain restrictions on the types of activities which may occur within a given resource area. For example, an individual cannot experience the thrill of jet boating on a wild river or motor biking through a wilderness area. Thus, to maintain a relative supply of specific recreational opportunities, other opportunities must be denied.

Impacts at recreation sites are another attribute which may significantly influence individuals' decisions on where to engage in specific recreational activities. Often as recreation use increases, resource damage occurs, especially in those sites which are extremely fragile and slow to regenerate (i.e. alpine meadows). Persons who return to sites that they have used previously and discover more and more resource impacts may become increasingly dissatisfied with the condition of the setting. The attributes of the resource eventually may lead visitors to be

unable to obtain their desired recreational experience. The damaged site may interfere with their ability to have a quality or satisfying recreational experience. Thus, the site no longer provides a specific recreational opportunity. The impacts of recreational use may lead individuals to seek substitute recreation sites to obtain their desired experience.

Resource impacts can also lead to an increase in participation rates. Resource impacts, such as fire rings or tree scars, often suggest to recreation users that the site is an "designated campsite". Though management may not have deemed the site as such and may prefer that the area remain a dispersed use area, the public may perceive visible impacts as an advertisement to "camp here". The resource impacts may suggest that the site provides a specific opportunity (i.e. camping experience). Thus, resource impacts can have the tendency to lure visitors to engage in specific activities, such as camping.

As more and more individuals visit a particular area or site, encounters between visitors may also increase. As encounters increase, perceptions of crowding may also increase (e.g., Graefe and others 1984). Crowding is not equal to the density of persons within a given area, but instead refers to a negative evaluation of the density of people within a specific area (Stankey and Schreyer 1987). Visitors may perceive a resource area that once provided opportunities for solitude and escape as being crowded. The encounters that individuals experience may have negative effects on their recreation

experience resulting in feelings of dissatisfaction. To these individuals, that resource area no longer provides opportunities for solitude and escape. Thus, former visitors may be displaced from the resource area and seek alternative areas which provide opportunities for their desired outcomes.

A negative evaluation of density may also occur when visitors notice resource impacts. Evidence of physical impacts to the environment can increase the perceptions of use levels (Ditton, Fedler and Graefe 1983). Perceptions of crowding can be influenced by a variety of factors. Factors such as the location of the encounter with others occurs (i.e. trailhead vs. 10 miles from trailhead), the number of persons encountered, individuals' motivations for desiring a recreational experience (i.e. solitude vs. thrill seeking), level of past experience with a resource or activity, and the extent of the physical impacts resulting from other users can all affect visitors' perceptions of density or crowding.

Additionally, recreation participants may perceive an area to be crowded if the behavior of other visitors conflicts with desired experiences. Jacob and Schreyer (1980) define conflict as "goal interference attributed to another" individual or individuals. If another individual's behavior or presence interferes with another person's desired experience, conflict exists. Often perceptions of conflict or crowding are asymmetrical, one group of users experiences conflict while the other does not (Williams 1993). For example, Watson and others

(1991) determined that hikers tended to perceive mountain bike riders' behavior to be in conflict with their experience. On the other hand, mountain bike riders did not perceive that hikers' behavior conflicted with their experience.

As indicated earlier, conflict may result from recreation participants' evaluations of other recreation users' behavior as being unacceptable or inappropriate. To reduce conflict, management often employs educational programs designed to alter inappropriate recreation behavior (i.e. riding mountain bike too fast on trails near hikers). Often recreation users who engage in inappropriate behavior tend to be unaware that their behavior may conflict with others. Light-handed management programs, such as visitor education, have been extremely effective at reducing recreational conflicts which stem from inappropriate behavior (Roggenbuck 1992).

However, some research suggests that more direct management may be necessary to change the behavior of some recreation users (Swearingen and Johnson 1990). If inappropriate visitor behavior is resulting in severe conflict or bio-physical impacts, managers often have no choice but to establish specific regulations. Site regulations are another factor which can influence recreation participation. Lucas (1983) argues that internal control, freedom to choose behavior, and spontaneity are all inherent characteristics of recreation. Regulations are characterized by external control, restrictions on free choice and uniformity. Since site regulations have great potential to interfere with

recreation users' desired experiences (i.e. exploration, challenge), users seek to find those recreation settings which provide the greatest probability of them experiencing their desired outcome. If the desired outcome is exploration or creativity, recreation sites characterized by much site regulation may not provide the desired recreation outcome. Thus, individuals should tend to choose sites which possess regulations which will enhance their probability of obtaining their desired recreational experience.

The above discussion suggests that the decision of where to engage in recreational activities and the type of activities a specific individual will engage in can be influenced greatly by a wide variety of factors. However, much of an individual's decision making process is influenced by the desire to obtain a specific recreational experience and outcome or benefit (i.e. demand). To obtain an experience and eventual outcome, opportunities to meet those demands must be provided. Many of the site factors described above also significantly affect the supply of recreational opportunities available to the public. For example, access not only influences whether an individual may decide to engage in recreational activities within a specific site, but also directly affects the amount of recreational lands available for providing specific opportunities. The following section discusses the supply of recreational opportunities available within the Columbia River Basin.

## Current Supply of Recreation in the CRB

When the Columbia River Basin was settled by easterners 150 years ago, it appeared that recreational resources within the Basin were endless. As recreation demand increased (though little leisure time existed), a never ending supply of land to explore existed. However, as populations within the CRB increased and technology advanced, more and more individuals were demanding recreational opportunities on the unique lands of the Basin. The 1950's and 1960's brought increased leisure time and financial resources to many Americans. Many used their extra time and money to engage in recreational activities. Increased demand for recreational opportunities quickly persuaded land managers that the recreation resources of the CRB were not endless and that CRB lands needed to be equally allocated to provide for a variety of recreational opportunities.

In 1994, the CRB can no longer expand its natural resource base. Most of the lands within the Basin have fairly definite uses, both private and public. The supply of recreational opportunities within the CRB are quite finite. However, ever changing recreational tastes, preferences, and demands require that managers constantly explore how the lands they are responsible for can meet the public demands for recreational opportunities. The following section examines the supply of

recreational resources and opportunities throughout the CRB.

Similar to the assessment of recreation demand within the CRB, assessing the supply of recreational opportunities is also a difficult process. To be consistent with the assessment of recreation demand which was measured in visits, supply also needs to be expressed in terms of visits. In other words, the supply of recreation visits in the CRB needs to be assessed rather than the supply of facilities and sites (Cordell et al. 1990).

Recreation managers are responsible for providing recreational opportunities to the public. Within this task of providing opportunities it is often necessary to construct various facilities and designate lands for various recreational uses. However, the facilities and sites do not constitute supply. Supply is simply the availability of recreation opportunities from which recreational visits can be produced.

To ascertain the supply of various recreational opportunities within the CRB, the distribution and acreage of the six ROS classes described earlier were examined. The distribution of various ROS classes will be explored in context to various population bases within the CRB. Investigating the location, amount of facility development, resource designation, location of users and the number of potential users can most accurately assess the extent to which the supply of recreational opportunities can meet demand.

This section describes the current ROS acres and distribution within the CRB, legally designated areas by acreage

and distribution (i.e. wilderness, wild and scenic rivers), and how these lands within the ROS classification relate to lands utilized for purposes other than recreation. Lastly, this section examines specific issues which can affect the current supply of recreational opportunities within the CRB.

**ROS Acres by Class and GIS -- TO BE DEVELOPED**

**Designated Areas by Acres and GIS -- TO BE DEVELOPED**

**GIS Analysis -- TO BE DEVELOPED**

### **Issues Affecting Supply**

Previous discussion suggested that many factors can influence individuals' decisions to participate in recreational activities. Within that discussion reference was made to several recreational site factors which can greatly influence decisions to participate in recreational activities on a given site. The level of access to recreational lands, perceptions of crowding, conflicts among user groups and other land uses, and site management can all effect whether individuals will decide to participate in an activity on a specific site. Additionally, these factors often influence the supply of recreational opportunities available for individuals to experience a desired outcome. This section examines a few of the factors which influence supply levels of various recreational opportunities. Issues affecting supply have been investigated on a national basis. Some issues have been investigated within the CRB region, but are extremely site specific. The following discussion

provides a general overview of factors influencing supply on a national level of which many may have direct relevance to the supply of recreational opportunities within the CRB.

Cordell and others (1990) suggest several factors which directly influence the supply level of recreational opportunities. One such factor is resource accessibility. An increasing trend toward closing private lands to public recreation exists (Kozlowski and Wright 1989). In many cases, this trend is the result of the increased liability that landowners assume if personal injury occurs on their lands. Closing private lands, however, can block access to public lands, lakes, rivers and beaches. The closure of private lands to public use can severely restrict access to specific recreational opportunities, if the private land provides one of the main access points to a recreation resource area. As access to a specific area is restricted, the supply of recreational opportunities which that land may provide decreases. Individuals who previously used the newly restricted lands are forced to seek similar opportunities elsewhere to obtain their desired outcome. As individuals are forced to seek alternate sites, the recreational use levels of similar sites may increase significantly.

In addition to private landowners limiting access, land management agencies also restrict access to recreation sites. If recreation use is detrimental to a specific habitat, such as threatened and endangered species habitat, managers may decide to

restrict the level of recreation use occurring in critical habitat. Management actions for these sites often include closing trails, roads, or limiting the amount and type of recreation use occurring. Management decisions to close areas to recreation use can significantly shift participation levels from one area to another.

On the other hand, improved access to recreation areas can substantially increase recreation opportunity supply levels. When new roads are built or improved within or adjacent to recreation lands (specifically, lands in the primitive/semi-primitive end of the spectrum), more persons can gain physical access to specific lands. As recreational lands become more accessible to people, the public will have quicker and easier access to recreational opportunities. The ability to quickly and easily access a trailhead or campsite by vehicle or a shorter hike may make the resource more attractive to potential recreation users. However, improved access can also significantly reduce the supply of recreational opportunities. For example, an area that may have traditionally had poor access may have provided an opportunity for solitude. As access is improved to this area, the ability to travel to the site significantly increases. More and more of the public may learn about the recreational opportunities that this site may provide. Increased access can cause visitation to increase. As visitation levels increase, the opportunity for solitude decreases. Thus, improved access may increase the supply of one specific

recreational opportunity, but may simultaneously diminish or remove other types of existing opportunities.

A second factor which may influence the supply of recreational opportunities is the financial support that land management agencies receive from federal and state governments for providing recreational opportunities to public. Over the past 10 years, state and federal budgets (constant dollars) for recreation services have decreased (Cordell et. al. 1990). However, operating costs have increased significantly during this time period. Thus, land management agencies must stretch their dollars to maintain the status quo of the recreation resource. Managers face the difficult task of preventing a deterioration of existing facilities and resources on a very limited budget. Little money exists for the development or acquisition of new resources which could provide contemporary recreational opportunities which may more realistically meet recreation demand as tastes and preferences change.

To alleviate some of the stress many federal and state agencies have in meeting current recreation demand on a limited budget, the private business sector has taken over the responsibility for providing specific recreational opportunities. Many federal and state agencies have contracted concessionaires and private outfitting companies to provide services to individuals on public lands. For example, many of the lodges, both front and backcountry, in our National Parks are managed by private concessionaires. Though the National Park Service

oversees the concession's operation, the day to day maintenance of facilities is handled by the concessionaire. The private sector provides a variety of recreational opportunities to individuals who desire specific types of settings and experiences. In situations where budget constraints are pushing federal and state agencies to provide fewer recreational opportunities, private enterprises have been able to maintain a base level and, in some cases, have increased the supply of recreational opportunities available to the public.

Lastly, the overall environmental quality of a resource can significantly affect the supply of recreational opportunities. As described in the participation section of this report, resource impacts can significantly affect individuals' desires to visit a specific setting. As site impacts increase, the type of recreational opportunity that setting provides changes drastically. Similarly, if activities occurring adjacent to a recreation resource affects the resource, the opportunities that land provides may shift significantly. For example, air pollution in Grand Canyon National Park has often obscured the magnificent view of the canyon. If the view of the Grand Canyon was frequently screened by a cloud of smog, a profound decrease in visitation might occur. Thus, activities occurring outside of resource areas may have a significant effect on the quality and quantity of recreational opportunities available to the public.

## Impact of Recreation to the Economy of the CRB

Previous discussion examined the expected benefits which individuals might receive from engaging in recreational activities and knowing that a natural resource exists. Within this discussion, the economic benefits or willingness to pay values for recreation within the CRB were examined. The discussion indicated that many personal, social and economic benefits can be received from recreation. However, how important is recreation to the economy of the CRB? The following section explores the financial benefits that individuals and communities within the CRB may receive as a result of recreational participation. Three areas of financial benefits will be examined: direct recreational expenditures, indirect and induced effects of recreation within the CRB, and the revenues various agencies receive from special use permits.

Direct impacts involve the costs directly associated with travel to and during a recreation visit. If an individual buys food on site for a backpacking trip this would be considered to have direct impacts on the economy of the area adjacent to a recreation site. Indirect costs, on the other hand, include the secondary effects associated with direct recreation purchases. Indirect impacts suggest that the food retailer is not the only one affected when a recreation user purchases a product. Indirect impacts involve the need for the store owner to purchase

additional food. The store owner must also pay utilities to run his store. The exchange of money resulting from the recreation user's purchase are considered indirect economic impacts.

Induced impacts result from the wages and salaries which the direct and indirect businesses must pay to provide the initial product to the consumer.

The individuals receiving wages for providing direct or indirect products, in turn, consume products within a region. The expenditures made by these individuals constitute induced economic impacts. The sum of direct, indirect and induced economic impacts compose the total economic impact of recreation. As the original purchase stimulates a round of spending, the impact of the initial purchase is multiplied, thus benefitting an entire regional economy. Direct, indirect and induced effects of recreation are calculated by using income multipliers from an input-output model. The input-output model utilized for determining the economic impacts to the CRB economy is the USDA Forest Service's IMPLAN model (Alward and Palmer 1983).

IMPLAN provides information on the effects that one expenditure may have on the recreation industry, as well as the economic impacts upon other industries which provide goods and services to recreation businesses. The input-output analysis of IMPLAN traces the economic activity resulting from a recreation associated purchase. The relationships between various purchases and benefits is indicated by outcome multipliers. In recreation, output multipliers estimate how recreation visits may effect the

direct, indirect and induced economies. For example, an income multiplier of .84 indicates that for every recreation visit, 84 cents are paid to recreation or recreation related employees in terms of wages or salaries. Additionally, a job multiplier estimates the number of persons employed as a result of persons engaging in a million recreation trips.

### **Direct Economic Effects of Recreation Participation**

Though many personal and social benefits can be obtained from engaging in recreational activities, many financial benefits also can result from recreation participation. Local economies can benefit greatly from recreation participation occurring on nearby lands. As recreation participants seek to engage in specific recreational activities, communities adjacent to recreational lands can generate sales, income and jobs as they serve to meet the needs of recreational users. Recreation users often face a variety of costs associated with recreation. Most frequently individuals must pay for travel, food, lodging, equipment and entrance fees. Almost half of the expenses associated with a recreation trip lie in food and lodging costs (Walsh 1986). Walsh suggests that individuals who travel 100 miles or more for recreation within the four states of the CRB pay approximately \$95<sup>8</sup> a day for food, lodging, transportation

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<sup>8</sup>Inflated from 1977 dollars (\$40) to 1993 dollars using CPI 144.5.

and incidental costs.

Resident and non-resident expenditures are often treated differently when assessing the economic impact of recreational use. Non-resident expenditures indicate new money to the CRB. The import of dollars into the region provide economic growth to the region, while resident dollars represent a recirculation of existing money within the Basin. Resident expenditures for the purposes of the following discussion are defined as those expenses paid at home, in route to a recreation site and on-site. Reliable expenditure data for non-residents of the CRB was extremely difficult to obtain, therefore no non-resident expenditure data is presented within this assessment.

Table 13 indicates the average resident expenditures per recreation visit by activity. Data suggests that recreation participants who engage in fishing spend the most money (\$91 per visit) for their activity. Campers and hunters had relatively high expenditure levels as well, \$90 and \$86 respectively. On the other hand, individuals who engage in winter sports (i.e. winter sports other than snowmobiling) appear to spend the least amount of money (\$11 per visit). The relatively short length of stay (i.e. 1.29 days) for winter sport participants may explain why winter sport expenditures are significantly less than many of the other activities. Non-motor boating (\$15) and off-road vehicle (\$20) users also had relatively small expenditures per visit.

Several statewide studies have examined non-resident

expenditure patterns. Non-resident anglers visiting central Oregon in 1989 spent on the average \$24.10 per day (Research Group 1991). Non-resident anglers in northeastern Oregon spent on the average \$32.64 per day, while non-resident anglers in southeastern Oregon spent only \$23.78 per day. For the entire state of Washington in 1991, non-residents spent 22.2 million dollars (\$52.08 per person - 19,200 visitors) for hunting, \$38.8 million on freshwater fishing, and \$9.9 million (\$67.67 per person - 143,600 visitors) for non-consumptive use (Southwick Associates 1992).

A survey of non-resident visitors to the state of Montana indicated that snowmobile groups spend approximately \$3372 per trip (average of 4.5 days, 6 persons per group) (Moisey, McCool and Yuan 1990). Air travellers who mixed pleasure travel with business spent \$627 per trip staying an average of 7.1 days with 2.4 persons per group. Business/pleasure travellers arriving in Montana by automobile spent slightly less, \$524 per trip (6.2 days, 2.8 persons).

Table 13--Average expenditures per visit<sup>a</sup> by activity in 1993 dollars.

| Recreation activity            | Average Resident Expenditures <sup>b</sup> | Average Length of Stay (Days) | Sample Size |
|--------------------------------|--|-------------------------------|-------------|
| Trail use <sup>c</sup>         | 57   | 2.73                          | 110         |
| Camping                        | 90   | 3.42                          | 316         |
| Hunting                        | 86   | 3.41                          | 150         |
| Fishing                        | 91   | 2.87                          | 125         |
| Non-motor boating <sup>d</sup> | 15   | 2.04                          | 68          |
| View wildlife <sup>e</sup>     | 59   | 2.25                          | 39          |
| Day use <sup>f</sup>           | 69   | 2.62                          | 191         |
| Motor boating                  | 44   | 3.64                          | 45          |
| Motor viewing                  | 69   | 1.84                          | 95          |
| Off-road vehicle (ORV) use     | 20   | 2.86                          | 14          |
| Winter sports <sup>g</sup>     | 11   | 1.29                          | 166         |
| Snowmobiling                   | 44   | 1.63                          | 57          |
| TOTAL                          | 655  | --                            | 1376        |

<sup>a</sup> Primary visit—a visit by one individual to a recreation area for the purpose of participating in one or more recreation activities for any length of time, where only the primary activity for the visitor is considered.

<sup>b</sup> Expenditure data was obtained from PARVS (Public Area Recreation Visitor Study) and several other visitor studies. Data was reported in 1991 dollars. Values per visit were converted to 1993 dollars using the CPI-U 144.5. (i.e. 1991 dollar value \* 1.0609).

<sup>c</sup> Hiking, biking, horseback riding and other such non-motorized trail use.

<sup>d</sup> Canoeing, kayaking, rafting, drift boating, and other such nonmotorized boating.

<sup>e</sup> Non-consumptive wildlife viewing, photography and feeding.

<sup>f</sup> Picnicking, nature study, interpretive visits, photography, collecting objects and special forest products, swimming, wading, and other such day uses.

<sup>g</sup> Winter sports other than snowmobiling.

Downhill skiing parties (4.4 persons) spent on the average \$1464 per trip staying 6.8 days. Non-resident groups (2.9 persons) who camped in developed campgrounds spent an average of \$414 per trip (7 days). Lastly, angling parties (average size - 2.5 persons) who travelled to Montana by air spent on the average \$1120 per trip staying 9.1 days. Anglers arriving by automobile spent on the average \$700 per trip (8.8 days - party size 2.9 persons).

Non-resident pleasure travellers to Idaho spent on the average \$154 per party (2.2 persons) per visit (average stay 4 days) (Hunt, Sanyal, Vlaming, and Leidner 1994). Visitors from California spent the most with \$378 per visit per party. Washingtonians spent the least, \$113 per party per visit. Though visitors from Washington spent the least, the large number of travel parties to Idaho provided a significant portion (\$282 million) of the total expenditures (\$1.344 billion).

Since non-resident expenditure data is not available and no data exists as to the exact number of non-resident visitors to the CRB, it is impossible to determine the total expenditures resulting from recreation within the CRB. Additionally, expenditures for each activity may vary among the six ROS classes. For example, the costs of camping in a primitive setting may differ significantly from the costs associated with camping in an extremely developed site. Since expenditure data is not available by ROS classification, it is impossible to examine expenditure patterns by ROS classification.

## Indirect and Induced Economic Effects of Recreation in the CRB

To determine the indirect and induced effects of recreation upon the economy of the CRB, an economic input-output model IMPLAN was used to explain how the economy interacts with recreation related expenditures. The model utilizes the resident expenditures reported in Table 13 as inputs. The model estimates the number of jobs and income generated within a region as a result of those expenditures. The relationship between expenditures and jobs or incomes is expressed in terms of response coefficients or multipliers. Table 14 indicates the direct and indirect/induced job and income multipliers for the resident expenditures reported in Table 13.

Hunting expenditures produce the greatest amount of jobs for the CRB. Almost 13 recreation jobs per million hunters exist due to direct hunting expenditures. Eight additional jobs result from the economic activity stimulated by hunting participation (i.e. indirect result). Thus, almost 21 jobs per million hunters result from hunting expenditures. Camping (17.42 jobs per million visits), fishing (15.56 jobs per million visits), day use (14.66 jobs per million visits) and motor viewing (16.69 jobs per million visits) expenditures also produce a significant number of jobs within the CRB.

On the other hand, winter sports produce the least amount of jobs within the Basin, 2.63 jobs per million visits. Winter sport participation directly furnishes the CRB with 1.72 jobs per million visits as a result of winter sport expenditures. An

additional 0.91 jobs per million visits are produced as an indirect result of winter sport expenditures. Non-motor boating (total of 1.06 jobs/million visits), ORV use (1.8 jobs/million visits), and snowmobiling (2.22 jobs/million visits) expenditures provide few jobs compared to other recreational activities within the CRB.

Table 14 also indicates the income multipliers which result directly and indirectly from recreation expenditures. Hunting expenditures generate the greatest income of the twelve activity categories. For every one hundred visits, \$29.71 in income is paid within the Basin. \$18.53 of this total is a Table 14. Recreational Job and Income Multipliers by Activity based on Resident Expenditures for the entire CRB.

| Recreation Activity           | Job Multipliers <sup>a</sup>                    |                      |       | Income Multipliers <sup>b</sup>                        |                      |       |
|-------------------------------|---|----------------------|-------|--|----------------------|-------|
|                               | Direct  | Indirect and Induced | Total | Direct   | Indirect and Induced | Total |
|                               | Number of Jobs per thousand visits <sup>c</sup> |                      |       | Income <sup>d</sup> (1991 dollars) per thousand visits |                      |       |
| Trail Use <sup>e</sup>        | 1.09  | 0.83                 | 1.92  | .0151  | .0120                | .0269 |
| Camping                       | 1.43  | 1.10                 | 2.53  | .0208  | .0159                | .0367 |
| Hunting                       | 1.71  | 1.27                 | 2.98  | .0254  | .0183                | .0437 |
| Fishing                       | 1.27  | 0.98                 | 2.25  | .0181  | .0142                | .0323 |
| Nonmotor boating <sup>f</sup> | 0.27  | 0.15                 | 0.42  | .0039  | .0023                | .0062 |
| View Wildlife <sup>g</sup>    | 1.07  | 0.78                 | 1.85  | .0155  | .0113                | .0268 |
| Day Use <sup>h</sup>          | 1.21  | 0.90                 | 2.11  | .0174  | .0131                | .0305 |
| Motor boating                 | 0.62  | 0.37                 | 0.99  | .0090  | .0053                | .0143 |

|                            |      |      |      |       |       |       |
|----------------------------|------|------|------|-------|-------|-------|
| Motor Viewing              | 1.37 | 1.03 | 2.40 | .0199 | .0148 | .0347 |
| ORV Use                    | 0.50 | 0.28 | 0.78 | .0078 | .0040 | .0118 |
| Winter Sports <sup>i</sup> | 0.24 | 0.14 | 0.38 | .0033 | .0021 | .0054 |
| Snowmobile                 | 0.57 | 0.34 | 0.91 | .0082 | .0051 | .0133 |

<sup>a</sup> Job multiplier values are from IMPLAN as in Alward and Caudill (1994)

<sup>b</sup> Income multiplier values are from IMPLAN as in Alward and Caudill (1994).

<sup>c</sup> Primary Visit = a visit by one individual to a recreation area for the purpose of participating in one or more recreation activities for any length of time where only the primary activity for the visitor is considered.

<sup>d</sup> In millions of dollars.

<sup>e</sup> Hiking, biking, horseback riding and other such nonmotorized trail use.

<sup>f</sup> Canoeing, kayaking, rafting, drift boating and other such nonmotorized boating.

<sup>g</sup> Non-consumptive wildlife viewing, photography and feeding

<sup>h</sup> Picnicking, nature study, interpretive visits, photography, collecting objects and special forest products, swimming, wading and other such day uses. <sup>i</sup> Winter sports other than snowmobiling

direct result of hunting expenditures, while an additional \$11.18 in income is generated indirectly. Similar to the number of jobs created from expenditures, camping, fishing, day use and motor viewing also generate substantial amounts of income for the Basin. Winter sports generate the least income, \$3.64 per one hundred visits. Similarly, non-motor boating, ORV use and snowmobiling produce very little income.

Job and income multipliers were available on a sub-Basin basis (i.e. Montana portion of the Basin). However, very few differences in coefficients or multipliers existed among various sub-regions. Appendix F provides the job and income multipliers for 7 sub-sections of the Basin.

To determine the number of jobs and income generated from recreational expenditures, response coefficients (multipliers) were multiplied by visitation levels reported in Table 2. Table 14a indicates the number of jobs and income by activity produced from resident recreation expenditures. Unfortunately, the number of resident versus non-resident recreation visitors to the CRB is unknown. Thus, the specific number of jobs and amount of income resulting from resident expenditures can not be determined. Additionally, data concerning non-resident expenditures and response coefficients is lacking. Therefore, the number of jobs and income reported in Table 14a are based strictly upon resident expenditures, consequently this information should be used with extreme caution. Non-resident expenditures may be significantly different from those of residents.

Nevertheless, recreation participation within the Columbia River Basin supports approximately 1,172 full or part-time jobs and produces almost \$16.5 million in income to employees in both occupations directly associated with recreation and supporting industries. Day use and motor viewing participation Table 14a-- Total recreational jobs and income for the Interior Columbia River Basin by activity.

| Recreation activity           | Interior CRB |                      |                                       |
|-------------------------------|--------------|----------------------|---------------------------------------|
|                               | Total visits | Total number of jobs | Total amount of income (1991 dollars) |
| Trail use <sup>a</sup>        | 5,790,183    | 11,117               | 155,760,000                           |
| Camping                       | 8,182,603    | 20,702               | 300,280,000                           |
| Hunting                       | 3,119,073    | 9,295                | 136,300,000                           |
| Fishing                       | 5,816,509    | 11,670               | 187,870,000                           |
| Nonmotor boating <sup>b</sup> | 1,293,787    | 543                  | 8,021,479                             |
| Viewing wildlife <sup>c</sup> | 2,033,667    | 3,762                | 54,502,276                            |
| Day use <sup>d</sup>          | 27,116,614   | 57,216               | 827,060,000                           |
| Motor Boating                 | 2,277,523    | 2,255                | 32,568,579                            |
| Motor Viewing                 | 18,990,979   | 45,578               | 658,990,000                           |
| Off-Road Vehicle (ORV)        | 1,776,127    | 1,385                | 20,958,299                            |
| Winter sports <sup>e</sup>    | 5,731,468    | 2,178                | 30,949,927                            |
| Snowmobiling                  | 1,542,631    | 1,404                | 20,516,992                            |
| Total                         | 83,671,164   | 167,105              | 2,433,777,552                         |

<sup>a</sup> Hiking, biking, horseback riding and other such nonmotorized trail use (biking is generally not permitted in the primitive ROS class).

<sup>b</sup> Canoeing, kayaking, rafting, drift boating, and other such nonmotorized boating.

<sup>c</sup> Non-consumptive wildlife viewing, photography and feeding.

<sup>d</sup> Picnicking, nature study, interpretive visits, photography, collecting objects or special forest products, swimming, wading, and other such day uses.

<sup>e</sup> Winter sports other than snowmobiling.



produce the greatest number of jobs, 398 and 317 respectively. Non-motor boating, off-road vehicle use and snowmobiling generate few jobs. Day use and motor viewing activities also manifest the greatest amount of income for recreation and recreation related employees within the CRB. Day use generates over \$5.5 million dollars in income, while motor viewing produces almost \$4.5 million in income. Non-motor boating, on the other hand, creates the least amount of income, less than \$60,000.

#### **Revenues from Recreation Use Permits**

In addition to the direct and indirect economic impacts which recreation participation may contribute to the CRB economy, land management agencies also receive direct revenues from the sale of special use permits which are required for some specific recreational activities. To obtain data on revenues generated from special use permits, the initial information request sent to all land management agencies within the CRB requested specific information on permit revenues (see Appendix B for request form). Specifically, land management units were asked to indicate the number of permits they issued for specific activities (i.e. firewood collection, concessions, entrance fees) and the amount of revenue generated from such permits. Overall, \$14.6 million was collected by land management agencies through the sale of special use permits. Table 15 indicates the number of permits issued to recreation users and the specific dollar amount received by each agency within the CRB as a result of permit

sales.<sup>9</sup>

**Table VII.** Number of special use permits issued by Columbia River Basin land management agencies and resulting revenues generated (1993 dollars).

| <u>Management Agency</u><br><u>Revenue</u><br><u>Generated</u><br><u>dollars)</u> | <u>of Permits</u> | <u>Total</u><br><u>Total Number</u><br><u>(1993</u> |
|---|-------------------|---|
| Bureau of Land Management   | 22,776            | 357,237   |
| US Forest Service   | 273,564           | 7,071,360   |
| US National Park Service  | 731,776           | 2,492,217   |
| US Fish and Wildlife Service  | 277,530           | 12,825  |
| Army Corps of Engineers   | 2,409             | 33,556  |
| Oregon Parks and Recreation   | 3                 | 1,953,933   |

The US Forest Service generated the greatest amount of revenue, \$7.07 million. Most of this revenue results from campground fees (\$1.5 million) and firewood permits (\$1.2 million). The National Park Service, however, issued 731,776 permits, the most of any agency within the CRB, resulting in almost 2.5 million dollars in revenue. Almost all of the Park Service revenue is generated from entrance and campground fees (\$2.2 million). The Bureau of Land Management generates most of its revenue from river rafting operations (\$124,175) and backcountry user fees (\$76,761). The US Fish and Wildlife Service revenues are mainly the result of hunting permits (\$11,550) issued to visitors. All of the Corps of Engineers' revenue is generated from campground fees. Similarly Oregon

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<sup>9</sup>Lacks data from 17 units (2 BLM districts, 2 National Parks, 1 Army Corps of Engineer site, 5 US Fish and Wildlife Refuges and several state land management agencies).

State Parks and Recreation obtains most of its revenue from campground fees (\$1.85 million) and concessionaire fees (\$62,893). Lastly, Idaho land management agencies receive much of their revenue in the form of entrance fees (\$267,414), campground fees (\$689,690) and cabin rentals (\$942,320).

Appendix G provides detailed information on the number of permits each land management agency issued per activity and the revenue generated from those permits. Additionally, Appendix G contains information on the number of permits issued and revenues generated by specific land management units (i.e. specific National Forest or BLM district).

In addition to the request for information on the number of permits issued and resulting revenue, agencies were asked to indicate the percentage of that revenue which the agency retains. Management units were also asked to indicate the percentage of received monies which the unit was allowed to keep. Unfortunately, many management units did not have this information or did not provide the information. Thus, it is difficult to determine the amount of revenue remaining within the CRB region and monies which may have been directed elsewhere.

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## **Current Issues, Attitudes, and Policies Affecting Recreation**

As described earlier many factors can influence recreation users' decisions to participate in recreational activities. Similarly, the amount and quality of resources available for providing specific recreational opportunities can influence recreation participation. This section address two general topics which may influence recreation within the CRB. Specifically, this section examines both current issues of concern to recreation users and visitors' attitudes toward and perceptions of impacts from various land management actions and policies, both national and institutional, which may have been or are currently affecting recreation. No specific studies have examined issues or attitudes for the entire CRB region. To identify issues and attitudes which may affect CRB recreation, research both within the CRB, though site specific, and throughout the nation are reviewed.

### **Current Issues of Concern to Recreation Users**

The Columbia River Basin offers a broad and unique spectrum of recreational opportunities to residents of and visitors to the Basin. However, as previous sections of this assessment suggest, an increase in recreation demand and a decrease in both the quality and quantity of recreational opportunities in the Basin may significantly reduce the availability of desired recreation

opportunities in the future. To maintain a diverse set of opportunities, managers must be extremely knowledgeable about the most crucial issues affecting recreation. Though no research has specifically identified important issues with the CRB, recent SCORPs (State Comprehensive Outdoor Recreation Plans) indicate the most pressing recreation issues that the four states comprising the CRB face.

Table 16 indicates the recreation issues each state is currently addressing within their state recreation plan. Several major issues are common across the four state region. All of the SCORPs display the need for cooperation and/or coordination among the various land management agencies responsible for providing recreational opportunities. The wide spectrum of opportunities within the Basin makes it impossible for one management agency to be responsible for all recreation lands. Thus, local, state and federal agencies along with the private sector must work together to provide the best product to recreation users. However, as indicated earlier, agencies tend to assess recreation participation, supply and users needs differently. Incompatible or inadequately developed measurements strongly inhibit the opportunity for comprehensive planning among the many agencies responsible for managing the recreation lands within the CRB. If all agencies utilized consistent methods for measuring use (i.e. commonly agreed upon measurement term) and supply (i.e. ROS), integrated planning across the entire region would be possible. Recreation plans across the four states also suggested that

obtaining information from various agencies is extremely difficult, as was the case with this assessment. A centralized source of recreation data would be an extremely valuable tool for planners as well as the public.

Table VIII. Issues concerning recreation among the four CRB states.

| <u>OREGON<sup>a</sup></u>  | <u>WASHINGTON<sup>b</sup></u>                 |
|--|---|
| 1. Agency Cooperation  | 1. Funding                                    |
| 2. Education/Information   | 2. Liability                                  |
| 3. Maintain Diversity of Recreation<br>Greenbelt Preservation          | 3. Open Space and Opportunities               |
| 4. Lack of Recreation Facilities and<br>among Land Management Agencies | 4. Cooperation<br>Lands Near User Populations |
| 5. Conflict  | 5. Trails                                     |
| 6. Need to Rehabilitate Recreation<br>Resources                        | 6. Water                                      |
| 7. Recreation Needs of Special<br>Populations Not Being Met            |   |
| 8. Funding   |   |
| 9. Economic Contribution Often<br>Inadequately Determined              |   |
| Management   |   |
| <u>IDAHO<sup>c</sup></u>   | <u>MONTANA<sup>d</sup></u>                    |
| Overuse/Crowding   | 1. Funding                                    |
|  | 2. River                                      |
|  | 3. Tourism                                    |
|  | 4.  |
| Recreationist/Landowner  | 5.  |
| 1. Access  | Conflicts                                     |
| 2. Facilities and Services   | 6. Agency                                     |
| Roles  |   |
| 3. Coordination and Cooperation  | 7. Economics                                  |
| 4. Conservation of Natural, Historical<br>Access                       | 8. Visitor                                    |
| and Cultural Resources   |   |
| 5. Information and Education   | 9. User Fees                                  |
| 6. Funding   | 10. Wildlife                                  |
|  | 11. Bicycling                                 |
|  | 12. Wilderness                                |
|  | 13. Mechanized                                |
| vs. Non-Mechanized   |   |
|  | 14. Water                                     |
| Quality  |   |
|  | 15. Highways                                  |
| Insurance  | 16. Liability                                 |
| decision   | 17. Management                                |

Another issue common among the four states of the CRB is funding. In the past 10 years, monies allocated to states from the Land and Water Conservation Fund have decreased drastically (Washington SCORP 1990, Oregon SCORP 1988). Additionally, funding from state and local bond issues are

commonly being defeated. On the other hand, land acquisition costs and operating costs are increasing. Though the public is becoming more aware of the need for user fees (Idaho SCORP 1990), some users fear that once use fees are established, the fees will continuously increase to the point where users will not be able to afford to engage in recreational activities. However, Washington's 1990 SCORP suggests that if funding patterns continue for the next five years, the backlog of projects will increase substantially. Land management agencies must be able to secure funds from a variety of sources to prevent further deterioration of recreational facilities and acquire lands that will ensure a broad spectrum of recreational opportunities can provide quality experiences to the public.

The last issue shared by all four states is the maintenance and development of facilities. In recent years the condition of existing facilities has become an extreme problem. Many facilities built during the 1960's are now outdated. However, as indicated above, little funds are available for renovation or future developments. Idaho's 1990 SCORP indicates that their

citizens suggested that the current condition of facilities throughout the state served were an embarrassment. The citizens preferred that the number of facilities be reduced such that a fewer higher quality facilities could be provided.

Several other common issues, though not among all four states, were access, education and information, and liability. As discussed earlier, the amount of access to a resource area can significantly restrict use or drastically increase use. Private ownership of lands adjacent to public lands will continue to be a source of friction among recreation users and private land owners. Land management agencies must make it a priority to obtain easements for recreation users to legally gain access to public lands. In addition to legal constraints on access, accessibility to public lands and facilities by special populations continues to be a challenge. Agencies must consider disabled and aged populations when planning access to resources.

Recreation is an extremely valuable arena for educating and informing visitors about the environment, cultural values, a land ethic, etc. Agencies must take advantage of this learning opportunity and provide visitors with current information on the resource. In addition to resource based information, land management agencies must provide visitors with information on appropriate behavior for specific recreation sites. Some recreation users often lack the knowledge of how they should interact with the environment or other recreation users. Education and information have effectively decreased

environmental impacts and user conflicts (Roggenbuck 1992).

Lastly, several states suggested that liability was an important recreation issue. The Washington SCORP indicates that over 17 million persons are injured in the United States as a result of participating in sports or recreational activities. Injury numbers of this magnitude significantly increase the probability that federal, state and local recreation agencies may be liable for a portion of those injuries. With courts frequently ordering liability awards, many recreation managers are becoming increasingly concerned about providing specific types of recreational opportunities. This concern has directed many managers to develop risk management programs to direct equipment design and maintenance activities. Additionally, managers frequently use information to advise recreation users of the inherent risks associated with specific recreational activities and/or settings. Additionally, as discussed earlier, many private landowners are restricting access on private lands bordering public lands due to increased personal liability (Kozlowski and Wright 1989). Some states have adopted liability reduction acts (i.e. Washington State' RCW 4.24.200, 200) to encourage landowners to open their property for access to recreational lands.

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**Attitudes Toward Land Management Actions and Policies<sup>10</sup>**

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<sup>10</sup>The following section was prepared by R. Neil Moisey and Lisa Moisey, University of Montana, Missoula, Montana.

Resource managers have available to them a plethora of land management tools -- many of which are designed for, or directly affect the recreation user. Often it is difficult for a manager to determine which tools will be most effective for specific situations -- to alleviate unique problems or enhance visitor experience. A broad understanding of attitudes towards various land management actions can be especially helpful to the resource manager who is faced with making difficult management decisions. The consequences of a management decision, including the impact on recreation experiences, is also useful information. By amassing a more comprehensive understanding of recreationists' attitudes towards and perceptions of various land management actions, the resource manager will be better able to make management decisions that best benefit the resource, and those who use and depend on the resource.

The following section provides a general outline and summary of the literature on recreationists' attitudes towards and perceptions of impacts from potential land management actions, though the review is not specific to the CRB. Land management actions are divided into three categories: resource management policies; restrictions and regulations on user activities; and current facilities and potential developments.

Recreation participants' opinions about land management actions depend on myriad factors, including: the activity; the physical, social and managerial conditions of the type of recreation setting; the type of visitors attracted to a place;

and the social and experiential characteristics of the recreationists (McCool and Lime 1988). Where appropriate, and where data is available, these factors are summarized within each of the three management categories.

### Resource Management Policies

Resource management policies are generally land management actions that are, by nature, broad in scope. They are usually policies designed to manage the resources within an environment (i.e. wildlife and vegetative habitat). These policies may or may not have been established to manage the recreation visitor. This discussion addresses recreation users' attitudes toward resource oriented policies such as fire management, grizzly habitat and hydrocarbon development. Understanding visitor attitudes toward and perceptions of resource policies should help resource managers make more knowledgeable management decisions.

### Fire Management Policy

While current attitudes toward fire policy vary depending on the unique characteristics of the visitor, literature shows an overall trend toward increased support for a more liberal fire policy. In a 1971 study, Stankey (1976) found that most wilderness recreation visitors favored a fire suppression policy. By 1986, when this study was repeated by McCool and Stankey, they determined that visitor attitudes toward fire management had become somewhat less restrictive. Seventy percent of the

respondents supported a policy of allowing some fires to burn. Stankey and Schreyer (1987) cite two Lucas studies (1980 and 1985) which further exemplify visitors increased support for a more liberal fire policy. Visitors to nine wilderness areas in 1972 and three areas in 1982 were surveyed to determine their attitudes towards a natural fire policy. In 1972 between 15 and 30 percent of the respondents favored a natural fire policy, and in the 1982 study nearly 50 percent were supportive. Gardner et. al. (1985) determined, through a national survey, that the majority of organized forest users support a flexible fire suppression policy. The respondents indicated that they were willing to accept the potential risks associated with prescribed fires.

The body of literature reviewed here provides some potential explanations as to why visitors may be more accepting of a natural fire policy. Both McCool and Stankey (1986), and Stankey (1976) revealed that the more knowledgeable people are about fire, the more likely they were to support a liberal fire policy.

In this regard, McCool and Stankey (1986) suppose that the change in visitor support levels could be linked to the increase in the availability of educational and informational material. Additionally, Yang (1986) determined that visitors from rural areas or small towns were more likely to support natural fire policy than the visitors from urban areas.

Research also suggests that visitors do perceive potential impacts from fires -- both positive and negative. McCool and

Stankey (1986) suggest that individuals who favor a more liberal fire policy expect certain impacts from the fires, usually in the form of direct benefits. Some examples include improved wildlife habitat or a reduction in the potential for damage to neighboring property. Taylor et al. (1986) conducted a study of Tucson area residents and forest users to assess concerns, attitudes, and perceptions of fire management. Results suggest that the local residents and forest users generally support the practice of prescribed burns on forest lands. However, these groups expressed some concern about the impacts of the fires on recreational values. Specifically, the public appeared to be extremely concerned about the potential effects of fire on wildlife habitat, water and vegetation quality, and overall scenic beauty. Additionally, respondents were somewhat concerned about the impacts to or potential loss of recreational areas.

Another study suggested that while the public appears to have grown increasingly more knowledgeable and supportive of prescribed burns, many people still have negative attitudes towards the results of a fire (Taylor and Mutch 1986). This study examined visitors' attitudes towards varying degrees of fire severity. While the visual impacts of light fires enhanced the public's perception of scenic quality, the public perceived the effects of severe fires negatively. Campers were the most sensitive toward the effects of fire, and nature study visitors were the least affected.

## Land Designation Changes

A change in the land designation of an area may result in an impact on the recreational users of the area. Fedler and Kuss (1986) reported that hikers in the Pemigewasset area of the White Mountain National Forest perceived they would be affected by a land designation change from backcountry to wilderness. The hikers felt that biophysical impacts would increase, but social impacts would decrease under wilderness management conditions. For

example, under wilderness designation visitors perceived that litter would be more common, but user density would decrease.

## Resource Management for Wildlife

Two studies of bald eagle watchers in Montana suggest that visitors are overwhelmingly supportive of protecting eagle habitat. In a study of visitors to the bald eagle concentration at Glacier Park, Frost (1985) found that visitors favored protecting the bald eagle, even if the actions needed for protection came at a cost to the viewers. Similarly, Bradford (1994) determined that bald eagle viewers at Lake Hauser in central Montana preferred that managers close areas where the presence of visitors negatively impact the eagles. Bradford also determined that those visitors classified as passive players -- visitors with weak attitudes toward nature and affiliation and place - were least likely to accept closures.

While research generally suggests that recreationists are relatively willing to support wildlife protection actions, variations do exist. A study in northwestern Montana revealed that some local recreationists expressed concern about the current state of grizzly bear management in their area (Vincent 1989). Some residents admitted that they failed to report grizzly sightings for fear an area or road may be closed.

#### Policies on Natural Resource Exploration

Langenau et al. (1984) examined the attitudes of forest recreationists toward hydrocarbon development in a Michigan state forest. Results indicated that sixty percent of the respondents disapproved of oil and gas development. Those who disapproved tended to be concerned about potential impacts to wildlife such as a reduction in the numbers and visibility of elk. Additionally, individuals who disapproved expected an increase in oil company traffic and off-road vehicle use. Those who approved of hydrocarbon development (32%) felt that there would be no effects on numbers or visibility of elk. Additional analysis determined that the level of approval for hydrocarbon development was associated more with beliefs about impacts than with the value of the products.

#### Managing Water Levels in Reservoirs

Preference for management strategies can also be determined by measuring recreation values. Cordell and Bergstrom (1993)

measured visitors' willingness to pay values for three alternative water level management scenarios for four reservoirs in western North Carolina. Respondents were willing to pay substantially more for an annual use pass if the water draw down in the reservoir was delayed by three months, allowing a longer boating season on the reservoir. Recreationists tended to place a higher value on the management scenario which provided them with a longer use season. These results were especially true at more commercially developed reservoirs which tend to attract more affluent users such as water skiers. While a similar relationship existed for lesser developed reservoirs, willingness to pay values were not as substantial. Cordell and Bergstrom suggest that lesser developed reservoirs tend to be frequented more by local anglers who may not be as dependent on water levels for their sporting activities.

#### Restrictions and Regulations on User Activities

This category of management actions generally encompasses site specific actions that target visitor behavior on-site. Examples include regimentation of behavior, use restrictions, control measures, party size limits, restrictions on certain types of uses and prohibition of certain recreational activities.

Use-limits

According to McCool and Lime (1988), research on visitor's attitudes toward use-limits shows varying attitudes by user types, user expectations, recreational activity, and the situational characteristics of an area. McCool and Lime (1988) do note, however, that wilderness users tend to prefer queuing techniques, while river users prefer a reservation system. To exemplify the diversity of attitudes, McCool and Lime (1988) cite a study by Shelby et. al. (1982) where visitor attitudes in two wilderness areas and one river corridor were assessed. River floaters were likely to support a reservation system, while backpackers were more willing to accept pricing as a use-limit strategy. A study of visitor perceptions of recreation problems and potential management actions in four wilderness areas determined that no rationing technique was favored by the majority of users" (Stankey 1973). Mailed in reservations were the most acceptable rationing management technique while assigned trip routes was the least favored rationing tool.

Despite a general preference for no use-limit policies, McCool and Lime (1988) suggest that visitors generally will accept use-limit policies if a problem is evident. Yang (1986) found that most visitors to the Bob Marshall Wilderness complex supported restrictions on the number of visitors if the recreation area was being overused. Hammitt et al. (1981) found that floaters' perceptions of river use problems were significantly related to support for various management actions. Specifically, inner tube and raft floaters on three southern

Appalachian rivers who perceived river problems, including stream environmental impact problems; user conflicts; and use level problems were more likely to support management strategies than floaters who did not perceive river problems. Results also suggested that the greater the perceived need for management actions, the greater the support. Management strategies most preferred by floaters who perceived a river problem were activity and temporal zoning, and use permits.

In an effort to further understand how visitors decide on the acceptability of a management technique, Watson and Niccolucci (in press) conducted research in three Oregon wilderness areas. Results indicated that visitors overwhelmingly supported use-limits if overuse of the resource was evident. Crowding measures were the best predictors for support for use-limits for day visitors. Crowding and physical environment impact were the best predictors for overnight users.

#### Control Measures

Control measures are often described as those management actions which affect the visitor on-site. Many control measures are available to the land manager, ranging from use restrictions to visitor education. Visitor attitudes tend to vary greatly based on visitor characteristics and management options available (McCool and Lime 1988; Lucas 1980). Yang (1986) found variations in visitor attitudes in the Bob Marshall Wilderness complex based on several geographical, socio-demographical and psychological

characteristics. Visitors with non-consumptive attitudes toward wilderness were more supportive of control measures than those who had consumptive beliefs. Hikers who perceived impacts or user conflict were typically more supportive of control measure than horse users and those who did not perceive impacts or user conflicts. Visitor characteristics such as education levels, prior wilderness experience, and residence were all strong predictors of support for control measures. In the river environment, Schoolmaster and Frazier (1985) found that experience was the most important variable in determining recreationist's preferences for management strategies. Older anglers supported shorter catch and release sections on the river.

Amidst the variation of attitudes and visitor characteristics, research studies suggest several general themes. First, recreationists generally prefer light-handed over heavy-handed actions. Stankey (1973) found that visitors preferred techniques which impose the least on personal freedom. Similarly, McAvoy (1981), in a study of user's and landowner's preferred land management techniques for a state river recreation system, found that visitors typically favored preserving the resource with light-handed management techniques. Specifically, users preferred indirect management actions such as limits on the number and use of access points; craft size limits and surface speed limits. It should be noted that 79 percent of the respondents were canoeists who usually are not motivated to

participate in boating to experience speed.

Yang (1986) found varying perceptions and attitudes toward management actions, however, the overall preference was for light-handed approaches. For example, one-half of the respondents opposed the regulation of prohibiting camping within 200 feet of lakes or streams and required permits to camp in assigned campsites. On the other hand, visitors were supportive of party size limits, prohibition of wood fires in areas where dead wood is scarce, and the pack-it-in, pack-it-out policy. Lastly, respondents were less willing to support actions which imposed on personal freedom.

Similarly, McCool and Lime (1988) found that while light-handed approaches are generally preferred by recreation users, in certain circumstances visitors tend to prefer heavy-handed management approaches. For example, if social or ecological impacts are evident or if an obvious benefit from a management action is likely, visitors tend to prefer more direct actions. Anderson and Manfredi (1986), in their study of backcountry and river visitors, determined that users supported indirect management actions. They did find, however, that if visitors perceived overuse as a problem, a direct approach was preferable. Concern about the quality and character of the resource and recreation experience led visitors to support the management actions (indirect or direct) which would most likely protect these values. Respondents, mostly hikers and floaters, were supportive of the direct management action of use restrictions in

areas where revegetation was necessary. They also supported the indirect action of providing pre-trip information to educate users about appropriate behavior. Furthermore, visitors were more likely to support a management action, if they understood the reasons for that action.

A second theme is visitors' attitudes toward the use of information as a means for influencing visitor behavior. McCool and Lime (1988) report that no consistent agreement exists about what types of information are most appropriate for various situations. What is seemingly acceptable in one wilderness area may not be as effective in another. In addition, visitor acceptance of information as an effective management tool varies among sites. Frost (1985) found that visitor perceptions of regulations were influenced by information. Knowledgeable visitors (i.e. those who understood where and why closures were applied) to the bald eagle concentration at Glacier Park were more likely to find that regulations enhanced their eagle viewing experience than those with little knowledge. These findings suggest that the public may be willing to give up certain freedoms, if they are clearly aware of the benefits to the regulations (Frost and McCool 1988). Watson and Cole (1991) found that slightly more visitors to the Alpine Lake Wilderness Area than not supported the use of informational signs to provide notice on when and where heavy use is occurring and placing informational posts at popular destinations. Anderson and Manfredo (1986) found that visitors to three wilderness and

primitive areas, and three rivers were generally not supportive of informational signs and markers.

Additionally, education and information can play a key role in visitor acceptance of user fees. Reiling and others (1988) studied recreationists' attitudes towards current and proposed use fees in Maine's state park system. The results indicate that a program designed to educate users about the purpose of the costs would help mitigate the user's negative attitudes towards the fees.

Visitors' perceptions of the impacts of specific control measures are discussed in Watson and Cole (1991). Generally, visitors did not appear to be negatively affected by the presence of the actions. Most visitors (75 percent in many cases) noticed such actions as closed trails and campsites; revegetation of disturbed sites; trail traffic rerouted with stakes; and prohibition of campfires. When asked if the management actions detracted from their experience, a majority of day-users and campers responded that they did not.

### Facilities and Developments

Facilities and developments typically include new or improved site developments, such as toilets, campsites, trails and river access. Research on facilities and developments suggests that recreationists' attitudes are fairly consistent. Generally, recreationists are supportive of current levels of development at recreation sites, but generally oppose facility

expansion. Anderson and Manfredo (1986) found that river floaters generally oppose additional access points, signing and facilities. Visitors who did support additional facilities preferred that the facilities be located at existing access and development sites. In a separate study (Stankey 1980), a lightly used wilderness area in the northern Rockies was compared with a heavily used wilderness area in California. In both areas, half of the respondents favored limiting facilities to control use. Respondents supported limiting the number of trails and blocking access roads near the wilderness boundaries. Echelberger and Moeller (1977) determined that approximately forty percent of the visitors to the Cranberry Backcountry in West Virginia did not support additional trails. Lastly, Watson and Cole (1991) found that visitors to the Alpine Lakes Wilderness area were generally not supportive of building new trails.

In spite of the general trends outlined above, variations in recreationist's attitudes do exist. Lucas (1985) found that respondents generally supported wilderness improvements that enhanced public safety. More respondents, especially horse packers, than not indicated support for high quality trails and bridges that span dangerous streams. Visitors classified as purists were less supportive of improved facilities. In the Echelberger and Moeller (1977) study, Cranberry Backcountry users in West Virginia showed mixed responses to bridges. Half the respondents preferred the status quo, while one-third requested more bridges. Allen et al. (1981) reported that visitors to Oak

Creek Canyon, a popular river recreation site near Flagstaff, Arizona, favored management actions that increased their opportunities for recreation, but opposed those actions that limited opportunities. Respondents favored expanding parking, camping and swimming facilities. Since this site is in close proximity to a population center, a non-wilderness area, and fairly popular, such findings are understandable. As suggested earlier, if recreationists understand the rationale for site improvement or development, they should be more likely to support the action (Anderson and Manfredi 1986; McCool and Lime 1988; Stankey and Schreyer 1987).

While this review of attitudes toward land management actions is not comprehensive, it does illustrate some general attitudes visitors have concerning management action. Perhaps one of the main points that can be outlined is the lack of latitudinally consistent outcomes to attitude surveys (i.e. why do research findings vary across different areas and user populations). The wide range of visitor attitudes toward and perceptions of impacts from various land management actions make it difficult to draw specific conclusions on how management actions may affect specific recreation activities and resources. Research results from one site specific study does not necessary indicate that similar visitor attitudes will exist elsewhere. McCool and Lime (1988) suggest that this wide variation in user attitudes should direct managers to avoid standardized solutions to seemingly similar problems. Instead, managers need to take

into account many factors, such as the unique geographical and social characteristics of the problem, the condition of the resource, the management goals for the site and the attitudes of current and potential visitors.

## TRENDS IN CRB RECREATION

History helps us understand the origin of the present, and by extension, the potential for the future. Changes in participation levels, changes in technology, and changes in government involvement all have contributed to the increase in the diversity of recreation activities, the intensity of use of recreation areas, the amount of acres hosting recreation and the number of conflicts occurring both among recreation uses and between recreation and other uses of land and water. Understanding how these changes occurred can help managers make more effective management decisions.

As American explorers moved across the west to seek out new land and resources, a small cry was made to the United States government to set aside some of the vast public domain for future generations. Various lands throughout the western United States were placed into public land reserve systems (i.e. Yellowstone National Park Act of 1872; Forest Reserve Act 1891). The remoteness of these lands from major population bases dictated a need for very little, if any, management. The basic management strategy for these lands was that they be held in reserve and protected (mainly from fire), but not necessarily used for any specific purpose.

For most of the early twentieth century, little interest in these lands existed. The areas were remote with little access and no facility development. Though the building of the railroads did bring some visitors, the lack of trails prevented access into the core of the reserves. Additionally, the number of visitors was marginal, since a majority of the American population consisted of working class people with little disposable income who lived predominantly in the urban areas of the east coast.

With the onset of the Great Depression, however, programs such as the Civilian Conservation Corps and Works Project Administration brought increased access and facility development to these areas. Individuals involved in the work programs constructed thousands of miles of trails and roads throughout the remote areas of the American West. As access into these lands increased, the number of people visiting the areas began to increase as well. The onset of World War II halted the economic woes of the nation, and people with increasingly more money and time to spend began to seek out new ways to enjoy their leisure time.

By the 1950's and early 1960's use of public lands had increased significantly. The "baby boom" resulted in rapid population growth. The quality of automobiles improved, an interstate highway system was established, gasoline prices decreased, and the average work week was approximately forty hours spread over 5 days. Land management agencies realized the

need for more intensive management. Thus, programs such as Mission 66 and Operation Outdoors were developed to address increased visitation levels and the need for greater facilities to accommodate more people.

As visitation to national parks and Forest Service areas grew, managers became aware of the need for greater resource protection from ecological impacts occurring from high levels of recreation use. Thus, land management agencies saw the need for developing both resource and visitor management programs. The role of the land manager became extremely important to the welfare of public lands. As the demand for recreational opportunities increased, land management agencies realized the necessity of monitoring the demand for and supply of recreation resources. The following section examines the trends in participation for the various CRB land management agencies.

### **Participation Trends**

As suggested earlier, many state and federal land management agencies are becoming increasingly aware of the need for accurate and consistent measures of recreation demand and supply. Unfortunately, past and present CRB recreation data lacks consistency within and among land agencies. This section attempts to illustrate the trends in recreation participation among the CRB land management agencies. Wherever possible, visitation is examined from 1980 to 1993, a period of time for which most individuals can visualize events, governmental

affairs, etc.

### US Forest Service

Table 17 indicates the various participation levels for the three Forest Service Regions responsible for lands within the CRB. Participation levels for the regions include only those national forests wholly or partially within the CRB. Overall, recreation participation increased twelve percent in the Forest Service since 1980. A significant increase, almost 100 percent, appears to have occurred in Region 4 from 1980 to 1993. Region 6 which had the highest visitation among the three regions, only saw a 23% increase in visitation from 1980 to 1993. Lastly, Region 1 participation rates remained fairly constant from 1980 to 1993.

Table 17. Forest Service Participation Data: Region 1, 4 and 6 Totals and CRB site totals. (Reported in Recreation Visitor Day's -- RVD's).

| Year | Region 1 <sup>a</sup> | Region 4 <sup>b</sup> | Region 6 <sup>c</sup> | CRB Total  |
|------|-----------------------|-----------------------|-----------------------|------------|
| 1980 | 25,588,000            | 6,244,600             | 18,501,400            | 50,334,000 |
| 1981 | 21,681,700            | 8,039,700             | 20,156,200            | 49,877,600 |
| 1982 | 20,933,200            | 5,361,400             | 21,196,400            | 47,491,000 |
| 1983 | 20,836,200            | 11,467,100            | Not Available         | 32,293,300 |
| 1984 | 22,569,000            | 8,361,800             | Not Available         | 30,930,800 |
| 1985 | 21,992,000            | 24,932,200            | Not Available         | 46,924,200 |
| 1986 | 19,785,600            | 7,996,200             | Not Available         | 27,781,800 |
| 1987 | 21,134,400            | 7,236,300             | 12,090,416            | 40,461,116 |
| 1988 | 19,785,600            | 11,258,100            | 20,349,661            | 51,393,361 |
| 1989 | 21,308,200            | 11,792,300            | 22,421,734            | 55,522,234 |
| 1990 | 21,766,700            | 11,660,300            | 21,393,360            | 54,820,360 |
| 1991 | 21,202,098            | 15,474,400            | 40,144,370            | 76,820,868 |
| 1992 | 23,382,000            | 12,357,900            | 33,512,095            | 69,251,995 |
| 1993 | 19,882,500            | 12,421,500            | 38,737,777            | 71,041,777 |

<sup>a</sup> Only includes data from the Bitterroot, Clearwater, Deerlodge, Flathead, Helena, Idaho Panhandle, Kootenai, Lolo, and Nez Perce National Forests.

<sup>b</sup> Only includes data from the Boise, Bridger-Teton, Caribou, Challis, Humboldt, Payette, Salmon, Sawtooth, and Targhee National Forests.

<sup>c</sup> Only includes data from the Deschutes, Fremont, Malheur, Mt. Hood, Ochoco, Umatilla, Wallowa/Whitman, Winema, Colville, Gifford Pinchot, Okanogan, and Wenatchee National Forests.

Bureau of Land Management

Table 18 reports the visitation levels for BLM lands within the four states of the CRB. BLM data for Oregon and Washington was combined, since data was only reported on the two state region level after 1983. An examination of data at the state levels suggest that measurement techniques may not have been consistent over the past fourteen years. For example, BLM use in Montana dropped drastically from 4.5 million in 1984 to 287,000 in 1985. However, by 1986 use had increased to 2 million. Data of this nature suggests a variety of measurement techniques and/or methodologies were utilized.

Table 18. Estimated Recreation Visits to BLM Lands for the Four States of the CRB and national BLM visits.

| Year | Idaho     | Montana   | Oregon/<br>Washington | CRB<br>Totals | National<br>Totals |
|------|-----------|-----------|-----------------------|---------------|--------------------|
| 1980 | 4,219,000 | 4,556,000 | 9,680,000             | 18,455,000    | 107,906,000        |
| 1981 | 2,855,000 | 1,556,000 | 8,371,000             | 12,782,000    | 91,456,000         |
| 1982 | 3,344,000 | 4,550,000 | 7,646,000             | 15,540,000    | 58,135,000         |
| 1983 | 3,411,000 | 4,685,000 | 3,922,000             | 12,018,000    | 56,270,000         |
| 1984 | 3,411,000 | 4,500,000 | 3,746,000             | 11,657,000    | 59,228,000         |
| 1985 | 1,488,000 | 287,000   | 3,690,000             | 5,465,000     | 51,739,000         |
| 1986 | 3,342,000 | 2,067,000 | 3,563,000             | 8,972,000     | 54,253,000         |
| 1987 | 2,023,000 | 2,002,000 | 5,063,000             | 9,088,000     | 53,948,000         |
| 1988 | 2,124,000 | 2,376,000 | 5,574,000             | 10,074,000    | 57,460,000         |

|      |           |           |            |            |            |
|------|-----------|-----------|------------|------------|------------|
| 1989 | 2,328,000 | 2,448,000 | 6,283,000  | 11,059,000 | 60,957,000 |
| 1990 | 2,117,000 | 4,129,000 | 12,099,000 | 18,345,000 | 71,820,000 |
| 1991 | 2,446,000 | 2,300,000 | 14,421,000 | 19,167,000 | 72,541,000 |
| 1992 | 2,658,000 | 2,290,000 | 6,823,000  | 11,771,000 | 69,418,000 |

Source: US Department of the Interior, BLM, 1980-1992. Public land, statistics: Statistical appendix to the annual report to the director.

Overall, data indicates that use has decreased substantially (57%) from 1980 to 1992. However, if use levels are compared for 1980 and 1991, use increased by 4%. Nationally, the recreation use of BLM lands decreased at a similar rate (55%) from 1980 to 1992. BLM lands within the four states of the CRB showed similar decreases, with Montana sporting the largest decrease (99%). Idaho, Oregon and Washington had similar rates of decline in visitation, 59% and 57% respectively.

#### National Park Service

Table 19 indicates the visitation rates for the National Park lands within the Columbia River Basin. Within the CRB, visitation to NPS lands has increased 20% over the past fourteen years. Similarly, on a national level, visitation to Park Service lands increased 20 percent during the same time period. Coulee Dam National Recreation Area had the greatest increase, 92%, in visitation over the past 10 years. For the same time

period, Grand Teton National Park (89%) and Craters of the Moon National Monument (80%) had significant increases in visitation as well. On the other hand, Crater Lake National Park and Whitman Mission National Historic Site both experienced decreases in visitation during the last ten years, 37% and 10% respectively.

Table 19. National Park Service visitation (recreation visits) for the Columbia River Basin.

| Year | CRB Visitation | National Totals |
|------|----------------|-----------------|
| 1980 | 7,846,600      | 220,463,211     |
| 1981 | 8,948,592      | 238,592,669     |
| 1982 | 8,534,025      | 244,924,579     |
| 1983 | 7,845,025      | 243,619,400     |
| 1984 | 7,246,123      | 248,758,509     |
| 1985 | 6,701,313      | 263,441,808     |
| 1986 | 7,061,754      | 281,094,850     |
| 1987 | 7,911,626      | 287,244,998     |
| 1988 | 7,715,121      | 282,451,441     |
| 1989 | 7,998,445      | 269,399,837     |
| 1990 | 8,943,793      | 255,654,746     |
| 1991 | 9,546,341      | 267,840,999     |
| 1992 | 9,394,592      | 274,694,549     |
| 1993 | 9,926,601      | 273,120,925     |

Sources: US Department of the Interior, 1980-1983. National Park Statistical Abstract. Statistical Office, Denver Service Center. Denver, CO.  
 For 1984-1993 Data: Special Data Request, Jim Sandars, USDI, National Park Service, Denver, CO.

#### US Fish and Wildlife Service

The US Fish and Wildlife Service does not report visitation in absolute numbers, but rather provides the percent change in the number of individuals who hunt or fish. Table 20 indicates the national percent change in five year periods from 1955 to 1990. Data suggests that the number of individuals engaging in

hunting and/or fishing has increased steadily over the past 35 years, though the rate has slowed somewhat in recent years. When examining fishing individually, the number of anglers has also increased. However, the rate of increase slowed significantly during the years 1975 to 1980. Interest in angling appears to be on the rise. The latest five year period indicates an 11% increase in the number of individuals fishing across the nation.

Table 20. Percent Change in Total Population and Individual Populations of Hunters and Anglers in the United States, 1955-1990. (Population 12 years and older)

| Year        | Total Population | Anglers | Hunters |
|-------------|------------------|---------|---------|
| 1955 - 1960 | 9                | 22      | 24      |
| 1961 - 1965 | 7                | 11      | -7      |
| 1966 - 1970 | 6                | 17      | 6       |
| 1971 - 1975 | 6                | 25      | 19      |
| 1976 - 1980 | 5                | 2       | -2      |
| 1981 - 1985 | 4                | 8       | -2      |
| 1986 - 1990 | 5                | 11      | 2       |

Source: Division of Federal Aid, US Fish and Wildlife Service, (1994). 1980-1990 Fishing, Hunting and Wildlife Associated Recreation State Trends. IN: Addendum to the 1991 National Survey of Fishing, Hunting and Wildlife-Associated Recreation.

Table 21 indicates the percent change in hunting, fishing and non-consumptive wildlife recreation participation within the CRB since 1980. Hunting appeared to have significant decreases in participation during the early 1980's. However, data suggests

that a resurgence of interest in hunting may have occurred in the late 1980's. For example, the state of Washington which had experienced a 26% decrease in the number of hunters during the years 1980-1985 had a 34% increase in the number of hunters in the late 1980's. The three other states in the CRB also experienced increases in the number of hunters in the late 1980's after significant decreases or no growth occurring in the early 1980's.

Table 21. US Fish and Wildlife Service Participation Data for the Four States of the CRB Region.

| Percent Change in Hunting Participation for States in the CRB Region |             |             |
|--|-------------|-------------|
| State  | 1980 - 1985 | 1986 - 1990 |
| Idaho  | -13         | 16          |
| Montana  | 0           | 13          |
| Oregon   | -9          | 4           |
| Washington   | -26         | 34          |
|  |             |             |
| Percent Change in Fishing Participation for States in the CRB Region |             |             |
| State  | 1980 - 1985 | 1986 - 1990 |
| Idaho  | 1           | 5           |
| Montana  | 6           | 6           |
| Oregon   | 6           | 8           |
| Washington   | 9           | 20          |
|  |             |             |
| Percent Change in Nonresidential Non-consumptive Participation       |             |             |
| Year   | 1980 - 1985 | 1986 - 1990 |

|            |    |    |
|------------|----|----|
| Idaho      | 62 | 33 |
| Montana    | 44 | 12 |
| Oregon     | 33 | 13 |
| Washington | 58 | 8  |

Source: Division of Federal Aid, US Fish and Wildlife Service, (1994). 1980-1990 Fishing, Hunting and Wildlife Associated Recreation State Trends. IN: Addendum to the 1991 National Survey of Fishing, Hunting and Wildlife-Associated Recreation.

The number of anglers in the CRB appears to have remained fairly constant over the past 10 years. Slight percent increases (<10% every 5 years) in the number of anglers have occurred. However, Washington did have a significant increase in anglers during the late 1980's (9% to 20%). The number of individuals engaging in non-consumptive wildlife activities has significantly increased over the past ten years. Major increases in participation occurred with increases of 62% for Idaho, 44% for Montana, Oregon - 33% and Washington - 58% during the five year period of 1980-1985. In the late 1980's the rate of increase slowed somewhat, but participation still increased significantly, especially for Idaho which saw a 33% increase in non-consumptive wildlife use from 1985-1990. These findings further suggest a move away from the hunting of wildlife to more non-consumptive wildlife recreational activities.

Army Corps of Engineers

Table 22 provides visitation data for the Army Corps of Engineer's sites nationally, as well as those projects located

within the CRB. Unfortunately, data was not available for the national level prior to 1988 and after 1991, so this data presented is restricted to four years. Data was available for the Basin Corps projects for the years 1987 to 1993. When examining national trends, use appeared to increase in 1989 but has slowly decreased annually since then. Visitation to CRB sites shows a similar pattern to the national data. From 1987 to 1990 use increased almost 30%. However, from 1990 to 1993, visitation has decreased 23%. It appears that, both nationally and locally, visitation to Corps sites is currently decreasing.

Table 22. Visitation to Army Corps of Engineer Sites both National Visitation and Visitation to CRB Corps Sites.

| Year | National Totals | CRB Totals |
|------|-----------------|------------|
| 1987 | Not Available   | 16,713,900 |
| 1988 | 639,038,200     | 16,990,100 |
| 1989 | 654,131,200     | 19,520,300 |
| 1990 | 649,640,600     | 21,473,700 |
| 1991 | 637,042,100     | 21,193,200 |
| 1992 | Not Available   | 21,244,100 |
| 1993 | Not Available   | 17,507,100 |

This section has illustrated the recreation participation trends occurring both on a national level and the CRB regional level. A total number of recreation users per year within the

Basin cannot be calculated since a common measurement unit does not exist among the agencies. Overall, it appears that the recreational use of public lands within the CRB are increasing. Only one agency, the BLM, appears to indicate a decline in participation. However, the use of BLM lands within the CRB had steadily increased since 1985 until a major drop in visitation occurred in 1992.

Additionally, this section has provided a picture of the number of individuals participating in recreation on an annual basis throughout the Basin. However, in addition to understanding participation trends, it is necessary to examine the trends in the types of recreational activities which individuals participate in while visiting state or federal lands. In other words, land managers need to understand "what's hot and what's not" in order to most effectively manage public lands for desired recreational experiences. The following section examines some trends in recreation activities. No research has specifically examined activity participation for the CRB, thus the following is a national review of recreation activity trends.

#### Trends in Recreation Activities

The following section attempts to identify specific trends in the types of recreational activities in which individuals prefer to engage in while visiting recreation sites. Few studies have longitudinally examined trends in activity participation. As research methodologies and procedures change and improve over

time, the comparison of data from different studies becomes extremely difficult (Cordell et al. 1990). A. C. Neilsen Company conducted a longitudinal study of recreation participation from 1973 to 1982. Every 3 years individuals were surveyed about their outdoor recreation pursuits.

Table 23 indicates that the numbers of individuals participating in specific recreational activities from 1973 to 1982. Though this information is somewhat dated, it does provide some information on why some activities are popular today. Neilsen's survey indicates that participation rates for most outdoor recreation activities increased from 1973 to 1982. Significant increases (25%) occurred in snow skiing (both downhill and cross-country), sailing, boating, and water skiing. Hunting was the only activity which indicated a decrease in participation (6.5%). The participation trends illustrated above suggest that demand for natural resource based recreation should have continued throughout the 1980's, thus supporting the agency visitation rates reported in previous sections. However, many factors influence visitation rates, as well as the types of desired activities. For example, technological advances in some recreational activities has resulted in new or improved recreational equipment. The development of the mountain bike has led to a significant increase in biking as well as an increased demand for trail use. Similarly, the introduction of snowboards has resulted in a shift in activity engagement at developed ski areas. The following section examines factors which have or may

significantly affect recreation participation and the type of desired experiences.

Table 23. Trends in the Number of Individuals Participating in Specific Outdoor Recreation Activities.<sup>a</sup>

| Activity                              | Number of Persons Participating<br>(millions) |      |      |      | % Change<br>73-82 |
|---------------------------------------|---|------|------|------|-------------------|
|                                       | 1973  | 1976 | 1979 | 1982 |                   |
| Fishing                               | 61.3  | 63.9 | 59.3 | 63.7 | 3.9               |
| Camping                               | 54.4  | 58.1 | 60.3 | 61.6 | 13.2              |
| Boating<br>(other<br>than<br>sailing) | 32.6  | 35.2 | 37.9 | 42.0 | 28.8              |
| Snow<br>Skiing                        | 7.7   | 11.0 | 15.4 | 19.5 | 153.2             |
| Hunting                               | 20.0  | 20.5 | 19.7 | 18.7 | -6.5              |
| Water<br>Skiing                       | 14.0  | 14.7 | 16.9 | 18.0 | 28.5              |
| ORV                                   | 11.3  | 9.7  | 10.5 | 12.1 | 7.1               |
| Sailing                               | 7.0   | 7.3  | 8.7  | 10.6 | 51.4              |
| Snow<br>mobiling                      | 7.8   | 9.2  | 8.6  | 8.6  | 10.3              |
| Biking                                | 65.6  | 75.0 | 69.8 | 72.2 | 10.1              |

<sup>a</sup> Taken from Walsh (1986).

### Drivers of Change<sup>11</sup>

<sup>11</sup>This section was prepared by Theron Miller, University of Montana, Missoula, MT.

In the ever changing landscape of American recreational participation, one factor remains constant -- the over-all importance of outdoor recreation in the lives of many of its citizens. Indeed, this may be the only factor which has remained unchanged since the 1900's (Clawson 1989). The activities, timing, length of the experience, and many other aspects of the recreation experience have changed dramatically over the years. These changes have been neither constant nor entirely predictable. Thus, one of the few things that can be said with any certainty is that outdoor recreation will continue to be very important in the future, but in all probability will be very different from today.

An important question in the shifting recreational scene concerns the factors which may have been the basis for observed changes. Specifically, do certain social or demographic trends that drive changes in recreation exist? Social scientists have isolated several social demographic trends which may affect recreational participation. The following section offers an examination of some of these drivers of change in outdoor recreation.

At the outset it must be clear that the social-demographic trends examined here are national rather than regional trends. As Warnick and Vander Stoep (1990) point out, regional trends in recreation participation do not necessarily mirror those of the rest of the nation. Thus, a discussion of national social demographic drivers for change should be taken as suggestive of

specific regional patterns rather than determinative.

Another preliminary consideration involves the interactive nature of drivers for change. Although specific trends are isolated for the simplicity of discussion, many of these trends do in fact interact. For example, changes in the age of a population will interact with issues such as discretionary income, available leisure time, activity preferences, and others. This interactive element further complicates any discussion of the causes behind changes in recreational participation.

With considerations of region and interaction in mind, certain driving forces within society have been isolated in the social science literature -- forces that help to explain some of the reasons for changes that have been observed. The following discussion examines: changes in age distribution, increases in U.S. population, population migration within the U.S., changes in the availability of leisure time, changes in recreation technology, changes in income levels, personal and environmental health concerns, and the emergence of "risk recreation".

#### Changes in Age Distribution

The U.S. population is aging. As the baby boom generation approaches middle life, it is apparent that the older age classes will represent a larger proportion of the population. As a result one can expect "rapid growth among those 65 and older, with the fastest rates of growth among those 85 and older"<sup>12</sup>.

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<sup>12</sup>Luloff and Krannich (1990), p. 132.

This change in the age composition of the population is often cited as having a profound effect upon recreational participation. For example, Hartman and others (1988) isolated this demographic feature as having the clearest relationship upon how Americans decide to engage in recreational activities. Changes in physical ability mean corresponding changes in activities chosen.

Even though a clear relationship exists between aging and changes in recreational participation, the exact nature of changes in activity choice are largely unexplained.

"Though aging is the prime social trend of the next two decades, we have little understanding of how the leisure sequence unfolds as people age. Do bikers turn into guests at dude ranches or go on "eco-cruises"?<sup>13</sup>

This question is one which could provide an avenue for future research -- research that could further our understanding of future recreational trends.

In addition to the direct influence of age and physical ability on recreation, age also relates to a variety of other demographic variables. An aging population will exhibit changes in available leisure time, amount of discretionary income, and changes in family commitments, to name just a few. Clearly, an understanding of the attitudes, preferences, and motives of older recreationists will provide useful insight for recreation planners and managers.

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<sup>13</sup>Hornback, K.E. 1991, p.14.

### Increases in Population

Not only is the proportion of older people increasing in the U.S., but the population as a whole will continue to increase. This increase, however, is likely to be slower than was experienced in the past five decades (Cordell and Siehl 1989). A substantial proportion of increase will be the result of immigration (Luloff and Krannich 1990; Cordell and Siehl 1989; Clawson 1989). Thus, there will be both a growth of population as well as a change in the ethnic composition of the nation.

A moderate increase in population, the aging of the population, and the greater proportion of immigrants could combine to produce a reduction in outdoor recreational participation rates.

Because older persons and minorities have lower rates of participation in outdoor recreation activities, as their proportions of the population increase, the overall levels of participation in the population tend to decline.<sup>14</sup>

Although other demographic or economic factors might intervene upon this situation, the analysis of Murdock and others (1990) highlights the importance of changes in population structure as a driver of change in recreation participation.

### Population Migration Within the United States

Growth in the U.S. population is not evenly distributed. Much of this disproportional increase is observed regionally and is due to migration from areas in the north and east to areas in

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<sup>14</sup>Murdock, S. H. et al. (1990), p. 155.

the south and west (Cordell and Siehl 1989; Clawson 1989; Luloff and Krannich 1990). In addition to broad geographic population shifts, it is also apparent that population growth will continue to be high in some specific locations. Certain metropolitan areas and the coastal states will continue to see rapid growth (Cordell and Siehl 1989).

Much of the impetus for geographic population redistribution originates from quality of life concerns. As people consider quality areas in which to live, recreational opportunities and scenic amenities are often important considerations when choosing a relocation area. Planners and managers in rapidly growing scenic areas will be faced with the challenge of providing diverse opportunities to a greater number of local residents. The uneven distribution of higher demand suggests that recreation needs assessments be conducted at a regional scale to address these concerns.

#### Changes in Available Leisure Time

A decrease in the amount of leisure time has often been cited as a driving force for changes in recreation participation (Cordell and Siehl 1989; Szwak 1989; Warnick and Vander Stoep 1990; McLellan and Siehl 1988; Hartman et al. 1989). Many factors combine to influence the amount of time people have away from work. Some of these factors include changes in family structures, length of commute to and from work, and changes in work demands.

Changes in the family, such as the increase of dual income households (Hornback 1991; Cordell and Siehl 1989), deferred child bearing (Szwak 1989; Hornback 1991), and an increase in the number of single parent households (Luloff and Krannick 1990; McLellan and Siehl 1988; Szwak 1989) all may potentially affect available leisure time. Although family units with two wage earners theoretically provide an increase in discretionary income, the extra time demands make leisure a scarce commodity. This commodity is being traded for the social benefits of more women in the work force, and the economic or lifestyle demands of contemporary society.

Coupled with an increase in the number of women in the work force, many of the baby boomers are in the process of raising children. This deferral of child bearing represents an added strain upon a family's ability to find time for leisure activities. Another major factor contributing to a decrease in leisure time is the increased number of households with one primary care giver. Many of these families are female head of household situations. Money constraints and a high level of time commitments at home or work contribute to a lack of leisure time for these families.

Many workers are spending more of their time commuting to and from their jobs (Hornback 1991). This is due in part because people are seeking amenities that are available only outside of urban centers. This trend has been cited as a contributing factor for a general decrease in leisure time. Less leisure

time, then, has been cited as a contributing factor for the trend toward shorter trips that are closer to home (Ferguson and Carlson, quoted in Hornback, 1991).

Two further work related factors have been isolated as influencing leisure time. First, the labor force in the U.S. has been steadily moving away from manufacturing and into service oriented work. These jobs often lead to non-traditional work times (other than 8 to 5 work hours, for example), or involve significant amounts of overtime (Szwak 1989). The traditional forty hour work week with a two week vacation is less common. This trend is seen as another factor that is driving a change to shorter, more frequent, closer to home trips.

#### Changes in Recreation Technology

Another important driver of change in the recreational landscape is innovations in recreational technology (Cordell and Siehl 1989; Clawson 1989; Ewert and Schreyer 1990; Warnick and Vander Stoep 1990; McLellan and Siehl 1988). Research suggests that technology induced change has dominated the recreation scene and will continue to do so. An ability to respond to these changes will continue to be important for planners and managers.

Technological innovations affect both traditional and new recreational activities. Because of these innovations, new options are available. A few of the new opportunities that have become popular in the last few years include: mountain biking,

para-sailing, wind surfing, jet skiing. If planners only focus upon traditional activities such as hiking, camping, fishing, hunting, etc., a large part of the recreation demand will be overlooked (Warnick and Vander Stoep 1990). Improvements upon items such as packs, tents, boots, and the like, have also made it easier to engage in traditional activities (Cordell and Seihl 1989).

In addition to changes in outdoor recreation technology, other leisure technology may have an indirect impact. The development of video, computer, and interactive game technology for use in the home can compete for limited leisure time (Cordell and Seihl, 1989). Responding to these changes will continue to be a challenge.

### Income Levels

The availability of leisure time is inextricably linked to the availability of income that one can spend on recreational pursuits. Although poverty exists and persists in the United States, "in real terms, Americans are rich -- rich by their own historical standards, rich by world standards today."<sup>15</sup> Changes in discretionary income levels, then, will have an effect upon recreational participation. Overall, a general increase in income levels in the United States has occurred (Luloff and Krannich 1990).

Many factors combine to effect the amount of discretionary

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<sup>15</sup>Clawson, M. (1988), p. 4.

income. Two which are important to recreation include the aging of the population and the structure of economic classes in America. In the first case, the numbers of older persons who tend to have more disposable income is increasing (Szwak 1989). The fifty and older age class is growing the fastest. This demographic and economic shift can drive changes in both participation rates and in the preferred activities for a very large number of recreationists in the future.

The American economy is undergoing some changes that are likely to impact recreation. Specifically, fewer people fall within the category of middle class. The lower or higher economic categories are increasing in numbers, while the middle class is losing individuals (Cordell and Siehl 1989). This could produce a situation where outdoor recreation becomes gentrified. Those with more limited financial means, and less discretionary income, will continue to be unable to participate. Since a larger percentage of the recreational market will tend to focus upon those with surplus money, it is possible that recreational opportunities will become tailored more to economically advantaged individuals and, thus ultimately, become less diverse.

#### Personal and Environmental Health Concerns

American adults have been focusing upon better personal health and fitness. This trend in health consciousness has contributed to changes in recreation participation (Szwak 1989). Concern for personal health can be a driver of change in both the

types of recreational activities chosen as well as the frequency of participation. Health concerns and an interest in fitness are likely to remain important issues for the growing number of older Americans.

An interesting exception to this trend toward health consciousness exists for children. Obesity is becoming a problem for children, along with a lessening of interest in active pursuits (Szwak 1989). In this case it is hard to know if a lack of health consciousness among children is affecting their choice of recreation, or if changes in home recreation technology are affecting their health.

Environmental concerns may have an effect upon both recreational behavior and the importance of recreational opportunity in the lives of individuals. The practice of minimum impact camping, issues surrounding responsible mountain biking behavior, and technological developments aimed at reducing recreation impacts are a few examples of how environmental concerns might drive the shape of recreation.

Perceived threats to the environment may affect how precious a particular recreational resource is to participants. This may be particularly true for wildland recreation opportunities. Environmental concern has shifted in the past few years from general issues to specific threats and actions (McLellan and Siehl 1988). Both a perceived scarcity of certain recreational activities, and an active public involvement in specific

environmental issues, could combine to exert pressure upon recreation providers as well as drive the shape of recreational participation.

### Risk Recreation

While outdoor recreationists from all time periods have accepted a certain level of risk associated with their pursuits, a new trend is to consciously seek an element of risk as an important part of an activity. Although recreationists still seek a complex experience, and a mix of desired outcomes, the common elements of risk recreation include being challenged by the unknown or uncontrollable, and a significant interaction with the natural world, but not necessarily a pristine environment. An examination of this emerging emphasis reveals some interesting trends that might affect the nature of outdoor recreation in the future.

Ewert and Schreyer (1990) place risk recreation in the context of three general recreation trends. First, after the rapid increases during the 1970's, recreational use appears to be stabilizing or decreasing. Second, recreationists are seeking a "hassle-free" experience -- experiences with a minimum of preparation and planning time. Finally, recreationists are seeking experiences that are shorter but often more exotic or intense -- experiences that often include the services of an outfitter. Risk recreation fits in logically with these general trends.

As with some of the other elements of the changing nature of recreation, understanding risk recreation as a driver for that change presents something of a "chicken or the egg" question. Particularly, is the emergence of risk recreation driving some of the trends or is risk recreation itself influenced by other social factors? The latter case appears most likely. For example, many of the trends in risk recreation are driven by technological advancement. Changes in recreational equipment and techniques often provide access to activities and/or places which were not before possible. The factors contributing to a loss of leisure time may make risk recreation more attractive because it can be done in environments that are less pristine, and in a more intense, less time consuming fashion than more traditional activities.

Another option is that these other factors are simply interactive with the trend being toward risk recreation (as are many of the drivers discussed here). As such, this trend should be kept in mind as managers and planners seek to provide for, and anticipate, recreation demands.

### **Summary of Trends**

This section has examined the recreational trends occurring within the Columbia River Basin and the nation as a whole. Overall, participation in recreation appears to be continually increasing. As social and economic characteristics of the

population change and technology introduces new recreational equipment, the amount and types of recreational experiences the public desires can shift significantly. To best manage the nation's lands for desired experiences managers must be aware of these trends. In addition, managers and researchers need to speculate as to what the future holds for recreation within the CRB and the nation as a whole. If all factors remain constant will current trends continue into the future? As recreation opportunities become scarce in other sections of the United States (i.e eastern US), what will be the effects on recreation within the CRB? Will there be a greater demand for specific recreation opportunities within the Columbia River Basin? The following section attempts to examine these questions by speculating about the future of recreation within the CRB.

## The Future of Recreation in the CRB

As previous sections of this report suggest, the recreational use of the CRB is substantial. Many visitors are engaging in a wide spectrum of activities in a variety of recreation settings. Trends suggest that recreation participation will continue to increase in the future. On the other hand, it appears that the supply level of various recreational opportunities will either remain constant, as only a minimal amount of funding is available for new land acquisition. In some situations, the supply of recreational opportunities may even decrease, as access to some public lands is being restricted due to liability concerns by private landowners.

As recreation participation increases some recreational opportunities may become scarce. For example, in wilderness settings, as more individuals engage in backcountry activities, the opportunities for solitude and escape may diminish significantly. Managers face the never ending challenge of determining effective management strategies to maintain the quantity as well as the quality of specific recreational opportunities. Knowledge of projected participation or demand levels can assist managers in prescribing specific management techniques which may be the most appropriate for maintaining quality experiences. Similarly, as greater demands are placed

on natural resources for both recreation and other land uses, the supply of recreation opportunities can be significantly affected. Understanding the potential availability of specific recreational opportunities in the future can help land management agencies design current management actions such that they will ensure that specific recreational opportunities will exist in the future.

The following section provides estimates on the demand for recreation experiences and the supply of opportunities. The projection analysis utilizes community consumption models based on the 1989 RPA Assessment to project recreation demand within the CRB until the year 2040. The Effective Recreation Opportunity Set (EROS) index is applied to determine the supply of recreation opportunities within the CRB until 2040. The EROS index compares the amount of recreation resources within 12 types of environments or settings available to a specific population level. In addition to demand and supply projections based on the 1989 RPA Assessment and EROS index, the SCORP's for each of the four states within the CRB provide recreation demand and supply projections for their specific state for the year 2000. SCORP demand and supply projections are presented to provide an additional estimate of future recreation within the CRB.

## Demand and Supply of Recreation in the CRB: 1993-2040<sup>16, 17</sup>

This section provides estimates of the demand for recreation trips (i.e. trips) and the effective supply of recreation opportunities in the Columbia River Basin (CRB). As described earlier, the CRB includes portions or all of the states of Washington, Oregon, Montana, Idaho, and Wyoming. For purposes of comparison, demand and supply estimates are also developed for the portions of these states that are outside the CRB.

The estimates of recreation trips developed in this paper are an application of the community consumption models estimated for the 1989 RPA Assessment of Outdoor Recreation and Wilderness (Cordell, et al. 1990; Cordell and Bergstrom 1991), and reported most recently in the 1993 RPA Update (English, et al. 1993). These models estimate the number of recreation trips produced/consumed by households in various locations as functions of the aggregate socioeconomic and resource opportunity characteristics of those locations.

The availability of recreation supply in and around the CRB was measured by the Effective Recreation Opportunity Set (EROS)

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<sup>16</sup>This sub-section (pages 123-140) was prepared by Donald B. K. English, Research Social Scientist (Economist), USDA Forest Service, Southeastern Forest Experiment Station, 320 Green St., Athens, GA 30602.

<sup>17</sup>Acknowledgements of Donald English: The models and projections used in the section come directly from work completed for the 1989 and 1993 RPA Assessments by the Outdoor Recreation and Wilderness Assessment Research project located in Athens, GA. Data preparations and analysis contributions by Carter Betz and Pedro Villegas, as well as review comments by Ken Cordell, are gratefully acknowledged.

index (English and Cordell 1993). This index is designed to allow comparisons across locations of the amount of recreation resources in each of 12 different types of environments or settings that are available to a population. The index accounts for not only the amount of resources, but also the size of the population that competes for use of those resources, and the relative distribution of the two. The EROS index was originally developed for the 1989 RPA Assessment, and updated in 1993. A detailed discussion of the conceptual background and calculation method for the effective supply measure can be found in English and Cordell (1993).

The 12 recreation environments in the EROS index are classified as follows:

LAND

- EROS 1: Wilderness and other extensive roadless areas
- EROS 2: Undeveloped areas near roads
- EROS 3: Partially developed, roaded sites
- EROS 4: Intensively developed sites

#### WATER

- EROS 5: Wild and remote lakes, streams, and rivers
- EROS 6: Lakes and streams near roads
- EROS 7: Lakes and streams adjoined by roads
- EROS 8: Intensively developed water sites

#### SNOW AND ICE

- EROS 9: Wilderness and other roadless areas
- EROS 10: Undeveloped areas near roads
- EROS 11: Partially developed, roaded areas
- EROS 12: Intensively developed winter sports sites

It is useful at this point to define several terms that will be used throughout the rest of this section. The phrase 'the CRB' will refer to the approximately 100 counties that have at least two percent of their land area in the watershed basin of the Columbia River. 'Counties near the CRB' indicates the remaining counties in the five-state region (ID, MT, OR, WA, WY) that have less than two percent of their land area in the basin. 'Production' and 'consumption' of recreation trips are used interchangeably to denote recreation trips actually taken by households (Cordell and Bergstrom 1991).

#### Recreation Demand

Table 24 shows the estimates of current total recreation trip production (i.e. trips to all destinations) by counties both in and near the CRB. Since demand projections were developed from an information request, some activity categories listed in Table 24 differ from previous activity categories. For many activities, the population in counties near the CRB produces two to four times more total trips than does the population that lives in the CRB. For example, counties in the CRB produced 5.1

million recreation trips for pleasure driving while counties near the CRB produced 10.6 million trips. For a few activities, such as downhill skiing, the non-CRB population produces six to eight times as many trips as the CRB resident population.

Table 24. Recreation Trip Production (i.e. trips to all destinations) in 1990 for Counties in the CRB Region by Origin Location and Activity.

| Activity             | Millions of Trips Produced by: |                   |       |
|----------------------|--------------------------------|-------------------|-------|
|                      | Counties in CRB                | Counties Near CRB | Total |
| Observing Wildlife   | 9.6                            | 39.1              | 48.7  |
| Photography          | 8.7                            | 33.4              | 42.1  |
| Nature Study         | 7.9                            | 32.8              | 40.7  |
| Day Hiking           | 7.4                            | 29.5              | 36.9  |
| Backpacking          | 7.3                            | 29.0              | 36.3  |
| Primitive Camping    | 7.1                            | 27.6              | 34.7  |
| Collecting Berries   | 6.9                            | 24.3              | 31.2  |
| Downhill Skiing      | 3.9                            | 24.3              | 28.2  |
| Canoeing/Kayaking    | 4.1                            | 21.6              | 25.7  |
| Gathering Firewood   | 6.7                            | 18.9              | 25.6  |
| Cross-country skiing | 6.4                            | 16.2              | 22.6  |
| Walking              | 5.9                            | 14.1              | 20.0  |
| Horseback Riding     | 5.3                            | 14.6              | 19.9  |
| Snowmobiling         | 5.9                            | 14.0              | 19.9  |
| Bicycling            | 5.2                            | 11.2              | 16.4  |
| Pleasure Driving     | 5.1                            | 10.6              | 15.7  |
| Motorboating         | 5.1                            | 6.5               | 11.6  |
| Sightseeing          | 3.1                            | 8.4               | 11.5  |
| Running/Jogging      | 3.6                            | 7.6               | 11.2  |
| Water skiing         | 4.7                            | 5.1               | 9.8   |
| Picnicking           | 2.7                            | 6.2               | 8.9   |
| Visiting Museums     | 2.3                            | 5.0               | 7.3   |
| Developed Camping    | 1.9                            | 3.8               | 5.7   |

|                         |        |        |        |
|-------------------------|--------|--------|--------|
| Non-Pool Swim           | 1.8    | 3.6    | 5.4    |
| Special Events          | 1.6    | 3.8    | 5.4    |
| Visiting Historic Sites | 1.7    | 3.3    | 5.0    |
| ORV Driving             | 2.1    | 2.6    | 4.7    |
| Family Gatherings       | 1.1    | 2.1    | 3.2    |
| Sailing                 | 0.7    | 1.0    | 1.7    |
| Visit Prehistoric Areas | 0.3    | 0.5    | 0.8    |
| Rafting/Tubing          | 0.2    | 0.1    | 0.3    |
| Outdoor Pool Swim       | 0.02   | 0.03   | 0.05   |
| TOTAL                   | 136.32 | 420.83 | 557.15 |

The distribution of 1990 trips by destination is presented in Table 25. Across almost every activity, there are more trips that have the CRB as their destination than have their origin. In other words, individuals living in the CRB engaged in 9.6 million recreation trips which involved observing wildlife (Table 24) while individuals participated in 22.1 million wildlife observing trips within the CRB (Table 25). However, the CRB is the destination for a majority of the trips produced by households in these states only for the activities of off-road vehicle driving (approximately 2.4 million) and rafting (0.2 million). Still, since more trips are consumed in the CRB than are produced there, the area can be considered to be a net exporter of recreation to the population in surrounding counties.

The overall consumption of recreation trips reported in Table 25 (223 million trips) is significantly greater than the

overall number of recreation trips reported in Table 2 (84 million). Much of the data reported in Table 2 is limited to participation on federal lands throughout the Basin. Additionally, several agencies did not respond to the request for

Table 25. Recreation Trip Demand in 1990 for Counties in the CRB Region by Destination and Activity.

| Activity             | Millions of Trips Consumed in: |                   |       |
|----------------------|--------------------------------|-------------------|-------|
|                      | Counties in CRB                | Counties Near CRB | Total |
| Observing Wildlife   | 22.1                           | 26.6              | 48.7  |
| Photography          | 18.6                           | 23.5              | 42.1  |
| Nature Study         | 17.7                           | 23.0              | 40.7  |
| Day Hiking           | 13.1                           | 23.8              | 36.9  |
| Backpacking          | 15.3                           | 21.0              | 36.3  |
| Primitive Camping    | 14.6                           | 20.1              | 34.7  |
| Collecting Berries   | 8.9                            | 22.3              | 31.2  |
| Downhill Skiing      | 9.9                            | 18.3              | 28.2  |
| Canoeing/Kayaking    | 9.9                            | 15.8              | 25.7  |
| Gathering Firewood   | 7.0                            | 18.6              | 25.6  |
| Cross-country skiing | 10.0                           | 28.2              | 22.6  |
| Walking              | 7.8                            | 12.2              | 20.0  |
| Horseback Riding     | 6.5                            | 13.4              | 19.9  |
| Snowmobiling         | 7.9                            | 12.0              | 19.9  |
| Bicycling            | 6.5                            | 9.9               | 16.4  |
| Pleasure Driving     | 6.6                            | 9.1               | 15.7  |
| Motorboating         | 5.5                            | 6.1               | 11.6  |

|                         |        |        |        |
|-------------------------|--------|--------|--------|
| Sightseeing             | 5.3    | 6.2    | 11.5   |
| Running/Jogging         | 4.5    | 6.7    | 11.2   |
| Water skiing            | 4.8    | 5.0    | 9.8    |
| Picnicking              | 2.9    | 6.0    | 8.9    |
| Visiting Museums        | 3.5    | 3.8    | 7.3    |
| Developed Camping       | 2.8    | 2.9    | 5.7    |
| Non-Pool Swim           | 2.0    | 3.4    | 5.4    |
| Special Events          | 2.2    | 3.2    | 5.4    |
| Visiting Historic Sites | 2.4    | 2.6    | 5.0    |
| ORV Driving             | 2.4    | 2.3    | 4.7    |
| Family Gatherings       | 1.5    | 1.7    | 3.2    |
| Sailing                 | 0.8    | 0.9    | 1.7    |
| Visit Prehistoric Areas | 0.4    | 0.4    | 0.8    |
| Rafting/Tubing          | 0.2    | 0.1    | 0.3    |
| Outdoor Pool Swim       | 0.02   | 0.03   | 0.05   |
| TOTAL                   | 136.32 | 420.83 | 557.15 |

participation data which is reported in Table 2. On the other hand, the data presented in Table 25 is based on community consumption models which include many state, county and municipal recreation sites.

For about two-thirds of the activities listed, there is expected to be greater percentage growth in the number of trips produced by counties near the CRB than in the number of trips produced by counties in the CRB (Table 26). Those activities for

which growth will be greater in the CRB include sightseeing, visiting historic sites, attending special events, gathering firewood, visiting prehistoric sites, day hiking, horseback riding, motorboating, canoeing/kayaking, and downhill skiing. For three-fourths of the activities, the percentage growth in trips produced by counties in the CRB and by counties near the CRB will be greater than the percentage growth in trips for the nation as a whole. Only for six activities, day hiking, backpacking, rafting, sailing, non-pool swimming, and downhill skiing, is the predicted national index in trips greater than for the counties in this CRB region. Thus, these findings suggest that demand for recreation will increase, but that increase in demand will be greater for individuals residing near the CRB than for those living within the CRB.

Table 26--Indices of Recreation Trip Demand in the Future, for Counties In the CRB, Near the CRB, and for the Nation as a Whole, by Activity.

| <u>Activity and Destination</u> | <u>Percent Change from 1990 Base Trips</u> |      |      |      |      |
|---------------------------------|--|------|------|------|------|
|                                 | 2000                                       | 2010 | 2020 | 2030 | 2040 |
| Developed Camping               |  |      |      |      |      |
| Outside CRB                     | 133  | 163  | 188  | 220  | 257  |
| Inside CRB                      | 129  | 157  | 183  | 216  | 250  |
| National                        | 120  | 138  | 158  | 178  | 195  |
| Picnicking                      |  |      |      |      |      |
| Outside CRB                     | 121  | 138  | 153  | 175  | 200  |
| Inside CRB                      | 119  | 136  | 151  | 172  | 197  |
| National                        | 110  | 120  | 131  | 145  | 156  |
| Sightseeing                     |  |      |      |      |      |
| Outside CRB                     | 110  | 121  | 132  | 150  | 171  |
| Inside CRB                      | 119  | 137  | 158  | 188  | 221  |
| National                        | 114  | 128  | 144  | 164  | 185  |

|                        |     |     |     |     |     |
|------------------------|-----|-----|-----|-----|-----|
| Family Gatherings      |     |     |     |     |     |
| Outside CRB            | 132 | 162 | 192 | 236 | 289 |
| Inside CRB             | 128 | 155 | 180 | 219 | 265 |
| National               | 121 | 139 | 160 | 182 | 202 |
| Pleasure Driving       |     |     |     |     |     |
| Outside CRB            | 122 | 140 | 155 | 175 | 198 |
| Inside CRB             | 119 | 135 | 147 | 163 | 180 |
| National               | 110 | 120 | 129 | 139 | 145 |
| Visiting Historic Site |     |     |     |     |     |
| Outside CRB            | 109 | 122 | 136 | 163 | 198 |
| Inside CRB             | 122 | 143 | 165 | 195 | 236 |
| National               | 117 | 133 | 152 | 178 | 204 |
| Special Events         |     |     |     |     |     |
| Outside CRB            | 128 | 152 | 174 | 205 | 240 |
| Inside CRB             | 127 | 152 | 175 | 209 | 246 |
| National               | 115 | 129 | 144 | 161 | 175 |
| Visiting Museums       |     |     |     |     |     |
| Outside CRB            | 131 | 160 | 187 | 227 | 276 |
| Inside CRB             | 129 | 155 | 180 | 216 | 255 |
| National               | 118 | 134 | 152 | 172 | 187 |

Table 26--Continued

| Activity and Destination | Percent Change from 1990 Base Trips |      |      |      |      |
|--------------------------|-------------------------------------|------|------|------|------|
|                          | 2000                                | 2010 | 2020 | 2030 | 2040 |
| Off-road Vehicle Driving |                                     |      |      |      |      |
| Outside CRB              | 108                                 | 116  | 122  | 133  | 146  |
| Inside CRB               | 108                                 | 115  | 120  | 129  | 138  |
| National                 | 104                                 | 108  | 112  | 118  | 121  |
| Bicycling                |                                     |      |      |      |      |
| Outside CRB              | 137                                 | 171  | 203  | 252  | 310  |
| Inside CRB               | 131                                 | 158  | 181  | 212  | 244  |
| National                 | 124                                 | 146  | 170  | 197  | 218  |
| Running/Jogging          |                                     |      |      |      |      |
| Outside CRB              | 140                                 | 179  | 214  | 270  | 337  |
| Inside CRB               | 132                                 | 160  | 186  | 224  | 263  |
| National                 | 131                                 | 160  | 192  | 229  | 260  |
| Walking                  |                                     |      |      |      |      |
| Outside CRB              | 125                                 | 147  | 166  | 196  | 229  |
| Inside CRB               | 121                                 | 138  | 151  | 170  | 192  |
| National                 | 116                                 | 132  | 148  | 168  | 183  |
| Gathering Firewood       |                                     |      |      |      |      |
| Outside CRB              | 112                                 | 117  | 120  | 122  | 125  |

|                            |     |     |     |     |     |
|----------------------------|-----|-----|-----|-----|-----|
| Inside CRB                 | 113 | 118 | 122 | 125 | 127 |
| National                   | 109 | 118 | 130 | 144 | 161 |
| Collecting Berries         |     |     |     |     |     |
| Outside CRB                | 114 | 121 | 124 | 127 | 129 |
| Inside CRB                 | 109 | 112 | 114 | 116 | 119 |
| National                   | 110 | 120 | 132 | 149 | 169 |
| Visiting Prehistoric sites |     |     |     |     |     |
| Outside CRB                | 117 | 132 | 148 | 172 | 204 |
| Inside CRB                 | 122 | 143 | 168 | 204 | 252 |
| National                   | 127 | 148 | 173 | 203 | 236 |
| Photography                |     |     |     |     |     |
| Outside CRB                | 124 | 137 | 146 | 152 | 159 |
| Inside CRB                 | 121 | 132 | 141 | 148 | 155 |
| National                   | 115 | 128 | 141 | 154 | 163 |
| Day Hiking                 |     |     |     |     |     |
| Outside CRB                | 122 | 132 | 140 | 144 | 149 |
| Inside CRB                 | 122 | 134 | 142 | 148 | 155 |
| National                   | 123 | 144 | 168 | 198 | 229 |

Table 26--Continued

| <u>Activity and Destination</u> | <u>Percent Change from 1990 Base Trips</u> |      |      |      |      |
|---------------------------------|--|------|------|------|------|
|                                 | 2000                                       | 2010 | 2020 | 2030 | 2040 |
| Horseback Riding                |  |      |      |      |      |
| Outside CRB                     | 121  | 130  | 138  | 142  | 146  |
| Inside CRB                      | 120  | 131  | 139  | 143  | 148  |
| National                        | 114  | 125  | 135  | 144  | 149  |
| Nature Study                    |  |      |      |      |      |
| Outside CRB                     | 120  | 130  | 137  | 142  | 147  |
| Inside CRB                      | 119  | 129  | 136  | 140  | 143  |
| National                        | 99   | 101  | 103  | 107  | 108  |
| Backpacking                     |  |      |      |      |      |
| Outside CRB                     | 124  | 136  | 146  | 154  | 163  |
| Inside CRB                      | 120  | 130  | 137  | 141  | 145  |
| National                        | 124  | 144  | 165  | 185  | 198  |
| Primitive Camping               |  |      |      |      |      |
| Outside CRB                     | 123  | 133  | 140  | 144  | 148  |
| Inside CRB                      | 120  | 130  | 137  | 141  | 146  |
| National                        | 108  | 115  | 122  | 130  | 134  |
| Observing Wildlife              |  |      |      |      |      |
| Outside CRB                     | 121  | 131  | 139  | 143  | 148  |

|                       |     |     |     |     |     |
|-----------------------|-----|-----|-----|-----|-----|
| Inside CRB            | 120 | 130 | 137 | 141 | 146 |
| National              | 107 | 113 | 120 | 120 | 130 |
| Outdoor Pool Swimming |     |     |     |     |     |
| Outside CRB           | 153 | 209 | 264 | 354 | 466 |
| Inside CRB            | 148 | 199 | 251 | 335 | 441 |
| National              | 135 | 166 | 200 | 237 | 267 |
| Motorboating          |     |     |     |     |     |
| Outside CRB           | 113 | 120 | 125 | 132 | 138 |
| Inside CRB            | 118 | 126 | 132 | 135 | 139 |
| National              | 107 | 114 | 122 | 131 | 138 |
| Waterskiing           |     |     |     |     |     |
| Outside CRB           | 117 | 127 | 135 | 144 | 153 |
| Inside CRB            | 120 | 129 | 136 | 140 | 144 |
| National              | 112 | 122 | 132 | 144 | 152 |
| Rafting/Tubing        |     |     |     |     |     |
| Outside CRB           | 101 | 127 | 142 | 226 | 367 |
| Inside CRB            | 121 | 132 | 139 | 147 | 158 |
| National              | 123 | 151 | 182 | 229 | 267 |

Table 26--Continued

| <u>Activity and Destination</u> | <u>Percent Change from 1990 Base Trips</u> |      |      |      |      |
|---------------------------------|--|------|------|------|------|
|                                 | 2000                                       | 2010 | 2020 | 2030 | 2040 |
| Canoeing/Kayaking               |  |      |      |      |      |
| Outside CRB                     | 119  | 130  | 137  | 143  | 150  |
| Inside CRB                      | 118  | 130  | 139  | 151  | 162  |
| National                        | 113  | 126  | 138  | 153  | 163  |
| Sailing                         |  |      |      |      |      |
| Outside CRB                     | 116  | 134  | 148  | 173  | 201  |
| Inside CRB                      | 109  | 122  | 131  | 154  | 180  |
| National                        | 141  | 181  | 226  | 279  | 322  |
| Non-pool Swimming               |  |      |      |      |      |
| Outside CRB                     | 107  | 114  | 119  | 129  | 141  |
| Inside CRB                      | 107  | 112  | 115  | 124  | 135  |
| National                        | 108  | 118  | 128  | 140  | 152  |
| Downhill Skiing                 |  |      |      |      |      |
| Outside CRB                     | 123  | 137  | 149  | 159  | 169  |
| Inside CRB                      | 129  | 153  | 182  | 216  | 254  |
| National                        | 160  | 207  | 256  | 305  | 338  |
| Cross-country Skiing            |  |      |      |      |      |
| Outside CRB                     | 156  | 201  | 215  | 225  | 236  |

|              |     |     |     |     |     |
|--------------|-----|-----|-----|-----|-----|
| Inside CRB   | 124 | 139 | 154 | 169 | 182 |
| National     | 125 | 136 | 142 | 141 | 126 |
| Snowmobiling |     |     |     |     |     |
| Outside CRB  | 128 | 140 | 150 | 156 | 163 |
| Inside CRB   | 122 | 134 | 142 | 147 | 151 |
| National     | 120 | 131 | 137 | 141 | 137 |

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Will the increase in demand for recreation, as illustrated above, affect consumption within the CRB? Table 27 presents indices of growth in trips according to the trip destination. For six activities, growth of at least 250% in trips to the CRB over the next 50 years is expected. These activities include developed camping, family gatherings, visiting museums, bicycling, running/jogging, and outdoor pool swimming. For about one-third of the activities, the percentage growth in trips with CRB as their destination will be greater than the percentage growth in trips with destinations to counties near the CRB. These activities include sightseeing, gathering firewood, visiting prehistoric sites, photography, day hiking, horseback riding, nature study, canoeing/kayaking, and downhill skiing. For several other activities, including primitive camping and motorboating, virtually no differences exist in the index across the two locations. For the rest of the activities, there will be a greater percentage growth in trips with destinations to counties near the CRB than there will be for trips with destinations inside the CRB.

Table 27--Indices of Recreation Trip Demand in the Future,  
by Destination Location and Activity

| <u>Activity and Destination</u> | <u>Percent Change from 1990 Base Trips</u> |      |      |      |      |
|---------------------------------|--|------|------|------|------|
|                                 | 2000                                       | 2010 | 2020 | 2030 | 2040 |
| Developed Camping               |  |      |      |      |      |
| Outside CRB                     | 133  | 162  | 188  | 222  | 259  |
| Inside CRB                      | 131  | 159  | 184  | 216  | 250  |
| Picnicking                      |  |      |      |      |      |
| Outside CRB                     | 120  | 138  | 153  | 174  | 199  |
| Inside CRB                      | 120  | 136  | 152  | 173  | 198  |
| Sightseeing                     |  |      |      |      |      |
| Outside CRB                     | 112  | 125  | 138  | 160  | 183  |
| Inside CRB                      | 113  | 126  | 140  | 161  | 186  |
| Family Gatherings               |  |      |      |      |      |
| Outside CRB                     | 131  | 161  | 190  | 234  | 287  |
| Inside CRB                      | 130  | 158  | 185  | 226  | 275  |
| Pleasure Driving                |  |      |      |      |      |
| Outside CRB                     | 122  | 139  | 153  | 173  | 194  |
| Inside CRB                      | 121  | 137  | 151  | 169  | 189  |
| Visiting Historic Sites         |  |      |      |      |      |
| Outside CRB                     | 113  | 128  | 145  | 173  | 211  |
| Inside CRB                      | 114  | 131  | 148  | 175  | 210  |
| Special Events                  |  |      |      |      |      |
| Outside CRB                     | 128  | 152  | 174  | 206  | 242  |
| Inside CRB                      | 128  | 152  | 174  | 207  | 242  |

Table 27--Indices of Future Recreation Trip Demand (Continued)

| <u>Activity and Destination</u> | <u>Percent Change from 1990 Base Trips</u> |      |      |      |      |
|---------------------------------|--|------|------|------|------|
|                                 | 2000                                       | 2010 | 2020 | 2030 | 2040 |
| Visiting Museums                |  |      |      |      |      |
| Outside CRB                     | 131  | 160  | 187  | 228  | 277  |
| Inside CRB                      | 130  | 157  | 182  | 218  | 261  |
| Off-road Vehicle Driving        |  |      |      |      |      |
| Outside CRB                     | 108  | 116  | 122  | 133  | 145  |
| Inside CRB                      | 107  | 114  | 120  | 130  | 140  |
| Bicycling                       |  |      |      |      |      |
| Outside CRB                     | 136  | 169  | 198  | 244  | 297  |
| Inside CRB                      | 134  | 165  | 192  | 232  | 276  |
| Running/Jogging                 |  |      |      |      |      |
| Outside CRB                     | 139  | 175  | 209  | 260  | 322  |

|                            |     |     |     |     |     |
|----------------------------|-----|-----|-----|-----|-----|
| Inside CRB                 | 136 | 169 | 199 | 247 | 300 |
| Walking                    |     |     |     |     |     |
| Outside CRB                | 124 | 146 | 163 | 191 | 222 |
| Inside CRB                 | 123 | 143 | 160 | 184 | 211 |
| Gathering Firewood         |     |     |     |     |     |
| Outside CRB                | 111 | 117 | 120 | 122 | 124 |
| Inside CRB                 | 113 | 119 | 123 | 125 | 128 |
| Collecting Berries         |     |     |     |     |     |
| Outside CRB                | 114 | 121 | 124 | 127 | 129 |
| Inside CRB                 | 110 | 114 | 116 | 119 | 121 |
| Visiting Prehistoric sites |     |     |     |     |     |
| Outside CRB                | 118 | 135 | 154 | 183 | 221 |
| Inside CRB                 | 119 | 137 | 157 | 186 | 224 |
| Photography                |     |     |     |     |     |
| Outside CRB                | 123 | 135 | 144 | 150 | 156 |
| Inside CRB                 | 124 | 137 | 146 | 153 | 160 |
| Day Hiking                 |     |     |     |     |     |
| Outside CRB                | 121 | 132 | 139 | 144 | 149 |
| Inside CRB                 | 123 | 134 | 142 | 147 | 152 |
| Horseback Riding           |     |     |     |     |     |
| Outside CRB                | 120 | 130 | 137 | 141 | 145 |
| Inside CRB                 | 121 | 132 | 140 | 145 | 149 |
| Nature Study               |     |     |     |     |     |
| Outside CRB                | 120 | 130 | 136 | 141 | 145 |
| Inside CRB                 | 121 | 131 | 138 | 142 | 147 |

Table 27--Indices of Future Recreation Trip Demand (Continued)

| <u>Activity and Destination</u> | <u>Percent Change from 1990 Base Trips</u> |      |      |      |      |
|---------------------------------|--|------|------|------|------|
|                                 | 2000                                       | 2010 | 2020 | 2030 | 2040 |
| Backpacking                     |  |      |      |      |      |
| Outside CRB                     | 123  | 134  | 144  | 150  | 158  |
| Inside CRB                      | 124  | 136  | 146  | 153  | 161  |
| Primitive Camping               |  |      |      |      |      |
| Outside CRB                     | 123  | 133  | 140  | 144  | 147  |
| Inside CRB                      | 122  | 132  | 140  | 144  | 147  |
| Observing Wildlife              |  |      |      |      |      |
| Outside CRB                     | 121  | 131  | 138  | 142  | 147  |
| Inside CRB                      | 121  | 132  | 139  | 144  | 149  |
| Outdoor Pool Swimming           |  |      |      |      |      |

|                      |     |     |     |     |     |
|----------------------|-----|-----|-----|-----|-----|
| Outside CRB          | 153 | 208 | 264 | 353 | 466 |
| Inside CRB           | 148 | 200 | 251 | 336 | 442 |
| Motorboating         |     |     |     |     |     |
| Outside CRB          | 114 | 123 | 128 | 134 | 140 |
| Inside CRB           | 115 | 123 | 128 | 133 | 138 |
| Waterskiing          |     |     |     |     |     |
| Outside CRB          | 118 | 129 | 136 | 144 | 151 |
| Inside CRB           | 118 | 128 | 135 | 140 | 146 |
| Rafting/Tubing       |     |     |     |     |     |
| Outside CRB          | 99  | 123 | 137 | 216 | 349 |
| Inside CRB           | 122 | 133 | 140 | 148 | 160 |
| Canoeing/Kayaking    |     |     |     |     |     |
| Outside CRB          | 119 | 129 | 137 | 143 | 150 |
| Inside CRB           | 120 | 131 | 139 | 147 | 155 |
| Sailing              |     |     |     |     |     |
| Outside CRB          | 115 | 132 | 145 | 171 | 198 |
| Inside CRB           | 111 | 125 | 136 | 159 | 186 |
| Non-pool Swimming    |     |     |     |     |     |
| Outside CRB          | 107 | 114 | 119 | 129 | 141 |
| Inside CRB           | 107 | 112 | 116 | 125 | 135 |
| Downhill Skiing      |     |     |     |     |     |
| Outside CRB          | 124 | 138 | 152 | 165 | 177 |
| Inside CRB           | 125 | 141 | 156 | 171 | 188 |
| Cross-country Skiing |     |     |     |     |     |
| Outside CRB          | 148 | 185 | 199 | 210 | 220 |
| Inside CRB           | 146 | 182 | 196 | 208 | 221 |

Table 27--Indices of Future Recreation Trip Demand (Continued)

| Activity and Destination | Percent Change from 1990 Base Trips |      |      |      |      |
|--------------------------|-------------------------------------|------|------|------|------|
|                          | 2000                                | 2010 | 2020 | 2030 | 2040 |
| Snowmobiling             |                                     |      |      |      |      |
| Outside CRB              | 127                                 | 139  | 148  | 154  | 161  |
| Inside CRB               | 126                                 | 137  | 146  | 152  | 158  |

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Recreation Supply

As measured by the EROS index, counties in the CRB have, on

average, substantially greater amounts of available recreation resources compared to the national average (Table 28). The counties inside the CRB also show greater availability than do the counties near the CRB for all recreation environments except lakes and streams near roads (EROS 7). The greatest area of comparative advantage for the CRB counties appears to be in the undeveloped and partially developed land settings (EROS 2 and EROS 3). Since the same resources are used in the summer for land recreation and in the winter for snow and ice recreation, this advantage extends to the associated winter settings (EROS 10 and EROS 11). Another area of resource advantage for the CRB over the surrounding area is in the wild and remote water environment (EROS 5), where the average for CRB counties is nearly three times the national average, and more than double the average for counties near the CRB.

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Table 28. Mean Effective Recreation Opportunity Set (EROS) Values for Counties in and near the CRB, and for the Nation as a Whole, 1993.

| Recreation Setting | Counties Near CRB | Counties in CRB | National Average |
|--------------------|-------------------|-----------------|------------------|
| LAND:              |                   |                 |                  |
| EROS 1             | 13.42             | 15.03           | 8.00             |
| EROS 2             | 26.15             | 32.69           | 8.16             |
| EROS 3             | 32.84             | 38.30           | 11.20            |
| EROS 4             | 31.77             | 36.09           | 18.29            |
| WATER:             |                   |                 |                  |
| EROS 5             | 5.40              | 14.12           | 4.88             |
| EROS 6             | 23.77             | 29.23           | 13.40            |
| EROS 7             | 21.64             | 18.53           | 10.93            |
| EROS 8             | 15.44             | 19.50           | 15.45            |
| SNOW/ICE:          |                   |                 |                  |
| EROS 9             | 14.77             | 17.32           | 6.58             |
| EROS 10            | 29.59             | 34.33           | 6.57             |
| EROS 11            | 39.67             | 48.31           | 9.48             |
| EROS 12            | 26.15             | 29.38           | 9.18             |

Predicted changes in the availability of resources is expected to be nearly identical for counties in the CRB and for those near the CRB (Table 29). These parallel trends are due to the similarity in expected resource and population changes for these two sets of counties. As a result, the comparative advantage in available recreation resources now enjoyed by the CRB counties over their neighbors can be expected to continue into the future. However, unless substantial new investments in

development of recreation resources occurs, effective opportunities will generally decline everywhere, due primarily to population growth.

Table 29. Indices of Effective Recreation Opportunities in the Future for Counties in and Near the CRB

| Recreation Setting |             | Percent Change from 1990 Base Value |      |      |      |      |
|--------------------|-------------|-------------------------------------|------|------|------|------|
|                    |             | 2000                                | 2010 | 2020 | 2030 | 2040 |
| EROS 1             | Outside CRB | 97                                  | 95   | 94   | 91   | 89   |
|                    | Inside CRB  | 97                                  | 95   | 93   | 90   | 88   |
| EROS 2             | Outside CRB | 97                                  | 94   | 91   | 88   | 85   |
|                    | Inside CRB  | 96                                  | 93   | 90   | 86   | 83   |
| EROS 3             | Outside CRB | 95                                  | 92   | 88   | 84   | 81   |
|                    | Inside CRB  | 95                                  | 91   | 88   | 84   | 81   |
| EROS 4             | Outside CRB | 104                                 | 108  | 111  | 114  | 117  |
|                    | Inside CRB  | 104                                 | 108  | 111  | 115  | 118  |
| EROS 5             | Outside CRB | 100                                 | 101  | 101  | 101  | 101  |
|                    | Inside CRB  | 100                                 | 101  | 101  | 101  | 101  |
| EROS 6             | Outside CRB | 98                                  | 97   | 96   | 95   | 94   |
|                    | Inside CRB  | 98                                  | 97   | 96   | 94   | 93   |
| EROS 7             | Outside CRB | 103                                 | 105  | 107  | 109  | 111  |
|                    | Inside CRB  | 103                                 | 105  | 107  | 109  | 111  |
| EROS 8             | Outside CRB | 106                                 | 111  | 116  | 121  | 126  |
|                    | Inside CRB  | 106                                 | 111  | 116  | 121  | 125  |
| EROS 9             | Outside CRB | 98                                  | 97   | 96   | 94   | 93   |
|                    | Inside CRB  | 98                                  | 97   | 95   | 94   | 93   |
| EROS 10            | Outside CRB | 97                                  | 95   | 93   | 90   | 89   |
|                    | Inside CRB  | 97                                  | 95   | 92   | 89   | 87   |
| EROS 11            | Outside CRB | 87                                  | 84   | 81   | 79   | 76   |
|                    | Inside CRB  | 88                                  | 85   | 82   | 80   | 78   |

|         |             |     |     |     |     |     |
|---------|-------------|-----|-----|-----|-----|-----|
| EROS 12 | Outside CRB | 107 | 111 | 113 | 115 | 117 |
|         | Inside CRB  | 107 | 111 | 113 | 115 | 117 |

For most recreation environments, the resource base for the western portion of the U.S. is expected to grow more rapidly or decline more slowly compared to the eastern portion of the country (English, et al., 1993, Table 14). As a result, the differences between the availability of resources in the CRB (as well as the surrounding area) compared to the nation as a whole can be expected to increase into the future.

The data presented in this section indicates two important and related conclusions. First, the relative percentages in Tables 26 and 27 indicate that the CRB area will become an increasingly larger exporter (i.e. individuals from outside the CRB travel to the Basin for recreation purposes) of recreation trips to surrounding areas in the future. Second, given the improved position of the CRB with respect to wild and semi-wild recreation resources in the future, it is quite possible that resources in the CRB (and in the surrounding area) will become even more desirable recreation destinations for persons from other portions of the country. However, demand for use of recreation resources in the CRB by persons in other portions of the country was not explicitly considered in this report, therefore future research may want to examine the demand for recreation experiences in the CRB by individuals living outside the immediate vicinity of the Basin.

As with any analysis of this type, explicit recognition of limitations and important assumptions are necessary. Consumption coefficients were obtained from English, et al. (1993) to produce the demand indices presented above. These indices are based on assumptions that (1) the coefficients are not different for the CRB area population compared to the U.S. as a whole, and (2) that these coefficients will be stable over time. The predicted changes in available recreation resources are based on an extrapolation of past trends. A useful research effort would be to test the extent to which these assumptions hold true for the CRB and surrounding counties.

#### **SCORP Recreation Demand Projections<sup>18</sup>**

The State Comprehensive Outdoor Recreation Plan (SCORP) documents for each of the four CRB states provide recreation demand projections. Table 30 summarizes projected recreation participation reported in activity occasions for the year 2000 by state and the twelve activity categories. A grand projected total for the CRB can not be obtained from the data since projection measurement and calculations varied among the four states.

Oregon's projection data was obtained from the *Recreational Needs Bulletin, Oregon State Comprehensive Outdoor Recreation Plan, 1991*. The data includes only that portion of eastern Oregon within the CRB (i.e. Regions 10, 11 and 12). Projections

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<sup>18</sup>This section was mainly prepared by Karen Perrault, Outdoor Recreation Planner, Prineville District, BLM, Prineville, OR.

for the year 2000 indicate that day use activities, trail use and camping will be the most popular recreational activities in eastern Oregon. On the other hand, motorized boating and motorized winter sports are projected to have the lowest participation levels of the twelve recreation categories. When comparing the projected levels of participation with 1987 participation levels (Table 1), viewing wildlife is expected to have the greatest percent increase -- 52%. Day use activities (35%) and trail use (35%) are also expected to increase significantly. Motorized winter sports (13%), hunting (14%) and motor boating (15%) are expected to have only slight increases in participation.

Washington projection data was acquired from the *Washington Outdoors: Assessment and Policy Plan 1990-1995*. Data includes only those portions of Washington (State Regions 3 and 4) within the Columbia River Basin. Day use activities will continue to be the most popular recreational activities within eastern Washington. Similarly, nonmotorized winter sports and trail use will remain preferred activities among recreation users. However, participation levels in motorized winter sports and non-motorized boating will remain comparatively low. Participation levels in camping and day use activities are expected to have the greatest increase (21%) of the twelve activity categories. Motor viewing and non-motorized winter sports will also increase significantly (20%) from 1987 participation levels. Increases in

participation will be slight for hunting ( 9%), fishing (10%) and motor boating (12%).

Recreation projections for Idaho are based on information within the *Idaho Outdoor Recreation Plan* (1983 SCORP). The projections are based on a number of data sources including surveys conducted for the SCORP process, camping origin-destination surveys for the Idaho State Parks system, and the US Forest Service's Rec-Zip Program. Discretion should be used when applying the Idaho projections for the year 2000. The data provided by the 1983 SCORP appear to be significantly higher than the other three states' participation levels. The Idaho SCORP indicates that much of the data used to make these projections was extremely limited in certainty. Nevertheless, data suggests that trail use will be the most popular recreational activity in Idaho. Day use and motor viewing will also have extremely high levels of participation. Similar to Oregon, motor boating is expected to have the lowest participation

Table 30--Recreation participation using State Comprehensive Outdoor Recreation Plans, 2000.

| Recreation Activity                 | Number of Projected Activity Occasions <sup>a</sup> by state and percent change from 1987 SCORP Plans |    |               |     |                         |    |                         |    |
|-------------------------------------|---|----|---------------|-----|-------------------------|----|-------------------------|----|
|                                     | E. Oregon   |    | E. Washington |     | Idaho                   |    | W. Montana <sup>a</sup> |    |
| Trail use <sup>b</sup>              | 4,876,644   | 35 | 2,069,000     | 18  | 94,852,400              | 94 | 5,370,164               | 24 |
| Camp <sup>c</sup>                   | 4,524,531   | 28 | 1,646,000     | -21 | 13,698,300              | 70 | 804,644                 | 20 |
| Hunt <sup>d</sup>                   | 1,413,425   | 14 | 885,000       | 9   | 6,730,800               | 48 | 803,941                 | 20 |
| Fish <sup>e</sup>                   | 2,547,333   | 26 | 1,923,000     | 10  | 12,748,600              | 53 | 1,367,278               | 20 |
| Nonmotor boat <sup>f</sup>          | 747,725   | 33 | 366,000       | 19  | 9,730,300 <sup>g</sup>  | 87 | 318,609                 | 21 |
| View wildlife                       | 2,122,305   | 52 | 740,000       | 18  | N/A                     |    | 1,628,408               | 20 |
| Day use <sup>h</sup>                | 5,886,288   | 35 | 5,194,000     | 21  | 40,571,300              | 75 | 1,555,843               | 20 |
| Motor boat <sup>i</sup>             | 498,617   | 15 | 883,000       | 12  | 4,469,300               | 51 | 529,856                 | 20 |
| Motor viewing                       | 2,142,951   | 25 | 1,766,000     | 20  | 39,429,500              | 89 | N/A                     |    |
| ORV use <sup>j</sup>                | 2,117,322   | 30 | 1,041,000     | 18  | N/A                     |    | 543,650                 | 21 |
| Nonmotor winter sports <sup>k</sup> | 1,355,370   | 32 | 2,439,000     | 20  | 12,148,500 <sup>l</sup> | 70 | 676,988                 | 20 |
| Motor winter sports <sup>m</sup>    | 157,936   | 13 | 310,000       | 16  | N/A                     |    | 154,177                 | 22 |

N/A=no data available

<sup>a</sup> Activity occasions=participation in a given activity for one person for any part of a 24 hour period.

<sup>b</sup> Trail use includes bicycle riding off-road, day hiking, backpacking on and off trails and horseback riding.

<sup>c</sup> Camp includes by boat, with and without packstock, with an organized group and in a recreation vehicle and tent with motorized vehicle.

<sup>d</sup> Hunt includes big and small game, waterfowl, upland birds and bow hunting.

<sup>e</sup> Fish includes freshwater boat and bank or dock.

<sup>f</sup> Nonmotor boat includes canoeing, kayaking, rafting, sailing, windsurfing, sailboarding and lake and river boating.

<sup>g</sup> Data includes motorboat activities except for waterskiing.

<sup>h</sup> Day use includes beach use, climbing, mountaineering, outdoor photography, picnicking, swimming and visits to interpretive centers.

<sup>i</sup> Motor boat includes waterskiing and lake and river boating.

<sup>j</sup> Off-road vehicle use includes ATV, dunebug and fourwheel driving and motorcycling.

<sup>k</sup> Nonmotor winter sports include cross-country and downhill skiing, sledding, snowboarding, snow play and ice skating.

<sup>l</sup> Data may include snowmobiling and ATV driving in the snow.

<sup>m</sup> Motor winter sports include snowmobiling and ATV driving in the snow.

<sup>n</sup> Montana percentage increase based on 1987 data.

among the twelve activity categories. Due to the uncertain data used to forecast future participation levels, the percent increase in participation from 1987 to 2000 appears astronomical in proportion. Future research needs to collect solid recreation use data and apply reliable projection models to estimate future recreation use.

Lastly; Montana projection data was obtained from the 1988 *Montana State Comprehensive Outdoor Recreation Plan*. The data is based on the Montana Outdoor Recreation Needs Survey conducted in 1985. Participation levels were available for the region of the state within the CRB. However, projected recreational use was only available at the state level. A ratio process was utilized to determine the amount of projected use for the region of Montana within the CRB. Participation for each recreation activity in Regions 1 and 2 from Figure 11 in the SCORP was divided by the state's total 1985 participation level for that activity. This percentage (approximately 20%) was multiplied by the overall state's projected participation level for the year 2000 to obtain the projected use for Regions 1 and 2 by activity.

In Montana, trail use is projected to be the most popular recreational activity in the year 2000. Viewing wildlife, day use activities and fishing also are expected to remain extremely popular in Montana. Motorized winter sports and non-motorized boating are projected to have the lowest participation levels

among the twelve activity categories. All of the twelve recreational activity categories in Montana are expected to increase between 25 and 31 percent from 1985 to 2000 with trail use expected to have the greatest level of increase.

Comparisons of 1987 use with projections for the year 2000 reveal expected increases in participation for all recreation activities. Overall, day use and trail use are expected to experience the greatest amount of growth in terms of activity occasions. Motorized winter sports and boating (both motorized and non-motorized) are projected to experience the least amount of growth among the twelve activity categories. Though the projection of these activities is expected to be somewhat low compared to other activities, data suggests these activities will remain quite popular.

Computing the anticipated percent increase in participation in the twelve recreation categories suggests potential trends and shifting interests in future recreation pursuits. Of significant interest is the anticipated increase in wildlife viewing in eastern Oregon. When compared with only a 17% projected increase in hunting in eastern Oregon, it appears that non-consumptive uses will continue to grow in popularity.

#### **Potential International Visitation to the CRB**

As the previous two sections suggest, the CRB is expected to be a major exporter of recreational opportunities in the

future. The many unique natural characteristics, such as wild rivers, vast acreage of wilderness and large populations of big game species attract millions of recreation visitors to the CRB. As the supply of recreation opportunities, especially those within primitive settings, diminishes in more populated regions of the United States, visitation to the CRB is expected to increase. Not only will visitors be attracted to the CRB from within the US, but visitors will be attracted from all areas of the world. This section examines the projected demand for recreation by international visitors. The boundaries of the CRB make it difficult to obtain visitation projections specific to the basin. Thus, the following discussion examines international tourism projections for the nation as a whole. It is assumed that future international visitation to the CRB will follow national visitation projection patterns.

Edgell (1993) indicates that international visitors to the United States will increase substantially over the next ten years. Table 31 indicates the past, present and future of international visitation to the United States. Data suggests international visitation to the US has been increasing over the past thirty years and is projected to increase in the future. Additionally, the United State's share of the world tourism market appears to be growing and is expected to increase as we approach the millennium. Projections indicate that the US will be responsible for supplying the world with a greater percentage of the world tourism market in the future (i.e. 10.3% of the

entire world tourism market by the year 2000). As the US accepts more and more of the world market, it is expected that more demand will be placed on the tourism opportunities within the CRB.

Tables 6 and 7 of this report indicate Canadian and other international visitation rates for 1993. International visitation to the CRB was projected for the year 2000 based on the national figures presented in Table 31. Edgell (1993) reported that approximately 47.9 million international visitors were expected to visit the United States in 1993. Seventy-seven million are expected to travel to the US in the year 2000 (Table 31), a 62% increase from 1993. To predict future international visitation to the CRB, visitation levels reported in Tables 6 and 7 of this report were multiplied by 62 percent to determine the increase in CRB international visitation expected for the year 2000. Since the sixty-two percent increase which Edgell (1993) suggests

Table 31. Actual and Projected International Visitation to the US, 1960-2000.

| Year                 | US Arrivals<br>(millions) | Percent Change<br>from Five<br>Years Earlier | United States<br>Share of the<br>World Market<br>(in percent) |
|----------------------|---------------------------|--|---|
| 1960                 | 5.6                       | --   | 8.1   |
| 1965                 | 7.8                       | 40   | 6.9   |
| 1970                 | 12.4                      | 59   | 7.5   |
| 1975                 | 15.7                      | 27   | 7.1   |
| 1980                 | 22.3                      | 42   | 7.7   |
| 1985                 | 25.4                      | 14   | 7.7   |
| 1990                 | 39.5                      | 56   | 8.7   |
| 1995 (Projected<br>) | 54.2                      | 37   | 9.6   |
| 2000 (Projected<br>) | 77.4                      | 43   | 10.3  |

Source: Edgell, D. L. 1993. World Tourism at the Millennium: an agenda of industry, government and education. US Travel and Tourism Administration. US Department of Commerce, pg. 67.

seems somewhat optimistic two other predicted scenarios, 40% and 50% visitation increase, are also illustrated.

Table 32 provides the 1993 visitation levels and projected visitation levels for the year 2000 based on three scenarios, 40, 50 and 62 percent increases. Projected use estimates assume that CRB international visitation will follow national visitation patterns. USTTA (1993) estimated that over 4 million Canadians visited the four states of the CRB. To determine the projected increase to the year 2000, 1992 visitation was multiplied by 40, 50 and 62 percent and added to the 1992 data to obtain projected data for 2000. Thus, at the 62% increase level, it is projected

that almost 7 million international visitors may visit the four states of the CRB in the year 2000.

Table 32. 1992 International Visitation to the Columbia River Basin and Projected International Visitation to the CRB for the year 2000.

| Country of Residence      | 1992 Estimate<br>d<br>Visitation | Projected Visitation<br>in 2000 <sup>a</sup> |           |           |
|---------------------------|----------------------------------|--|-----------|-----------|
|                           |                                  | 40%  | 50%       | 62%       |
| Canada                    | 4,141,200 <sup>b</sup>           | 5,797,680                                    | 6,211,800 | 6,708,744 |
| Germany                   | 26,076                           | 36,506                                       | 39,114    | 42,243    |
| United Kingdom            | 30,135                           | 42,189                                       | 45,202    | 48,819    |
| Netherlands               | 5,412                            | 7,577  | 8,118     | 8,767     |
| Other Western Europe      | 20,295                           | 28,413                                       | 30,443    | 32,881    |
| Eastern Europe            | 369                              | 517  | 554       | 598       |
| Caribbean                 | 246                              | 344  | 369       | 399       |
| South America             | 984                              | 1,378  | 1,476     | 1,594     |
| Central America           | 1,845                            | 2,583  | 2,768     | 2,989     |
| Africa                    | 738                              | 1,033  | 1,107     | 1,196     |
| Middle East               | 984                              | 1,378  | 1,476     | 1,594     |
| Far East (except Japan)   | 7,995                            | 11,193                                       | 11,993    | 12,952    |
| Japan                     | 21,156                           | 29,618                                       | 31,734    | 34,273    |
| Oceania (Aust./N Zealand) | 6,765                            | 9,471  | 10,148    | 10,959    |
|                           |                                  |  |           |           |
| TOTAL                     | 4,264,200                        | 5,969,880                                    | 6,396,302 | 6,908,008 |

<sup>a</sup> Based on an expected 62% increase in visitation (Edgell 1993).

<sup>b</sup> 1992 visitation data. Visitation for entire four state region, not specific to the CRB.

## Comparative Advantage of the CRB in Providing Recreation

Previous sections of this report indicate that recreation will continue to be an important land use of public lands within the Columbia River Basin. For the most part, recreation participation within the Basin has increased steadily over the past ten years and is projected to continue to increase. Supply levels for some recreation opportunities are expected to increase, especially those opportunities which are provided within developed settings. The amount of CRB recreational opportunities provided within primitive settings are expected to decrease somewhat, but the rate of decrease is projected to be much slower than that of the nation as a whole.

Recreation use projections also indicate that the CRB will become an increasingly greater exporter (i.e. individuals will travel to the Basin for recreation purposes) of recreation trips. In other words, individuals who reside outside the borders of the CRB will travel to the CRB to seek recreation experiences. Given that the CRB is expected to become a major exporter of recreation, to what extent does the CRB have an advantage over other areas of the nation in providing the public with recreational opportunities? The following section examines the advantage that the CRB may have over other regions of the United States for providing specific recreational opportunities. Specifically, this section will identify why individuals residing in areas outside the Basin may be attracted to the Basin for recreational purposes. Four areas will be compared to the CRB:

(1) counties adjacent to the Basin, (2) the cities of Portland and Seattle, (3) California and (4) the nation as a whole.

#### Counties Adjacent to the CRB

English (1994) indicates that the counties of the CRB has several major advantages over the counties surrounding the Basin in providing recreational opportunities. First, when examining recreation supply, the CRB, for the most part, currently provides more recreational opportunities than the counties adjacent to the CRB. The greatest advantage the CRB has over counties directly outside the Basin appears to be that the CRB provides more recreational opportunities in undeveloped and partially developed land and snow/ice settings (EROS 2, 3, 10, 11) (see Table 28). Additionally, the CRB also has a large advantage over counties near the CRB in providing wild and remote water environment recreational opportunities. One exception does exist. Counties directly outside the CRB can provide more recreational opportunities within water settings which are adjoined by roads (EROS 7). Thus, the CRB has an advantage over surrounding counties in that it has the potential to provide more recreational opportunities in undeveloped, remote settings. Projections about future recreation supply indicates that both the CRB and adjacent counties will experience similar trends in opportunity availability (Table 29). Opportunities in more developed sites will increase, while opportunities in remote

settings are expected to decline.

#### Major Metropolitan Areas Outside the CRB

Deller and Miller (1994) suggest that a significant amount of recreation occurring in the CRB, particularly the edge of the Basin nearest a specific metropolitan area, is engaged in by residents of Seattle and Portland areas. The Columbia Basin is easily accessible to residents of these two cities. The western border of the CRB is approximately 50 miles from both cities. Though many recreational opportunities exist on the west slope of the Cascades, the large population base of the Portland - Seattle corridor places a large demand on those resources. Since the population levels within the CRB tend to be much lower than the west slope and the CRB is easily accessible, more opportunities for escape and uncrowded settings may exist within the CRB than on the west slope. Thus, much of the recreational use occurring within the CRB, especially that on the extreme western edge, may be engaged in primarily by Portland and Seattle residents. Unfortunately, specific use data by residence is not readily available. Additionally, specific information on the types of activities residents of the Portland and Seattle participate in while visiting the CRB is lacking. Since these two major metropolitan areas lie within close proximity to the CRB and many Portland and Seattle residents travel to the CRB, future research must gather information on the recreation needs and demands of these individuals.

### California Versus the CRB

In a recent study of Californians travel to the Pacific Northwest (data specific to the CRB was not available), visitors were asked to indicate whether they perceived certain aspects of a trip to the Northwest as better or worse than a trip to another destination (Angus Reid Group, Inc. 1993). Visitors indicated that they believe the Northwest provides better travel experiences for viewing wildlife and nature, getting away from the demands of home and/or work, feeling safe and secure, snow skiing, meeting friendly local people, and obtaining experiences not found in California. However, visitors felt that the Northwest did not provide them with opportunities to indulge in luxury, increase knowledge or see native culture. Since the Northwest has a rich history of Native American peoples, it is surprising that visitors indicated that little opportunity existed for seeing native cultures, thus indicating a need to better advertise current native cultural exhibits and develop additional opportunities within this arena. Nevertheless, Californians perceive that the Northwest provides them with several major experiences which they may have difficulty obtaining elsewhere.

### Nation Versus the CRB

On a national level, a large public land base and relatively small population gives the CRB a great advantage over other regions, especially the east coast. Though no studies have

identified the specific advantages the CRB may have over the eastern United States, Cordell et al. (1990) discuss several advantages the western US may have over the eastern US in providing recreational opportunities. Land-based recreational opportunities tend to be five to fifteen times greater for the western portion of the US than the east. In the east, recreational opportunities which depend upon wilderness or roadless areas settings are relatively scarce. Water-based recreational opportunities tend to be more evenly distributed among the eastern and western regions of the US.

Another advantage the west has over the east is the level of user density. Crowding tends to much more of a potential impact on recreation experiences in the east than the west. Minimal amounts of undeveloped land in close proximity to population centers is available for recreation in the east. Thus, many people rely heavily upon a limited amount of resources to provide them with recreational opportunities. Given this ratio, the undeveloped land available for recreational opportunities has an overwhelming potential to be extremely crowded. On the other hand, vast tracts of relatively undeveloped lands exist in the western half of the US. Many large population centers have easy access, often less than an hour drive, to a vast amount of undeveloped land for recreational engagements. Given the large land base available, recreation users tend to disperse themselves over a broad area to obtain their desired experience. Though some recreation sites (i.e.

Colorado River in the Grand Canyon) in the west do receive high levels of visitation and require specific management actions to reduce crowding and conflict, most of the western US tends to have fewer crowding problems than the east.

To summarize, the CRB has several major advantages over much of the recreational lands elsewhere in the United States. The CRB has vast amounts of the undeveloped land which provides opportunities for wilderness oriented activities and experiences. The CRB is projected to maintain the supply of recreational opportunities within this land classification, while supply levels of undeveloped lands in areas surrounding the CRB are expected to decrease. Due to the large amount of public land and undeveloped land within the CRB, many opportunities for escape (i.e. few crowding problems) will continue to exist within the Basin.

#### **Potential Issues, Attitudes, and Policies Affecting CRB Recreation**

The following section briefly discusses several topics on which very limited information is available: (1) future issues of concern to CRB recreation, and (2) visitor attitudes toward and perceptions of impacts from potential management actions which may affect recreation in the future.

#### **Future Issues of Concern**

The CRB is not immune to the variety of issues which natural resource management currently encounter and most likely will continue to encounter in the future. Many of the issues presented earlier in this report will, in all probability, continue to be issues of concern in the future. The following section identifies several major issues which may influence the management of recreational lands. These issues are presented in no particular order of importance.

#### Aging Population

As indicated earlier, the population of the United States, including the CRB, is aging. Dwyer (1994) suggests that recreation participation will increase most rapidly for activities popular with older adults, while participation rates for those activities popular with younger individuals will increase at a relatively slow rate. As the population ages, more and more individuals will retire, increasing the overall amount of leisure time Americans will have. Such increases in leisure time may change the frequency with which people engage in recreation, how long they stay at recreation sites, and when travel will occur. Recreation participation may increase during traditional off-season times as a greater percentage of the population has more leisure time during the fall, winter and spring months.

Additionally, patterns of recreation participation tend to change as individuals age. Though some activities such as

hiking, motor viewing, and viewing wildlife, continue to be common activities in which older individuals engage, less physically demanding activities such as developed camping and golf tend to become more popular as individuals age. Land managers must be aware of how recreation participation patterns may shift as the average age level of recreation users increases in the future.

#### Information and Education

Many recreationists seek to learn about the culture, history and natural elements of recreation areas. As the Angus Reid (1993) study of California travellers indicated, visitors to the Northwest desire to learn about the native cultures of the region. Management needs to be aware of the specific topics about which visitors desire to become more knowledgeable. As visitors often desire that educational opportunities be a component of recreational opportunities, managers must develop a variety of interpretive programs designed to educate visitors about specific cultural, historical and natural aspects of a particular recreation area or vicinity.

The advent of computer information networks has provided the public with quick and easy access to massive amounts of information. Such information may be instrumental in attracting individuals to the CRB, potentially causing significant increases in visitation. Additionally, individuals may be more knowledgeable about specific opportunities available within the

CRB than they have been previously. If visitors learn extensively about potential recreation opportunities within the CRB prior to their trip, they may develop and hold specific expectations about their desired experience. If actual opportunities do not meet such expectations, visitors may have unsatisfactory trips to the CRB. Managers must be aware of the information which is available to the public, whether that information is correct about the recreation opportunities in the CRB, and whether strong visitor expectations are developed from such information.

#### Crowding and Recreational Conflict

If recreation participation increases in the future, as it is currently projected to, some recreation areas may become more crowded. Areas which have limited space or the ability to absorb the impact of large user populations, need to be protected from overuse. The level of use for these areas need to be closely monitored to ensure that recreational use does not negatively impact the resource or the recreational opportunities the resource provides.

Similarly, as use levels increase and recreational activities become more diversified (i.e. introduction of new recreational activities such as snowboarding or mountain biking), user conflicts are likely to become more prevalent. Managers need to monitor and examine the potential impact new as well as established recreation activities may have on resources and other

recreation uses.

If recreation participation increases within the CRB, the quality of many recreation sites may be in jeopardy. Resource protection must be a high priority to ensure high quality environments. Managing within an ecosystem framework will help prevent external factors from negatively impacting recreation resources. Specific management objectives must outline a detailed strategy for preserving high quality recreation environments.

#### Funding

As land management budgets are frozen at current levels or in some cases reduced by overseeing governmental bodies, the ability to maintain or develop recreation facilities becomes extremely difficult. Agencies will increasingly need to examine alternative avenues for obtaining operating and acquisition funds. A wide variety of funding alternatives, ranging from charging user fees to cooperative management of facilities (i.e. partnerships with other agencies, contracts with concessionaires), must be considered.

#### Access

As private lands are increasingly being closed to recreationists, more users will be seeking recreation opportunities on public lands, thus potentially increasing use on public lands. Additionally, if private lands which traditionally

have provided the main access to public lands are closed to recreation, agencies must strive to provide, at the least, minimal access to all public lands. Recent legislation which reduced private landowners' personal liability in access situations may assist in ensuring access to public lands, thus eliminating the need for agencies to buy easement rights.

### Cultural Diversity and Migration

The United States population is increasingly becoming more ethnically and culturally diversified. Since immigration accounts for much of the growth in the US population (Cordell et al. 1990), recreation participation projection models indicate that a substantial portion of the increases in future recreation participation will be a result of more racial and ethnic minorities seeking recreation opportunities (Dwyer 1994). Much of the current immigration to the US is occurring within urban areas, thus the demand for recreational opportunities in or near cities should increase more rapidly than in rural areas. Immigration to the Portland and Seattle areas could result in substantial increases in demand for recreational opportunities within the CRB, especially on the western edge of the Basin. Therefore, recreation managers must be aware of the recreational needs and demands of various ethnic groups. Future research needs to examine the recreation patterns of a variety of racial and ethnic groups.

Additionally, many individuals within the United States are

moving to areas seeking a specific quality of life. The CRB has a large in-migration of such individuals. Many of these individuals were previously residing in more urban, populated areas. Future research must identify the recreational needs of these individuals. Managers must understand the recreational demand of such individuals. Managers must also provide opportunities for mutual understanding between long term residents and new residents if conflict surrounding traditional recreation use and new demands for recreational opportunities exists between the two groups.

#### Public Involvement

Lastly, the public frequently demands to be involved in planning and decision making processes associated with natural resource management. This demand has grown out of an increasing concern over the management of public lands. Favinger and Trent (1993) indicate several reasons for the public's desire to participate in management decisions, including (1) increased competition for resources, (2) increased awareness of management issues and environmental concerns, (3) increased polarization among long time residents of areas and in-migration and seasonal residents and (4) an increased perception of a loss of power or voice within a particular community or region. Specific programs must be developed to ensure that the public has the opportunity to voice their concerns about land management, as well as have some role in decision making processes.

To summarize, many current recreation issues will continue to affect recreation within the CRB. Recreation managers must constantly be aware of the most pressing issues and determine specific methods for reducing potential impacts upon recreation resources as well as the recreation experience. Since, many of the issues presented tend to be common among most resource areas, agencies must coordinate amongst themselves and cooperatively determine effective solutions or strategies for reducing major recreation issues to ensure that a broad spectrum of high quality recreation opportunities are available to the public.

#### Attitudes Toward Potential Land Management Actions and Policies

Moisey and Moisey (1994) indicate that recreation literature offers very little speculation on visitors' attitudes toward future land management actions. McCool (1994) suggests that in light of rapid social change occurring, it is becoming increasingly difficult to identify visitors' attitudes. McCool notes that if visitors perceive a benefit or understand the rationale for a management action, they tend to be generally supportive of that action. However, if the cost of the action exceeds the benefits, visitors may respond negatively to the action. For example, many individuals possess a psychological attachment to special places (Moore and Graefe 1994). If severe management actions which may limit or restrict recreation behavior are established within individuals' special places, extreme negative responses from these individuals will most

likely occur.

Watson (1994a) suggests that research needs to move beyond determining attitudes and look more closely at how recreation users develop attitudes about management actions. What specific visitor characteristics determine how individuals develop their attitudes toward a management action? Further analysis needs to examine how visitors determine whether a specific management action is acceptable.

Additionally, Watson (1994b) recently indicated that past research on recreation users' attitudes toward management actions may have assessed somewhat less than "true" attitudes. Frequently, agencies sell the benefits of specific management actions to the public. However, the costs associated with the establishment of rules, regulations and restrictions are often either not expressed or is done so minimally. Though visitor attitudes have been identified scientifically in the past, research findings may indicate incorrect visitor attitudes. Such attitude assessment may suggest that the public supports the implementation of a specific management action. However, if costs associated with this implementation were not acceptable to the recreation user and the action is initiated, visitors may respond in a hostile manner (i.e. law suits) toward the agency.

Lucas (1990) suggests that the effectiveness of resource management actions, as well as how the public may respond to such actions, may be improved by monitoring both the biophysical and social conditions of recreation resource areas. Specifically,

Watson (1990) suggests that monitoring the social and biophysical conditions of a recreation resource area can provide resource managers with valuable information. First, continuous monitoring of a resource area should result in a more valid evaluation of past and current use levels and site conditions. Such information should allow for more accurate projections of the demand for and supply of outdoor recreation opportunities. Second, basing management objectives on valid information collected during the monitoring process, rather than one's best guess, should result in the selection of the most effective management techniques to achieve desired objectives or conditions. Lastly, Watson (1990) suggests that information obtained from the monitoring of resource and social conditions should provide greater credibility for requests for funding management programs. Additionally, the public may be willing to accept specific management actions if the rationale for such actions are based upon solid, scientific information.

Thus, well-developed programs for monitoring the social and biophysical conditions of resource areas should greatly assist managers in becoming educated about the resource for which they are responsible. Understanding the trends in conditions over time should allow managers to easily detect when conditions are becoming unacceptable as well as provide feedback on the success of management actions which are currently under operation.

## SUMMARY

Concern about the health of land and water based resources of the interior Columbia River Basin has been increasing. To address these concerns the US Forest Service and Bureau of Land Management cooperatively joined forces to develop a framework approach to ecosystem management. One component necessary to develop an ecosystem management framework includes the assessment of the current natural resource based activities occurring within the Basin. This report provided an assessment of recreation demand and supply within the Basin, as well as the economic impacts resulting from recreation participation.

### Summary of Current Recreation Situation

The first stage of this assessment involved an examination of the current recreation situation (i.e. current demand and supply of recreational opportunities) throughout the Basin. In terms of recreation demand, an analysis of current participation occurring on public lands within the CRB was conducted. Though the data had several limitations, it is estimated that

Approximately 84 million recreation visits  
occurred in the CRB in 1993

- \* Half transpired in a roaded natural/roaded modified setting
- \* Major activities included day use activities and viewing scenery from motor vehicles
- \* Almost 60 million of the visits occurred on lands managed

approximately 84 million recreation trips or visits transpired within the Basin in 1993. Over half of the recreation engagements occurred in the roaded natural/roaded modified class of the ROS classification system. The primary recreation activities in which recreation users engaged were day use activities and the viewing of scenery from motor vehicles. The US Forest Service provided almost 60 million of these trips to the public.

Where did visitors to the CRB reside? Data on visitor residence was extremely difficult to obtain. Most visitor residence data is reported at the state level, thus making it difficult to determine visitation by residence for regions such as the Columbia River Basin which includes sections of several states, but not entire states. Nevertheless, on a domestic level, several studies provided a limited amount of information on the number of non-CRB residents who travelled to the Basin for recreational purposes. Twenty-two percent (1.4 million) of the visitors to the CRB who engaged in wildlife oriented activities were estimated to be non-residents of the four major states

comprising the CRB. Additionally, some evidence exists that a significant amount of the overall non-resident visitation to the Basin originates from the metropolitan areas of Seattle, Portland and Salt Lake City. Future research needs to address methods for obtaining visitor residency data at the county level which should result in a more accurate regional level assessment of residency information.

On an international basis, over 3 million Canadians visited the four main states of the Columbia River Basin. Most of the Canadian visitation occurred within the state of Washington. International visitation to the Basin from countries other than Canada resulted in 123,000 visits. Most of the visitors from countries other than Canada, resided primarily in western Europe and Japan.

Using recreation participation as an indicator of recreation demand has several inherent limitations. First, individuals may value recreational lands for reasons other than recreational engagements. People may value the existence of recreational lands for cultural, aesthetic, scientific or spiritual reasons. Thus estimating recreation demand from participation ignores this non-consumptive demand for recreation lands. Secondly, recreation participation can be greatly influenced by a multitude of external factors such as disposable income, amount of leisure time, weather, site conditions, and socio-demographic characteristics. These factors can significantly influence individuals' motivations and decisions

concerning recreation. Lastly, assessing demand via participation neglects to examine the issues of substitutability and visitor displacement. Future research must develop better methods for assessing recreation demand rather than recreation consumption.

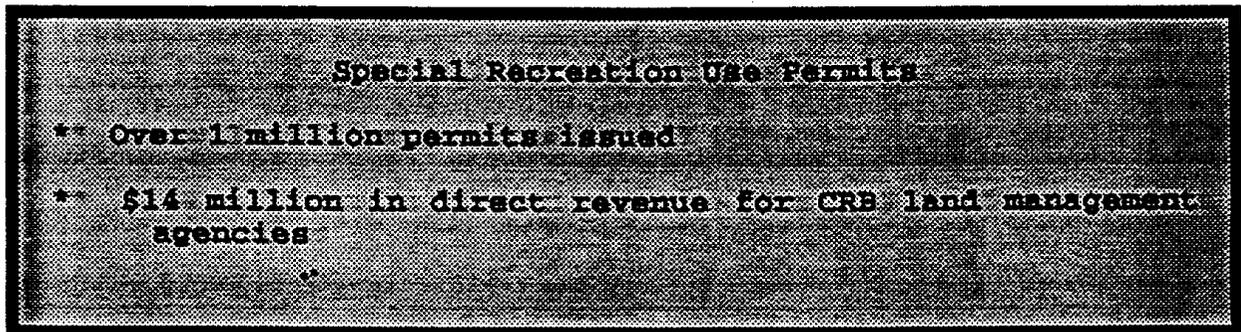
One method which has been developed to address the limitations associated with assessing recreation demand involves the examination of individuals' willingness to pay for recreation. Using WTP values reported in the 1990 RPA Assessment, it was determined that individuals were willing to pay approximately 1.7 billion dollars for recreation opportunities in 1993. Individuals valued opportunities for day use activities, fishing, winter sports, motor viewing and hunting the most, while boating opportunities (both motorized and non-motorized) had relatively low WTP values. The RPA Assessment only provides information on recreational WTP values for activities. The RPA report does not provide data which indicates individuals' WTP values for uses other than recreation participation, such as existence value, bequest values, and option values. To have a true understanding of the overall value of recreation within the CRB, future research needs to assess non-consumptive WTP values for recreation lands.

**Visitors' Willingness to Pay Values for CRB Recreation**  
\* WTP approximately \$1.7 billion for recreation

SUMMARY OF SUPPLY SECTION WILL BE PLACED HERE

SUMMARY OF EXPENDITURE INFORMATION WILL BE PLACED HERE

An analysis of special use permit revenues indicated that over a million special use permits were issued to recreation users resulting in over \$14 million in direct revenue for land management agencies within the Columbia River Basin. The US Forest Service generated the greatest amount of revenue from the issuance of special use permits, \$7 million.



Using the most recent SCORP for each of the four main states of the CRB, several current recreation issues were identified. Issues common to all areas of the Basin include (1) the need for the cooperation and coordination among land management agencies, (2) funding problems, and (3) maintenance and development of facilities. Several other common issues, though not among all state SCORPs, include access, education/information, and liability.

### Major Recreation Issues for the CRB

- \* Need for cooperation and coordination among land management agencies
- \* Funding

The second stage of the recreation assessment involved an examination of the recreational trends occurring within the CRB. The following section summarizes the historical examination of recreation participation and identifies specific social and technological changes which may influence recreation participation.

#### Summary of CRB Recreation Trends

Much of the recreation use data which is reported by land management agencies throughout the Columbia River Basin appears to lack consistency within and among agencies. Methods for collecting visitation data varies from management unit to management unit as well as from year to year in many cases. This lack of consistency makes it extremely difficult to examine recreation participation trends throughout the Basin. Agencies must become aware of the need for accurate and consistent measures of participation which are not only consistent within their specific agency but also directly comparable to other land management agencies. Until agencies record participation similarly, it will remain impossible to determine participation

levels for specific regions or ecosystems.

Nevertheless, it appears that overall recreation participation has been steadily increasing over the past fifteen years. The Bureau of Land Management indicated a slight decrease in participation in the last year, but otherwise had been experiencing a steady increase in visitation since 1985. The lack of consistent data among the land management agencies prevented the calculation of an annual percent change in participation levels for the entire Basin.

**Recreation use appears to have steadily increased over**

Many social and economic characteristics of the US population greatly influence participation. Several population characteristics which have influenced participation in the past as well as currently include (1) an aging population with older aged individuals having much leisure time, (2) increasing population levels, though the rate of increase is slowing, (3) increasing ethnic diversity within the US resulting in a greater variety of recreational demands, (4) population migration from urban areas to more rural areas, and (5) a narrowing of the middle class. All of these factors can greatly influence the type of activities individuals participate in, the length and season of recreation participation, and the frequency of participation. Research must continually examine the influence that social and economic trends may have on recreation

participation in the future.

#### Social and Economic Factors Influencing Recreation

- \* Aging population with older aged individuals having much leisure time
- \* Increasing population levels, though rate of increase is slowing
- \* Increasing ethnic diversity
- \* Population migration from urban areas to rural areas

#### Summary of the Projected Future of Recreation in the CRB

Participation in several recreation activities is expected to significantly increase over the next fifty years. The CRB is projected to be an overall exporter (i.e. non-residents of the CRB will travel to the Basin for recreation purposes) of recreation trips. Demand for developed camping, family gatherings, visiting museums, bicycling, running/jogging and outdoor pool swimming is estimated to increase at least 250% in the next fifty years. All activities are expected to increase in participation, though gathering firewood and collecting berries are expected to have relatively small increases in demand, 13 and 10 percent respectively.

In the future, the CRB is expected to be an overall exporter of recreation trips.

\* Greatest demand will be for:

|                   |                       |
|-------------------|-----------------------|
| Developed camping | Family Gatherings     |
| Visiting Museums  | Bicycling             |
| Running/Jogging   | Outdoor Pool Swimming |

\* Little increase in demand for:

On the supply side, the Columbia River Basin is expected to continue to have substantially greater amounts of available recreation resources than the nation as a whole. Similarly, the CRB should continue to have greater availability of recreation resources than areas surrounding the Basin, except for resources which exist near lakes and streams adjoined by roads. The greatest advantage the CRB has over other areas is in the amount of undeveloped and partially developed land settings for both summer and winter activities, as well as for resources in wild and remote water environments. However, unless new acquisitions of resources are obtained and investments in resource development occurs within the Basin, available recreation opportunities will decline as population levels increase within the Basin.

#### Future of Recreation Supply in CRB

- \* Advantage over nation as a whole and areas immediately outside the Basin
- \* Greatest advantage lies in the amount of undeveloped and partially developed land settings
- \* As population levels increase in the Basin, availability

SCORP projections suggest that day use activities, trail use, camping and motor viewing are all continue to be popular throughout the four main states of the CRB. Motorized winter sports and boating, both motorized and non-motorized are expected to increase the least over the next 10 years. International visitation to the CRB is also expected to continue to increase over the next ten years. Almost 7 million international visitors are expected to visit the four main states of the CRB in the year 2000.

The Columbia River Basin has several major advantages over recreational lands dispersed throughout the rest of the United States. First, the Basin has vast amounts of undeveloped lands which provide many opportunities for wilderness oriented activities and experiences. Secondly, it is expected that the CRB will be able to maintain its supply of recreational opportunities within this land classification, while the amount of undeveloped lands in areas outside the Basin are expected to decrease in the future.

Though the Columbia River Basin is expected to have an advantage in the availability of recreation opportunities over other areas of the nation, managers will continue to face many issues and challenges as they attempt to provide quality opportunities and experiences. Several issues which managers will continue to encounter include (1) an aging population with shifting recreation patterns, (2) a need to understand the education and informational needs of recreation users, (3)

increases in perceptions of crowding and recreational conflict, (4) funding challenges, (5) access, (6) increased cultural diversity, and (7) increases in the public's demand to be involved in recreation planning and decision making. Managers must constantly be aware of the most pressing issues concerning recreation within the Basin. Cooperation and coordination among agency personnel should help resource managers develop innovative solutions and strategies for reducing resource issues to ensure that a wide spectrum of quality recreation opportunities are available to the public.

#### **Future Recreation Research Needs for the CRB**

Though recreation research has provided invaluable information on the importance of recreation within the human experience and how management may best provide the public with desired recreation opportunities, this assessment indicates some gaps in our knowledge of recreation exist. This section discusses several areas in which future research may improve our understanding of recreation as well as provide the opportunity for more accurate assessments of this scale to be conducted.

**1. Need for improved methods for determining use levels as well as consistent data among and within natural resource agencies.**

First, much of the recreation participation data collected from state and federal agencies lacked consistency. Methods for

collecting participation data varied as well as the measurement units in which participation was recorded (i.e RVD, visits, activity occasions). Inconsistent data makes it difficult to obtain a clear picture of how much and what types of recreation are occurring in the CRB. Future research must examine the most accurate methods for collecting participation data as well as identify the most useful measurement unit (i.e. what participation unit is most practical for determining economic benefits, etc.).

~~2. Need a better understanding of visitor characteristics.~~

~~3. Future research must identify visitors' non-consumptive~~

Secondly, knowledge of visitor characteristics (i.e. residence, age, income, education, ethnicity) is extremely important for understanding the recreation user. Research needs to assess who is utilizing the recreational lands of the CRB. Another area which future research needs to address is non-consumptive recreation values. What value do individuals place on knowing that recreational lands exist in the CRB? Do individuals value some lands over other lands (i.e. do people consider some places within the Basin to be special to them)? What types of values do individuals place on the lands of the CRB? What benefits do different population sub-groups obtain by engaging in recreation activities within the CRB?

4. Need to identify improved methods for determining

Recreation demand is frequently assessed by examining participation. As indicated earlier, using participation as a proxy for demand has several major limitations. To reduce or eliminate these limitations, it is essential that future research identify alternative methods for assessing recreation demand. Demand models must incorporate non-consumptive recreation values (i.e. existence, bequest, and/or option values) and the impacts of external factors (e.g. weather, income, age) on recreation participation. Additionally, new methods for assessing recreation demand must be sensitive to issues of substitutability and visitor displacement.

5. Need to develop feasible methods and programs to continually monitor and document the changes in the social, biophysical, economic and technological conditions which may

Lastly, research suggests that recreation participation can be greatly affected by social, economic and technological conditions. Since our society is extremely dynamic and change occurs at an astounding rate, research must constantly monitor social and economic conditions as well as technological advancements. Managers must be aware of the potential impact which major societal and technological changes may have on recreation demand and supply, thus potentially increasing the

likelihood that managers will furnish recreation users with quality recreational opportunities.

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APPENDIX A

Land Management Agencies and Units Within the CRB

| <u>Agency and Unit</u> |                       | <u>State</u>   |
|------------------------|-----------------------|----------------|
| National Forests:      | Forest Service Region |                |
| Bitterroot             | N Rocky Mountain      | (1)            |
| Montana/Idaho          |                       |                |
| Helena (part)          | N Rocky Mountain      | (1) Montana    |
| Deerlodge (part)       | N Rocky Mountain      | (1) Montana    |
| Flathead               | N Rocky Mountain      | (1) Montana    |
| Kootenai               | N Rocky Mountain      | (1)            |
| Montana/Idaho          |                       |                |
| Lolo                   | N Rocky Mountain      | (1) Montana    |
| Clearwater             | N Rocky Mountain      | (1) Idaho      |
| Idaho Panhandle        | N Rocky Mountain      | (1) Idaho      |
| Nez Perce              | N Rocky Mountain      | (1) Idaho      |
| Boise                  | Intermountain         | (4) Idaho      |
| Caribou                | Intermountain         | (4) Idaho      |
| Challis                | Intermountain         | (4) Idaho      |
| Payette                | Intermountain         | (4) Idaho      |
| Salmon                 | Intermountain         | (4) Idaho      |
| Sawtooth               | Intermountain         | (4) Idaho      |
| Targhee                | Intermountain         | (4)            |
| Idaho/Wyoming          |                       |                |
| Bridger-Teton          | Intermountain         | (4) Wyoming    |
| Okanogan               | Pacific Northwest     | (6) Washington |
| Gifford Pinchot (part) | Pacific Northwest     | (6) Washington |
| Colville               | Pacific Northwest     | (6) Washington |
| Wenatchee              | Pacific Northwest     | (6) Washington |
| Umatilla               | Pacific Northwest     | (6)            |
| Washington/Oregon      |                       |                |
| Wallowa-Whitman        | Pacific Northwest     | (6) Oregon     |
| Mt. Hood (part)        | Pacific Northwest     | (6) Oregon     |
| Malheur                | Pacific Northwest     | (6) Oregon     |
| Ochoco                 | Pacific Northwest     | (6) Oregon     |
| Deschutes              | Pacific Northwest     | (6) Oregon     |
| Fremont (part)         | Pacific Northwest     | (6) Oregon     |
| Winema (part)          | Pacific Northwest     | (6) Oregon     |
| BLM Districts:         |                       |                |
| Coeur d'Alene          |                       | Idaho          |
| Salmon                 |                       | Idaho          |
| Boise                  |                       | Idaho          |
| Idaho Falls            |                       | Idaho          |
| Shoshone               |                       | Idaho          |
| Burley                 |                       | Idaho          |
| Garnet                 |                       | Montana        |
| Spokane                |                       | Washington     |
| Vale                   |                       | Oregon         |
| Prineville             |                       | Oregon         |
| Lakeview               |                       | Oregon         |
| Burns                  |                       | Oregon         |

National Park Service:

|  |            |
|--|------------|
| City of Rocks National Reserve           | Idaho      |
| Craters of the Moon National Monument    | Idaho      |
| Hagerman Fossil Beds National Monument   | Idaho      |
| Nez Perce National Historical Park       | Idaho      |
| Grand Teton National Park                | Wyoming    |
| Yellowstone National Park (part)         | Wyoming    |
| Glacier National Park (part)             | Montana    |
| Grant-Kohrs Ranch National Historic Site | Montana    |
| Crater Lake National Park (part)         | Oregon     |
| John Day Fossil Beds National Monument   | Oregon     |
| Coulee Dam National Recreation Area      | Washington |
| Whitman Mission National Historic Site   | Washington |
| Lake Chelan NRA                          | Washington |
| North Cascades NP (part)                 | Washington |

US Fish and Wildlife Service:

|                                      |            |
|--------------------------------------|------------|
| National Elk Refuge                  | Wyoming    |
| Lee Metcalf National Wildlife Refuge | Montana    |
| Ninepipe National Wildlife Refuge    | Montana    |
| Pablo National Wildlife Refuge       | Montana    |
| National Bison Range                 | Montana    |
| Deer Flat National Wildlife Refuge   | Idaho      |
| Kootenai NWR                         | Idaho      |
| Southeast Idaho NWR Complex          | Idaho      |
| Sheldon/Hart Mountain NWR Complex    | Oregon     |
| Klamath Basin NWR Complex            | Oregon     |
| Malheur NWR                          | Oregon     |
| Umatilla NWR Complex                 | Oregon     |
| Columbia NWR                         | Washington |
| Conboy Lake NWR                      | Washington |
| Little Pend Oreille NWR              | Washington |
| Toppenish NWR                        | Washington |
| Turnbull NWR                         | Washington |

Army Corps of Engineers:

|                         |            |
|-------------------------|------------|
| Libby Dam               | Montana    |
| Albeni Falls Dam        | Idaho      |
| Dworshak Dam            | Idaho      |
| McNary Dam              |            |
| Washington/Oregon       |            |
| John Day Dam            |            |
| Washington/Oregon       |            |
| The Dalles Lock and Dam |            |
| Washington/Oregon       |            |
| Chief Joseph            | Washington |

Priest Rapid Dam  
Rock Island Dam  
Rocky Beach Dam  
Wanapum Dam  
Wells Dam

Washington  
Washington  
Washington  
Washington  
Washington

APPENDIX B

CRB Land Management Units  
To Which Data Requests Were Sent

BLM Districts

Washington:

Spokane

Oregon:

Vale

Prineville

Lakeview

Burns

Montana:

Garnet

Idaho:

Coeur d'Alene

Salmon

Boise

Idaho Falls

Shoshone

Burley

Nevada Office

Utah Office

Wyoming Office

National Forests

Washington:

Gifford Pinchot

Colville

Okanogan

Wenatchee

Oregon:

Mt. Hood

Wallowa-Whitman

Umatilla

Malheur

Winema

Ochoco

Deschutes

Fremont

Montana:

Bitterroot

Deerlodge

Flathead

Helena

Kootenai

Lolo

Idaho:

Idaho Panhandle

Clearwater

Nez Perce

Boise

Caribou

Challis

Payette

Salmon

Sawtooth  
Targhee  
Nevada:  
Humboldt  
Wyoming:  
Bridger-Teton

National Park Lands

Washington:  
Grand Coulee Dam NRA  
Whitman Mission National Historic Site  
Lake Chelan NRA/North Cascades National Park  
Oregon:  
Crater Lake National Park  
John Day Fossil Beds National Monument  
Montana:  
Glacier National Park  
Grant-Kohrs Ranch National Historic Site  
Idaho:  
City of Rocks National Reserve  
Hagerman Fossil Beds National Monument  
Nez Perce National Historic Park  
Craters of the Moon National Monument  
Wyoming:  
Grand Teton National Park  
Yellowstone National Park

Army Corps of Engineers

Washington:  
Seattle Office  
Walla Walla Office  
Oregon:  
Portland Office

US Fish and Wildlife Service

Washington:  
Columbia National Wildlife Refuge  
Conboy National Wildlife Refuge  
Little Pend Oreille  
Oregon:  
Toppenish National Wildlife Refuge  
Turnbull National Wildlife Refuge  
Sheldon National Wildlife Refuge Complex  
Klamath Basin National Wildlife Refuge Complex  
Malheur National Wildlife Refuge  
Umatilla National Wildlife Refuge Complex  
Montana:  
National Bison Range  
Lee Metcalf National Wildlife Refuge

Idaho:

Deer Flat National Wildlife Refuge  
Kootenai National Wildlife Refuge  
SE Idaho National Wildlife Refuge Complex

Wyoming:

National Elk Refuge

State Land Management Departments

Washington:

Fish and Wildlife  
Parks and Recreation  
Natural Resources

Oregon:

Fish and Wildlife  
Parks and Recreation  
Department of Forestry  
Lands Division

Montana:

Fish, Wildlife and Parks  
Department of Lands

Idaho:

Fish and Game  
Parks and Recreation  
Department of Lands

APPENDIX C

Recreation Participation In the CRB  
by Agency, Activity and ROS Class

Table C-1--Recreational activity and acres for 1993 in the Primitive class of the Recreation Opportunity Spectrum (ROS) for BLM, National Forest, and other governmental land stewards in the Interior Columbia River Basin.

| Reporting unit by Agency and State    | Primitive              |         |       |        |                            |                            |                      |                            |                               |   | Acres <sup>e</sup><br>Thousands |   |
|---------------------------------------|------------------------|---------|-------|--------|----------------------------|----------------------------|----------------------|----------------------------|-------------------------------|---|---------------------------------|---|
|                                       | Trail use <sup>b</sup> | Camp    | Hunt  | Fish   | Nonmotor boat <sup>c</sup> | View wildlife <sup>d</sup> | Day use <sup>e</sup> | Winter sports <sup>f</sup> | Number of visits <sup>h</sup> |   |                                 |   |
|                                       | -----                  |         |       |        |                            |                            |                      |                            |                               |   |                                 |   |
| <b>BLM districts:</b>                 |                        |         |       |        |                            |                            |                      |                            |                               |   |                                 |   |
| <b>Idaho--</b>                        |                        |         |       |        |                            |                            |                      |                            |                               |   |                                 |   |
| Coeur d'Alene                         | 0                      | 0       | 0     | 0      | 0                          | 0                          | 0                    | 0                          | 0                             | 0 | 0                               | 0 |
| Salmon                                | 0                      | 917     | 416   | 567    | 0                          | NA <sup>1</sup>            | 301                  | 0                          | 0                             | 0 | 3                               | 3 |
| Shoshone                              | 50                     | 1,257   | 3,260 | 0      | 0                          | 0                          | 903                  | 0                          | 0                             | 0 |                                 |   |
| Burley                                | 0                      | 0       | 0     | 0      | 0                          | 0                          | 62                   | 0                          | 0                             | 0 |                                 |   |
| Nevada                                | 0                      | 100     | 100   | 100    | 0                          | 100                        | 100                  | 0                          | 0                             | 0 |                                 |   |
| <b>Total BLM districts</b>            | 50                     | 2,274   | 3,776 | 667    | 0                          | 100                        | 1,366                | 0                          | 0                             | 0 | 3                               | 3 |
| <b>National Forests: Washington--</b> |                        |         |       |        |                            |                            |                      |                            |                               |   |                                 |   |
| Colville                              | 0                      | 100     | 1,000 | 0      | 0                          | 1,800                      | 0                    | 0                          | 0                             | 0 |                                 |   |
| Gifford-Pinhot                        | 6085                   | 2940    | 62    | 686    | 0                          | 979                        | 16000                | 173                        |                               |   | 10825                           |   |
| Okanogan                              | 17,467                 | 112,451 | 3,856 | 5,334  | 0                          | 4,102                      | 7,417                | 292                        |                               |   | 519                             |   |
| Wenatchee                             | 71,810                 | 21,967  | 9,092 | 1,550  | 237                        | 269                        | 5,433                | 19,845                     |                               |   | 680                             |   |
| <b>Oregon--</b>                       |                        |         |       |        |                            |                            |                      |                            |                               |   |                                 |   |
| Wallawa-Whitman                       | 17,045                 | 19,492  | 7,669 | 16,470 | 0                          | 4,736                      | 6,180                | 10,708                     |                               |   |                                 |   |
| Malheur                               | 6,054                  | 3,579   | 5,049 | 1,146  | 38                         | 236                        | 2,365                | 120                        |                               |   | 81.3                            |   |
| Umatilla                              | 37,500                 | 14,000  | 7,200 | 700    | 0                          | 0                          | 12,900               | 0                          |                               |   | 124                             |   |
| Winema                                | 9,300                  | 7,500   | 900   | 2,200  | 0                          | 300                        | 4,600                | 100                        |                               |   | 91                              |   |
| Ochoco                                | 324                    | 445     | 350   | 54     | 0                          | 0                          | 0                    | 15                         |                               |   | 11,000                          |   |
| Deschutes                             | 28,470                 | 8,146   | 1,125 | 5,020  | 57                         | 2,847                      | 47,836               | 27,710                     |                               |   | 182.7                           |   |
| Fremont                               | 500                    | 900     | 250   | 700    | 0                          | 50                         | 50                   | 50                         |                               |   | 23                              |   |



| Total Natl. Parks | 200,000 | 26,000  | 0       | 0       | 0      | 0      | 0       | 175,000 | 5,000     | 2,000,000 |
|-------------------|---------|---------|---------|---------|--------|--------|---------|---------|-----------|-----------|
| Total             | 850,455 | 476,872 | 220,686 | 159,230 | 18,459 | 42,063 | 463,416 | 80,858  | 1,011,335 |           |

\* The 1993 data is an average of activity and acres for 1991, 1992, and 1993. The unit names with footnote a only used 1992 and 1993.

<sup>b</sup> Hiking, biking, horseback riding and other such nonmotorized trail use (biking is generally not permitted in the primitive ROS class).

<sup>c</sup> Canoeing, kayaking, rafting, drift boating, and other such nonmotorized boating.

<sup>d</sup> Nonconsumptive wildlife viewing, photography and feeding.

<sup>e</sup> Picnicking, nature study, interpretive visits, photography, collecting objects or special forest products, swimming, wading, and other such day uses.

<sup>f</sup> Winter sports other than snowmobiling.

<sup>g</sup> All acres will be calculated or verified from the ROS GIS database.

<sup>h</sup> Visits—a visit by one individual to a recreation area for the purpose of participating in one or more recreation activities for any length of time. Only the primary activity for the visitor is recorded.

<sup>i</sup> Only those portions draining into the Interior Columbia River Basin are included.

Table C-2--Recreational activity and acres for 1993 in the Semi-primitive nonmotorized class of the Recreation Opportunity Spectrum (ROS) for BLM, National Forest, and other governmental land stewards in the Interior Columbia River Basin.

| Reporting unit by Agency and State    | Semi-primitive nonmotorized   |               |               |               |                            |                            |                      |                            |                    |               |
|---------------------------------------|-------------------------------|---------------|---------------|---------------|----------------------------|----------------------------|----------------------|----------------------------|--------------------|---------------|
|                                       | Trail use <sup>b</sup>        | Camp          | Hunt          | Fish          | Nonmotor boat <sup>c</sup> | View wildlife <sup>d</sup> | Day use <sup>e</sup> | Winter sports <sup>f</sup> | Acres <sup>g</sup> |               |
|                                       | Number of visits <sup>h</sup> |               |               |               |                            |                            |                      |                            |                    |               |
| <b>BLM districts:</b>                 |                               |               |               |               |                            |                            |                      |                            |                    |               |
| Montana--                             |                               |               |               |               |                            |                            |                      |                            |                    |               |
| Garnet                                | 2,250                         | 3,650         | 10,825        | 2,000         | 100                        | NR <sup>i</sup>            | 9,750                | 830                        |                    | 18,560        |
| <b>Idaho--</b>                        |                               |               |               |               |                            |                            |                      |                            |                    |               |
| Coeur d'Alene                         | 0                             | 3,000         | 1,000         | 100           | 100                        | 100                        | 500                  | 0                          |                    |               |
| Salmon                                | 0                             | 2,751         | 1,248         | 1,702         | 0                          | NR                         | 903                  | 0                          |                    | 42            |
| Shoshone                              | 1,250                         | 2,512         | 7,197         | 6,169         | 90                         | 75                         | 2,765                | 150                        |                    |               |
| Burley                                | 0                             | 555           | 860           | 0             | 0                          | 50                         | 576                  | 155                        |                    |               |
| Nevada                                | 0                             | 100           | 100           | 1,000         | 0                          | 100                        | 100                  | 0                          |                    |               |
| <b>Total BLM districts</b>            | <b>3,500</b>                  | <b>12,568</b> | <b>21,230</b> | <b>10,971</b> | <b>290</b>                 | <b>325</b>                 | <b>14,594</b>        | <b>1,135</b>               |                    | <b>18,602</b> |
| <b>National Forests: Washington--</b> |                               |               |               |               |                            |                            |                      |                            |                    |               |
| Colville                              | 118,400                       | 20,800        | 17,500        | 5,000         | 0                          | 11,800                     | 27,200               | 8,600                      |                    |               |
| Gifford-Pinchot                       | 3305                          | 1588          | 20            | 343           | 0                          | 542                        | 8649                 | 76                         |                    | 24109         |
| Okanogan                              | 34,490                        | 41,546        | 9,134         | 2,320         | 0                          | 15,246                     | 42,933               | 1,711                      |                    | 298           |
| Wenatchee                             | 102,586                       | 43,935        | 5,264         | 3,099         | 711                        | 458                        | 16,299               | 19,843                     |                    | 283           |
| <b>Oregon--</b>                       |                               |               |               |               |                            |                            |                      |                            |                    |               |
| Mt. Hood <sup>j</sup>                 | 3,087                         | 344           | 636           | 931           | 542                        | 280                        | 2,162                | 100                        |                    |               |
| Wallowa-Whitman                       | 30,682                        | 9,209         | 6,247         | 6,323         | 16                         | 5,920                      | 9,270                | 10,708                     |                    |               |
| Malheur                               | 6,288                         | 4,515         | 7,388         | 2,197         | 0                          | 676                        | 7,128                | 964                        |                    | 202.1         |
| Umatilla                              | 104,500                       | 41,900        | 34,100        | 12,700        | 13,600                     | 7,200                      | 34,400               | 900                        |                    | 280           |
| Winema                                | 300                           | 100           | 100           | 0             | 0                          | 100                        | 0                    | 100                        |                    | 12            |

|                            |                |                |                |                |               |               |                |                |                |
|----------------------------|----------------|----------------|----------------|----------------|---------------|---------------|----------------|----------------|----------------|
| Ochoco                     | 1,662          | 830            | 1,471          | 490            | 4             | 110           | 130            | 126            | 21,015         |
| Deschutes                  | 9,920          | 5,411          | 765            | 2,718          | 760           | 1,997         | 35,905         | 4,643          | 32.9           |
| Fremont                    | 2,400          | 400            | 300            | 80             | 0             | 20            | 20             | 100            | 33             |
| <b>Montana--</b>           |                |                |                |                |               |               |                |                |                |
| Bitterroot                 | 15,998         | 35,196         | 9,332          | 8,399          | 5,599         | 1,600         | 57,394         | 1,600          |                |
| Deerlodge                  | 12,230         | 1,966          | 12,230         | 6,115          | 0             | 2,621         | 8,518          | 7,098          |                |
| Flathead                   | 4,348          | 8,095          | 3,899          | 6,688          | 379           | 1,014         | 23,649         | 0              |                |
| Helena                     | 10,000         | 2,000          | 13,000         | 2,000          | 0             | 1,000         | 3,000          | 2,000          |                |
| Kootenai                   | 22,050         | 6,930          | 11,970         | 12,550         | 770           | 1,320         | 46,700         | 1,720          | 229            |
| Lolo                       | 14,526         | 5,810          | 7,747          | 3,228          | 332           | 323           | 9,361          | 1,936          |                |
| <b>Idaho--</b>             |                |                |                |                |               |               |                |                |                |
| Idaho Panhandle            | 31,680         | 17,551         | 12,314         | 12,314         | 176           | 176           | 9,236          | 1,319          |                |
| Clearwater                 | 9,845          | 11,814         | 6,891          | 4,923          | 985           | 985           | 29,535         | 0              | 133.2          |
| Nez Perce                  | 31,584         | 31,283         | 28,426         | 14,288         | 18,950        | 2,858         | 69,786         | 1,805          |                |
| Boise                      | 34,100         | 32,000         | 2,100          | 16,700         | 4,300         | 0             | 72,800         | 31,100         | 151.8          |
| Caribou                    | 20             | 103            | 42             | 12             | 0             | 18            | 30             | 0              | 181            |
| Challis                    | 37,344         | 71,927         | 57,983         | 75,516         | 31,661        | 4,410         | 137,156        | 11,806         | 1,203          |
| Payette                    | 7,271          | 2,223          | 652            | 575            | 0             | 342           | 3,738          | 0              | 180.2          |
| Salmon                     | 8,170          | 1,794          | 10,900         | 1,901          | 0             | 558           | 801            | 2,113          | 463            |
| Sawtooth                   | 19,900         | 4,700          | 10,300         | 15,300         | 0             | 1,600         | 0              | 0              |                |
| Targhee                    | 39,179         | 6,271          | 8,455          | 5,536          | 99            | 657           | 9,254          | 2,500          | 379.2          |
| <b>Nevada--</b>            |                |                |                |                |               |               |                |                |                |
| Humboldt                   | 3,033          | 2,783          | 7,167          | 90             | 0             | 157           | 55             | 133            |                |
| <b>Wyoming--</b>           |                |                |                |                |               |               |                |                |                |
| Bridger-Teton              | 79,000         | 15,000         | 12,000         | 7,000          | 4,000         | 3,000         | 15,000         | 25,000         | 538            |
| <b>Total Natl. Forests</b> | <b>797,898</b> | <b>428,024</b> | <b>298,333</b> | <b>200,336</b> | <b>82,884</b> | <b>66,988</b> | <b>680,109</b> | <b>138,001</b> | <b>110,000</b> |

| US Fish & Wildlife-R1:<br>Washington-- |         |         |         |         |        |        |         |         |   |   |    |         |     |
|--|---------|---------|---------|---------|--------|--------|---------|---------|---|---|----|---------|-----|
| Conboy NWR <sup>1</sup>                | 1,000   | 0       | 65      | 4       | 0      | 0      | 0       | 0       | 0 | 0 | 0  | 30      | 2.5 |
| Oregon--                               |         |         |         |         |        |        |         |         |   |   |    |         |     |
| Malheur NWR                            | 300     | 0       | 500     | 100     | 0      | 2,000  | 0       | 0       | 0 | 0 | 0  | 0       |     |
| Idaho--                                |         |         |         |         |        |        |         |         |   |   |    |         |     |
| SE Idaho NWR Complex                   | 50      | 0       | 400     | 0       | 25     | 200    | 0       | 20      | 0 | 0 | 20 | 18.3    |     |
| Total USFWS                            | 1,350   | 0       | 965     | 104     | 25     | 2,200  | 0       | 50      | 0 | 0 | 50 | 21      |     |
| Total                                  | 802,748 | 440,592 | 320,528 | 240,411 | 83,199 | 69,513 | 694,703 | 139,186 |   |   |    | 138,346 |     |

<sup>a</sup> The 1993 data is an average of activity and acres for 1991, 1992, and 1993. The unit names with footnote a only used 1992 and 1993.

<sup>b</sup> Hiking, biking, horseback riding and other such nonmotorized trail use.

<sup>c</sup> Canoeing, kayaking, rafting, drift boating, and other such nonmotorized boating.

<sup>d</sup> Nonconsumptive wildlife viewing, photography and feeding.

<sup>e</sup> Picnicking, nature study, interpretive visits, photography, collecting objects or special forest products, swimming, wading, and other such day uses.

<sup>f</sup> Winter sports other than snowmobiling.

<sup>g</sup> All acres will be calculated or verified from the ROS GIS database.

<sup>h</sup> Visits—a visit by one individual to a recreation area for the purpose of participating in one or more recreation activities for any length of time. Only the primary activity for the visit is recorded.

<sup>i</sup> Barlow and Bear Springs data are for the entire districts. Hood River data is from East of Hwy 35.

<sup>j</sup> Only those portions draining into the Interior Columbia River Basin are included.

<sup>k</sup> NWR=National wildlife refuge.

Table C-3--Recreational activity and acres for 1993 in the Semi-primitive motorized class of the Recreation Opportunity Spectrum (ROS) for BLM, National Forest, and other governmental land stewards in the Interior Columbia River Basin.<sup>a</sup>

| Reporting unit by Agency and State        | Semi-primitive motorized |               |               |               |                |                            |                      |                         |                            |                      |                            | Acres <sup>c</sup><br>1000's |               |
|---|--------------------------|---------------|---------------|---------------|----------------|----------------------------|----------------------|-------------------------|----------------------------|----------------------|----------------------------|------------------------------|---------------|
|   | Trail use <sup>b</sup>   | Camp          | Hunt          | Fish          | Non motor boat | View wildlife <sup>d</sup> | Day use <sup>e</sup> | Motor boat <sup>f</sup> | Motor viewing <sup>g</sup> | ORV use <sup>h</sup> | Winter sports <sup>i</sup> |                              | Snow-mobiling |
| ----- Number of visits -----              |                          |               |               |               |                |                            |                      |                         |                            |                      |                            |                              |               |
| <b>BLM districts:</b>                     |                          |               |               |               |                |                            |                      |                         |                            |                      |                            |                              |               |
| Montana--                                 |                          |               |               |               |                |                            |                      |                         |                            |                      |                            |                              |               |
| Garnet                                    | 3,150                    | 4,380         | 12,990        | 2,000         | 100            | NA <sup>1</sup>            | 9,750                | 0                       | 29,360                     | 3,960                | 2,075                      | 6,090                        | 29,440        |
| <b>Idaho--</b>                            |                          |               |               |               |                |                            |                      |                         |                            |                      |                            |                              |               |
| Coeur d'Alene                             | 10,900                   | 500           | 8,700         | 2,100         | 7,300          | 3,100                      | 2,800                | 500                     | 6,600                      | 3,800                | 1,300                      | 500                          |               |
| Salmon                                    | 1,805                    | 5,502         | 2,496         | 3,403         | 600            | NR                         | 1,806                | 800                     | 8,970                      | 1,485                | 320                        | 2,000                        | 136           |
| Shoshone                                  | 2,100                    | 6,366         | 8,403         | 7,969         | 400            | 175                        | 9,344                | 3,000                   | 698                        | 5,361                | 350                        | 1,200                        |               |
| Burley                                    | 332                      | 1,110         | 2,099         | 191           | 0              | 683                        | 905                  | 0                       | 177                        | 1,196                | 576                        | 1,442                        |               |
| Nevada                                    | 0                        | 2,000         | 3,300         | 6,220         | 200            | 200                        | 0                    | 1,200                   | 5,000                      | 2,000                | 300                        | 300                          |               |
| <b>Total BLM districts</b>                | <b>18,287</b>            | <b>19,858</b> | <b>37,988</b> | <b>21,883</b> | <b>8,600</b>   | <b>4,158</b>               | <b>24,605</b>        | <b>5,500</b>            | <b>50,805</b>              | <b>17,802</b>        | <b>4,921</b>               | <b>11,532</b>                | <b>29,576</b> |
| <b>National Forests:<br/>Washington--</b> |                          |               |               |               |                |                            |                      |                         |                            |                      |                            |                              |               |
| Colville                                  | 43,500                   | 9,000         | 8,000         | 5,800         | 0              | 4,700                      | 10,900               | 0                       | 39,400                     | 5,700                | 8,600                      | 1,500                        |               |
| Okanogan                                  | 3,865                    | 5,502         | 3,217         | 150           | 0              | 1,904                      | 4,959                | 0                       | 0                          | 148                  | 133                        | 594                          | 40            |
| Wenatchee                                 | 82,069                   | 43,935        | 4,785         | 1,239         | 474            | 224                        | 10,866               | 864                     | 28,711                     | 22,952               | 19,845                     | 16,375                       | 176           |
| <b>Oregon--</b>                           |                          |               |               |               |                |                            |                      |                         |                            |                      |                            |                              |               |
| Mt. Hood <sup>h</sup>                     | 9,828                    | 6,298         | 7,949         | 8,525         | 6,818          | 13,979                     | 5,730                | 0                       | 11,783                     | 735                  | 15,863                     | 544                          |               |
| Wallowa-Whitman                           | 13,149                   | 21,487        | 9,371         | 25,292        | 137            | 5,920                      | 21,630               | 19,179                  | 38,694                     | 3,418                | 10,708                     | 6,430                        |               |
| Malheur                                   | 1,204                    | 1,237         | 1,852         | 541           | 0              | 169                        | 1,892                | 0                       | 13,486                     | 4,081                | 241                        | 168                          | 38.2          |
| Umatilla                                  | 27,600                   | 46,600        | 26,900        | 15,600        | 0              | 13,700                     | 68,800               | 0                       | 17,200                     | 8,400                | 3,600                      | 2,200                        | 151           |
| Winema                                    | 500                      | 500           | 200           | 100           | 100            | 100                        | 700                  | 0                       | 300                        | 0                    | 0                          | 200                          | 14            |
| Ochoco                                    | 0                        | 790           | 836           | 64            | 8              | 0                          | 255                  | 0                       | 2,844                      | 1,103                | 623                        | 1,140                        | 3,240         |
| <b>totals</b>                             | <b>17,164</b>            | <b>4,779</b>  | <b>681</b>    | <b>19,201</b> | <b>5,141</b>   | <b>3,630</b>               | <b>36,943</b>        | <b>8,256</b>            | <b>228,196</b>             | <b>0</b>             | <b>23,298</b>              | <b>24,001</b>                | <b>55.2</b>   |



|               |                |                |                |                |               |                |                  |               |                  |                |                |                |               |
|---------------|----------------|----------------|----------------|----------------|---------------|----------------|------------------|---------------|------------------|----------------|----------------|----------------|---------------|
| Columbia NWR* | 0              | 38,356         | 426            | 70,284         | 0             | 1,972          | 26,403           | 0             | 0                | 0              | 0              | 23,000         |               |
| Oregon--      |                |                |                |                |               |                |                  |               |                  |                |                |                |               |
| Malheur NWR   | 500            | 0              | 500            | 300            | 0             | 5,000          | 1,000            | 0             | 0                | 0              | 0              | 0              |               |
| Total USFWS   | 500            | 38,356         | 1,276          | 71,784         | 0             | 229,372        | 250,603          | 0             | 222,400          | 0              | 0              | 23,000         |               |
| <b>Total</b>  | <b>981,388</b> | <b>654,913</b> | <b>530,139</b> | <b>500,103</b> | <b>71,382</b> | <b>329,720</b> | <b>1,542,715</b> | <b>67,458</b> | <b>1,658,384</b> | <b>515,046</b> | <b>274,700</b> | <b>369,529</b> | <b>60,835</b> |

\* The 1993 data is an average of activity and acres for 1991, 1992, and 1993. The unit names with footnote a only used 1992 and 1993.

<sup>a</sup> Hiking, biking, horseback riding and other such nonmotorized trail use.

<sup>b</sup> Canoeing, kayaking, rafting, drift boating, and other such nonmotorized boating.

<sup>c</sup> Nonconsumptive wildlife viewing, photography and feeding.

<sup>d</sup> Picnicking, nature study, interpretive visits, photography, collecting objects or special forest products, swimming, wading, and other such day uses.

<sup>e</sup> Motorized boat sightseeing, water skiing, and other such uses.

<sup>f</sup> Motorized sightseeing and exploring by vehicle.

<sup>g</sup> ORV=off-road vehicle.

<sup>h</sup> Winter sports other than snowmobiling.

<sup>i</sup> All acres will be calculated or verified from the ROS GIS database.

<sup>j</sup> Visits=a visit by one individual to a recreation area for the purpose of participating in one or more recreation activities for any length of time. Only the primary activity for the visitor is recorded.

<sup>ka</sup> Barlow and Bear Springs data are for the entire districts, Hood River data is from East of Hwy 35.

<sup>kb</sup> NWR=National wildlife refuge.

Table C-4--Recreational activity and acres for 1993 in the Roaded natural class of the Recreation Opportunity Spectrum (ROS) for BLM, National Forest, and on Governmental lands in the Interior Columbia River Basin.

| Reporting unit by Agency and State    | Roaded natural         |               |               |                |                            |                            |                      |                         |                            |                      |                            |               |  | Acres <sup>1</sup><br>Thousands |  |  |               |
|---------------------------------------|------------------------|---------------|---------------|----------------|----------------------------|----------------------------|----------------------|-------------------------|----------------------------|----------------------|----------------------------|---------------|--|---------------------------------|--|--|---------------|
|                                       | Trail use <sup>b</sup> | Camp          | Hunt          | Fish           | Nonmotor boat <sup>c</sup> | View wildlife <sup>d</sup> | Day use <sup>e</sup> | Motor boat <sup>f</sup> | Motor viewing <sup>g</sup> | ORV use <sup>h</sup> | Winter sports <sup>i</sup> | Snow-mobiling |  |                                 |  |  |               |
| <b>BLM districts:</b>                 |                        |               |               |                |                            |                            |                      |                         |                            |                      |                            |               |  |                                 |  |  |               |
| <b>Montana--</b>                      |                        |               |               |                |                            |                            |                      |                         |                            |                      |                            |               |  |                                 |  |  |               |
| Garnet                                | 3,600                  | 6,570         | 19,485        | 36,000         | 1,800                      | NA <sup>1</sup>            | 13,000               | 6,500                   | 44,040                     | 9,240                | 5,395                      | 11,310        |  |                                 |  |  | 97,660        |
| <b>Idaho--</b>                        |                        |               |               |                |                            |                            |                      |                         |                            |                      |                            |               |  |                                 |  |  |               |
| Coeur d'Alene                         | 29,400                 | 32,500        | 15,200        | 8,900          | 1,150                      | 8,700                      | 29,300               | 4,750                   | 10,200                     | 4,900                | 1,300                      | 800           |  |                                 |  |  |               |
| Salmon                                | 14,400                 | 6,240         | 6,240         | 8,512          | 900                        | NA                         | 4,512                | 1,200                   | 13,755                     | 2,227                | 480                        | 2,875         |  |                                 |  |  | 702           |
| Shoshone                              | 1,050                  | 15,103        | 10,438        | 46,408         | 400                        | 150                        | 21,818               | 6,000                   | 5,021                      | 6,837                | 700                        | 1,200         |  |                                 |  |  |               |
| Burley                                | 3,673                  | 22,760        | 10,947        | 41,273         | 341                        | 10,249                     | 48,762               | 4,546                   | 5,581                      | 14,829               | 1,373                      | 6,728         |  |                                 |  |  |               |
| Nevada                                | 0                      | 0             | 0             | 0              | 0                          | 0                          | 0                    | 0                       | 0                          | 100                  | 0                          | 100           |  |                                 |  |  |               |
| <b>Total</b>                          | <b>52,123</b>          | <b>83,173</b> | <b>62,310</b> | <b>141,093</b> | <b>4,591</b>               | <b>19,099</b>              | <b>117,392</b>       | <b>22,996</b>           | <b>78,597</b>              | <b>38,133</b>        | <b>9,248</b>               | <b>23,013</b> |  |                                 |  |  | <b>98,362</b> |
| <b>National Forests: Washington--</b> |                        |               |               |                |                            |                            |                      |                         |                            |                      |                            |               |  |                                 |  |  |               |
| Colville                              | 63,100                 | 96,700        | 30,000        | 87,500         | 31,100                     | 25,800                     | 451,500              | 48,800                  | 630,800                    | 20,000               | 61,200                     | 7,700         |  |                                 |  |  |               |
| Gifford-Pinchot                       | 1928                   | 15,592        | 475           | 2450           | 847                        | 1311                       | 84,173               | 596                     | 13,061                     | 97                   | 2884                       | 1000          |  |                                 |  |  | 23,411        |
| Okanogan                              | 84,849                 | 228,954       | 13,392        | 6,298          | 526                        | 21,070                     | 191,666              | 671                     | 270,041                    | 1,012                | 14,229                     | 2,141         |  |                                 |  |  | 312           |
| Wenatchee                             | 184,655                | 149,729       | 6,699         | 12,088         | 8,614                      | 1,401                      | 244,548              | 5,877                   | 1,337,861                  | 47,548               | 114,109                    | 31,580        |  |                                 |  |  | 365           |
| <b>Oregon--</b>                       |                        |               |               |                |                            |                            |                      |                         |                            |                      |                            |               |  |                                 |  |  |               |
| Mr. Hood <sup>h</sup>                 | 190,044                | 90,955        | 48,124        | 230,230        | 209,194                    | 222,973                    | 9,297                | 0                       | 588,303                    | 19,485               | 239,960                    | 1,902         |  |                                 |  |  |               |
| Wallowa-Whitman                       | 46,266                 | 96,343        | 24,222        | 67,016         | 786                        | 18,944                     | 278,102              | 0                       | 228,937                    | 4,520                | 10,708                     | 9,385         |  |                                 |  |  |               |
| Malheur                               | 4,615                  | 18,796        | 5,556         | 5,127          | 4,545                      | 1,419                      | 14,628               | 227                     | 88,624                     | 6,103                | 3,614                      | 2,570         |  |                                 |  |  | 327.6         |
| Umatilla                              | 21,700                 | 228,400       | 68,100        | 34,700         | 3,800                      | 28,800                     | 219,400              | 200                     | 129,100                    | 5,900                | 43,000                     | 24,000        |  |                                 |  |  | 670           |
| Winema                                | 24,100                 | 51,700        | 7,300         | 8,400          | 5,200                      | 15,700                     | 85,600               | 2,100                   | 37,900                     | 100                  | 9,900                      | 8,400         |  |                                 |  |  | 900           |
| Ochoco                                | 3,020                  | 23,742        | 5,440         | 6,820          | 596                        | 2,500                      | 15,737               | 0                       | 19,424                     | 2,465                | 542                        | 773           |  |                                 |  |  | 847,015       |







| Sawtooth                            | 113,500 | 52,800    | 82,000  | 101,800 | 1,100  | 74,200          | 270,000   | 10,600  | 484,400   | 54,500  | 116,900 | -----0    |
|-------------------------------------|---------|-----------|---------|---------|--------|-----------------|-----------|---------|-----------|---------|---------|-----------|
| Total Natl. Forests                 | 566,851 | 981,340   | 504,995 | 534,313 | 93,173 | 165,849         | 1,819,472 | 138,813 | 3,081,204 | 368,644 | 377,675 | 255,321   |
| National Park lands:                |         |           |         |         |        |                 |           |         |           |         |         |           |
| Montana--                           |         |           |         |         |        |                 |           |         |           |         |         |           |
| Glacier Park <sup>a</sup>           | 0       | 200,000   | 0       | 0       | 0      | NA <sup>b</sup> | 0         | 0       | 0         | 0       | 0       | 0         |
| Hagerman Fossil Beds Natl. Monument | 0       | 0         | 1,835   | 5,505   | 3,670  | 1,835           | 14,680    | 7,340   | 1,835     | 0       | 0       | 0         |
| Total Natl. Parks                   | 0       | 200,000   | 1,835   | 5,505   | 3,670  | 1,835           | 14,680    | 7,340   | 1,835     | 0       | 0       | 400       |
| USFWS-R6: Montana--                 |         |           |         |         |        |                 |           |         |           |         |         |           |
| Natl' Bison Range                   | 0       | 0         | 0       | 3,500   | 0      | 0               | 12,000    | 0       | 4,000     | 0       | 0       | 0         |
| Oregon--                            |         |           |         |         |        |                 |           |         |           |         |         |           |
| Klamath Basin <sup>d</sup>          | 0       | 0         | 15,300  | 1,555   | 885    | 283,470         | 13,210    | 0       | 0         | 0       | 0       | 185,000   |
| Idaho--                             |         |           |         |         |        |                 |           |         |           |         |         |           |
| Kootenai NWR <sup>e</sup>           | 0       | 0         | 988     | 40      | 0      | 12,924          | 1,110     | 0       | 0         | 0       | 39      | 2.77      |
| Total USFWS                         | 0       | 0         | 16,288  | 5,095   | 885    | 296,394         | 26,320    | 0       | 4,000     | 0       | 39      | 185,003   |
| State lands:                        |         |           |         |         |        |                 |           |         |           |         |         |           |
| Idaho--                             |         |           |         |         |        |                 |           |         |           |         |         |           |
| Parks and Recreation <sup>g</sup>   | NA      | 43,774    | NA      | NA      | NA     | NA              | 50,124    | NA      | NA        | NA      | NA      | 640       |
| Dept. of Lands                      | NA      | NA        | NA      | NA      | NA     | NA              | NA        | NA      | NA        | NA      | NA      | 2,473,970 |
| Total State Lands                   | 0       | 43,774    | 0       | 0       | 0      | 0               | 50,124    | 0       | 0         | 0       | 0       | 2,474,610 |
| Total                               | 566,851 | 1,225,114 | 523,118 | 544,913 | 97,728 | 464,078         | 1,910,596 | 146,153 | 3,087,039 | 368,644 | 377,714 | 255,321   |
|                                     |         |           |         |         |        |                 |           |         |           |         |         | 2,753,354 |

<sup>a</sup> The 1993 data is an average of activity and acres for 1991, 1992, and 1993. The unit names with footnote a only used 1992 and 1993.

<sup>b</sup> Hiking, biking, horseback riding and other such nonmotorized trail use.

<sup>c</sup> Canoeing, kayaking, rafting, drift boating, and other such nonmotorized boating.

<sup>d</sup> Nonconsumptive wildlife viewing, photography and feeding.

<sup>e</sup> Picnicking, nature study, interpretive visits, photography, collecting objects or special forest products, swimming, wading, and other such day uses.

<sup>f</sup> Motorized boat sightseeing, water skiing, and other such uses.

<sup>g</sup> Motorized sightseeing and exploring by vehicle.

<sup>h</sup> ORV=off-road vehicle.

<sup>i</sup> Winter sports other than snowmobiling.

<sup>j</sup> All acres will be calculated or verified from the ROS GIS database.

<sup>k</sup> Visits=a visit by one individual to a recreation area for the purpose of participating in one or more recreation activities for any length of time. Only the primary activity for the visitor



|  |         |         |         |        |        |         |          |         |           |         |          |         |
|--|---------|---------|---------|--------|--------|---------|----------|---------|-----------|---------|----------|---------|
| Mt. Hood*                                | 23,257  | 18,390  | 11,137  | 14,405 | 20,145 | 51,724  | 23,568   | 0       | 48,165    | 11,176  | 127,711  |         |
| Wallowa-Whitman                          | 92,532  | 13,433  | 29,739  | 14,577 | 519    | 18,155  | 185,402  | 0       | 93,510    | 10,209  | 481,866  | 25,666  |
| Umatilla                                 | 0       | 14,000  | 0       | 0      | 0      | 0       | 0        | 0       | 2,200     | 0       | 35,000   | 0       |
| Winema                                   | 12,500  | 144,600 | 900     | 10,400 | 10,000 | 400     | 73,100   | 18,200  | 48,300    | 0       | 4,100    | 7,500   |
| Ochoco                                   | 100     | 647     | 54      | 510    | 290    | 0       | 507      | 2,948   | 4,702     | 0       | 0        | 3,880   |
| Deschutes                                | 113     | 61,360  | 0       | 0      | 0      | 115,582 | 293,964  | 0       | 35,433    | 0       | 361,128  | 9,946   |
| Montana--                                |         |         |         |        |        |         |          |         |           |         |          | 4.1     |
| Deerlodge                                | 1,529   | 45,864  | 1,747   | 43,680 | 6,770  | 5,460   | 141,960  | 29,484  | 70,980    | 655     | 10,920   | 13,104  |
| Flathead                                 | 2,676   | 0       | 0       | 0      | 0      | 0       | 50,676   | 0       | 0         | 0       | 154,819  | 559     |
| Lolo                                     | 142,355 | 106,525 | 12,912  | 11,298 | 29,698 | 8,071   | 411,893  | 64,326  | 104,587   | 10,330  | 139,451  | 6,467   |
| Idaho--                                  |         |         |         |        |        |         |          |         |           |         |          |         |
| Idaho Panhandle                          | 29,040  | 101,594 | 64,651  | 64,651 | 924    | 44      | 193,952  | 48,378  | 409,014   | 36,943  | 27,704   | 27,705  |
| Boise                                    | 3,000   | 0       | 0       | 0      | 0      | 0       | 145,500  | 0       | 0         | 0       | 834,000  | 0       |
| Sawtooth                                 | 25,700  | 105,600 | 0       | 52,100 | 2,500  | 18,000  | 97,100   | 36,100  | 363,100   | 11,700  | 334,100  | 5,200   |
| Targhee                                  | 1,350   | 130,125 | 846     | 77,504 | 9,934  | 10,057  | 148,071  | 31,098  | 364,880   | 2,725   | 217,572  | 5,006   |
| Wyoming--                                |         |         |         |        |        |         |          |         |           |         |          | 80.7    |
| Bridger-Teton                            | 22,000  | 30,000  | 3,000   | 4,000  | 0      | 2,000   | 10,000   | 1,000   | 100,000   | 8,000   | 300,000  | 37,500  |
| Total Natl. Forests                      | 761,037 | 813,399 | 128,814 | 310305 | 98,416 | 231,434 | 1965,613 | 244,712 | 2,591,469 | 116,321 | 3258,288 | 157,698 |
| National Park lands:<br>Washington--     |         |         |         |        |        |         |          |         |           |         |          |         |
| Coulee Dam NRA*                          | 376     | 1,881   | 1,881   | 13,170 | 376    | 753     | 4,139    | 15,050  | 0         | 0       | 0        | 0       |
| Whitman Mission Natl.<br>Historic Site   | 0       | 0       | 0       | 0      | 0      | 0       | 78,880   | 0       | 0         | 0       | 0        | 0       |
| Lake Chelan NRA &<br>North Cascade Park* | 0       | 1,090   | 0       | 192    | 0      | 0       | 2,458    | 4,015   | 30,000    | 0       | 0        | 2,600   |
| Oregon--                                 |         |         |         |        |        |         |          |         |           |         |          |         |
| Crater Lake Park*                        | 0       | 15,000  | 0       | 0      | 0      | 0       | 0        | 0       | 0         | 0       | 0        | 0       |
| Montana--                                |         |         |         |        |        |         |          |         |           |         |          |         |
| Glacier Park*                            | 0       | 0       | 0       | 0      | 0      | NA      | 0        | 0       | 0         | 0       | 0        | 7,000   |



i Winter sports other than snowmobiling.  
 j All acres will be calculated or verified from the ROS GIS database.  
 k Visits=a visit by one individual to a recreation area for the purpose of participating in one or more recreation activities for any length of time. Only the primary activity for the visit is recorded.  
 l Categories are primitive & semi-primitive non motorized; semi-primitive motorized, roaded natural and roaded modified; rural and urban.  
 m NA=Data not available.  
 n Barlow and Bear Springs data are for the entire districts, Hood River data is from East of Hwy 35.  
 o NRA=National recreation area.  
 p Only those portions draining into the Interior Columbia River Basin are included.  
 q Data is for entire park, not just east of Cascade crest.  
 r National reserve.  
 s NWR=National wildlife refuge.  
 t Klamath Basin includes Oregon and California.  
 u NE=northeast, SE=southeast.

Table C-7--Recreational activity and acres for 1993 as reported by those field units using the combined Primitive, Semi-primitive nonmotorized, and Semi-primitive motorized classes of the Recreation Opportunity Spectrum (ROS) for BLM, National Forest, and other governmental land stewards in the Interior Columbia River Basin.\*

| Reporting units using the combined ROS classes, by Agency and State | Combined primitive, semi-primitive nonmotorized, and semi-primitive motorized classes |               |                |               |                            |                            |                      |                         |                            |                      |               |              |                    |    |
|---|---|---------------|----------------|---------------|----------------------------|----------------------------|----------------------|-------------------------|----------------------------|----------------------|---------------|--------------|--------------------|----|
|   | Trail use <sup>j</sup>  | Camp          | Hunt           | Fish          | Nonmotor boat <sup>l</sup> | View wildlife <sup>k</sup> | Day use <sup>l</sup> | Motor boat <sup>l</sup> | Motor viewing <sup>k</sup> | ORV use <sup>h</sup> | Winter sports | Snowmobiling | Acres <sup>l</sup> |    |
|   | Number of visits <sup>i</sup>   |               |                |               |                            |                            |                      |                         |                            |                      |               |              |                    |    |
| <b>BLM districts:</b>   |   |               |                |               |                            |                            |                      |                         |                            |                      |               |              |                    |    |
| Washington--  |   |               |                |               |                            |                            |                      |                         |                            |                      |               |              |                    |    |
| Spokane <sup>l</sup>  | 30  | 15            | 97             | 42            | 200                        | 10                         | 112                  | 0                       | 0                          | 0                    | 0             | 0            | 0                  | 49 |
| Oregon--  |   |               |                |               |                            |                            |                      |                         |                            |                      |               |              |                    |    |
| Vale <sup>l</sup>   | 15875   | 33,985        | 62,938         | 82,702        | 0                          | 0                          | 5,936                | 18,539                  | 10,752                     | 7,392                | 6,955         | 0            |                    |    |
| Prineville <sup>l</sup>   | 1,750   | 3,501         | 19,603         | 42,006        | 700                        | 1,750                      | 700                  | 0                       | 0                          | 0                    | 0             | 0            | 122,281            |    |
| Lakeview <sup>l</sup>   | 3,560   | 3,700         | 5,100          | 2,100         | 0                          | 1,575                      | 4,750                | 0                       | 0                          | 0                    | 550           | 0            | 436                |    |
| Burns <sup>l</sup>  | 3,386   | 895           | 985            | 302           | 0                          | 27                         | 246                  | 0                       | 0                          | 0                    | 0             | 139          |                    |    |
| Idaho--   |   |               |                |               |                            |                            |                      |                         |                            |                      |               |              |                    |    |
| Boise <sup>l</sup>  | 9,924   | 10,067        | 17,526         | 12,265        | 857                        | 0                          | 13,287               | 857                     | 13,589                     | 9,957                | 2,800         | 2,190        |                    |    |
| Idaho Falls <sup>l</sup>  | 5,200   | 1,400         | 28,500         | 19,000        | 1,500                      | 900                        | 5,800                | 400                     | 2,000                      | 22,200               | 3,400         | 3,000        |                    |    |
| <b>Total BLM districts</b>  | <b>39725</b>  | <b>53,563</b> | <b>134,769</b> | <b>158417</b> | <b>3,257</b>               | <b>4,262</b>               | <b>30,831</b>        | <b>19,796</b>           | <b>26,341</b>              | <b>39549</b>         | <b>13,705</b> | <b>5,329</b> | <b>122,766</b>     |    |
| <b>National Park lands:</b>   |   |               |                |               |                            |                            |                      |                         |                            |                      |               |              |                    |    |
| Washington--  |   |               |                |               |                            |                            |                      |                         |                            |                      |               |              |                    |    |
| Coalee Dam NRA <sup>a</sup>   | 11790   | 58,948        | 58,948         | 412636        | 11,790                     | 23,579                     | 129,686              | 471,585                 | 0                          | 0                    | 0             | 0            | 56                 |    |



Table C-8--Recreational activity and acres for 1993 as reported by those field units using the combined Roded natural and Roded improved classes of the Recreation Opportunity Spectrum (ROS) for BLM, National Forest, and other governmental land stewards in the Interior Columbia River Basin.

| Combined roded natural and roded modified classes                     |  |         |         |           |                             |                            |                      |                         |                            |                      |                            |               |                    |
|---|--|---------|---------|-----------|-----------------------------|----------------------------|----------------------|-------------------------|----------------------------|----------------------|----------------------------|---------------|--------------------|
| Reporting units using the combined ROS classes, by Agency and State ● | Trail use <sup>b</sup>                   | Camp    | Hunt    | Fish      | Non motor boat <sup>c</sup> | View wildlife <sup>d</sup> | Day use <sup>c</sup> | Motor boat <sup>e</sup> | Motor viewing <sup>f</sup> | ORV use <sup>g</sup> | Winter sports <sup>h</sup> | Snow-mobiling | Acres <sup>i</sup> |
|   | -----Number of visits <sup>a</sup> ----- |         |         |           |                             |                            |                      |                         |                            |                      |                            |               |                    |
| BLM districts:  |  |         |         |           |                             |                            |                      |                         |                            |                      |                            |               | Thousands          |
| Washington--  |  |         |         |           |                             |                            |                      |                         |                            |                      |                            |               |                    |
| Spokane <sup>1</sup>  | 50                                       | 42      | 500     | 10        | • 300                       | 600                        | 20                   | 25                      | 2,050                      | 20                   | 0                          | 0             | 294                |
| Oregon--  |  |         |         |           |                             |                            |                      |                         |                            |                      |                            |               |                    |
| Vale <sup>1</sup>   | 27,432                                   | 109,271 | 80,946  | 217,827   | 0                           | 0                          | 14,631               | 106,079                 | 91,264                     | 22,720               | 21,375                     | 0             |                    |
| Prineville <sup>1</sup>   | 155,797                                  | 38,949  | 77,898  | 934,779   | 77,898                      | 38,949                     | 77,898               | 7,790                   | 132,427                    | 15,580               | 0                          | 0             | 1,550,106          |
| Lakeview <sup>1</sup>   | 27,640                                   | 48,200  | 21,900  | 28,800    | 22,300                      | 10,525                     | 29,850               | 21,000                  | 134,250                    | 31,400               | 9,150                      | 7,300         | 3,428              |
| Burns <sup>1</sup>  | 2,257                                    | 28,186  | 5,582   | 8,760     | 58                          | 1,202                      | 10,819               | 85                      | 29,544                     | 5,239                | 788                        | 579           |                    |
| Idaho--   |  |         |         |           |                             |                            |                      |                         |                            |                      |                            |               |                    |
| Boise <sup>1</sup>  | 17,070                                   | 32,949  | 22,534  | 31,134    | 4,829                       | 0                          | 28,109               | 4,829                   | 107,204                    | 30,736               | 7,952                      | 2,774         |                    |
| Idaho Falls <sup>1</sup>  | 1,200                                    | 42,000  | 2,100   | 73,100    | 9,700                       | 4,200                      | 11,500               | 10,100                  | 19,600                     | 26,100               | 17,400                     | 7,900         |                    |
| Total BLM districts   | 231,446                                  | 299,597 | 211,460 | 1,294,410 | 115,085                     | 55,476                     | 172,827              | 149,908                 | 516,339                    | 131,795              | 56,665                     | 18,553        | 1,553,828          |
| National Park lands:  |  |         |         |           |                             |                            |                      |                         |                            |                      |                            |               |                    |
| Washington--  |  |         |         |           |                             |                            |                      |                         |                            |                      |                            |               |                    |
| Coulee Dam NRA <sup>a</sup>   | 376                                      | 1,881   | 1,881   | 13,170    | 376                         | 753                        | 4,139                | 15,050                  | 0                          | 0                    | 0                          | 0             | 2                  |
| Lake Chelan NRA & North Cascade Park <sup>a</sup>                     | 0  | 530     | 0       | 94        | 382                         | 0                          | 0                    | 0                       | 11,555                     | 0                    | 0                          | 0             | 3,268              |
| Oregon--  |  |         |         |           |                             |                            |                      |                         |                            |                      |                            |               |                    |
| Crater Lake Park <sup>a</sup>   | 0  | 0       | 0       | 0         | 0                           | 0                          | 418,250              | 0                       | 0                          | 0                    | 0                          | 2,500         | 27                 |
| John Day Fossil Beds Nat. Monument                                    | 0  | 0       | 0       | 0         | 0                           | 0                          | 115,800              | 0                       | 0                          | 0                    | 0                          | 0             | 14                 |
| Montana--   |  |         |         |           |                             |                            |                      |                         |                            |                      |                            |               |                    |
| Nez Perce Nat. Historic Park  | 0  | 0       | 0       | 0         | 0                           | 0                          | 25,203               | 0                       | 0                          | 0                    | 0                          | 0             | 2                  |



APPENDIX D

RESIDENT VERSUS NONRESIDENT PARTICIPATION RATES  
IN FISHING, HUNTING AND NON-CONSUMPTIVE  
WIDLIFE ACTIVITIES IN THE  
FOUR CRB STATES<sup>a</sup>

<sup>a</sup> Data obtained from the National Survey of Fishing, Hunting, and Wildlife-Associated Recreation (USFWS 1993).

### Visitors to Idaho For Fishing

| <u>State From</u> | <u>Frequency</u> | <u>Percent</u> |
|-------------------|------------------|----------------|
| Alaska            | 263.07           | 0.1            |
| Arizona           | 1666.83          | 0.5            |
| California        | 36608.40         | 10.0           |
| Colorado          | 5872.78          | 1.6            |
| Connecticut       | 504.86           | 0.1            |
| Deleware          | 783.11           | 0.2            |
| Georgia           | 1387.22          | 0.4            |
| Idaho             | 232008.93        | 63.6           |
| Montana           | 1930.71          | 0.5            |
| Nebraska          | 1595.58          | 0.4            |
| Nevada            | 3813.50          | 1.0            |
| New Mexico        | 893.95           | 0.2            |
| Ohio              | 5535.45          | 1.5            |
| Oregon            | 5102.23          | 1.4            |
| South Dakota      | 832.87           | 0.2            |
| Tennessee         | 4776.90          | 1.3            |
| Utah              | 24833.15         | 6.8            |
| Washington        | 33769.95         | 9.3            |
| Wyoming           | 2392.98          | 0.7            |
| Total             | 364572.461       |                |

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### Visitors to Idaho For Hunting

| <u>State From</u> | <u>Frequency</u> | <u>Percent</u> |
|-------------------|------------------|----------------|
| Alaska            | 398.03           | 0.2            |
| Arizona           | 4027.34          | 2.1            |
| California        | 7178.93          | 3.7            |
| Hawaii            | 903.71           | 0.5            |
| Idaho             | 157917.9         | 81.9           |
| Missouri          | 761.85           | 0.4            |
| Nebraska          | 509.97           | 0.3            |
| Nevada            | 3756.55          | 1.9            |
| New Mexico        | 443.86           | 0.2            |
| Oregon            | 1996.2           | 1.0            |
| Texas             | 2944.32          | 1.5            |
| Utah              | 6347.95          | 3.3            |
| Washington        | 5508.00          | 2.9            |
| Total             | 192704.67        |                |

## Visitors to Idaho for Non-consumptive Recreation

| <u>State From</u> | <u>Frequency</u> | <u>Percent</u> |
|-------------------|------------------|----------------|
| Alaska            | 413.50           | 0.1            |
| California        | 61056.13         | 16.0           |
| Hawaii            | 959.09           | 0.3            |
| Idaho             | 193909.81        | 50.8           |
| Illinois          | 2719.82          | 0.7            |
| Louisiana         | 874.79           | 0.2            |
| Missouri          | 6088.76          | 1.6            |
| Montana           | 7235.01          | 1.9            |
| Nebraska          | 529.41           | 0.1            |
| Nevada            | 4628.04          | 1.2            |
| New Hampshire     | 327.56           | 0.1            |
| New Jersey        | 3032.37          | 0.8            |
| Ohio              | 4375.28          | 1.1            |
| Oregon            | 14587.44         | 3.8            |
| Texas             | 18358.89         | 4.8            |
| Utah              | 16554.21         | 4.3            |
| Vermont           | 662.72           | 0.2            |
| Washington        | 44617.73         | 11.7           |
| Wyoming           | 588.75           | 0.2            |
| Total             | 381519.32        |                |

## Visitors to Montana For Fishing

| <u>State From</u> | <u>Frequency</u> | <u>Percent</u> |
|-------------------|------------------|----------------|
| Arizona           | 1891.57          | 0.6            |
| California        | 46244.82         | 13.5           |
| Colorado          | 4585.44          | 1.3            |
| Florida           | 7514.72          | 2.2            |
| Georgia           | 1407.80          | 0.4            |
| Hawaii            | 1825.91          | 0.5            |
| Idaho             | 10432.56         | 3.1            |
| Illinois          | 1549.07          | 0.5            |
| Kansas            | 2544.94          | 0.7            |
| Maine             | 829.09           | 0.2            |
| Maryland          | 2279.76          | 0.7            |
| Massachusetts     | 2362.75          | 0.7            |
| Michigan          | 1774.80          | 0.5            |
| Minnesota         | 2436.96          | 0.7            |
| Mississippi       | 1611.63          | 0.5            |
| Montana           | 164287.52        | 48.0           |
| Nebraska          | 1205.58          | 0.4            |
| Nevada            | 2194.24          | 0.6            |
| New York          | 8900.77          | 2.6            |
| North Dakota      | 2110.99          | 0.6            |
| Ohio              | 5550.36          | 1.6            |
| Oklahoma          | 7106.39          | 2.1            |
| Oregon            | 3517.11          | 1.0            |
| Rhode Island      | 165.67           | 0.0            |
| South Carolina    | 809.72           | 0.2            |
| South Dakota      | 1643.13          | 0.5            |
| Tennessee         | 4776.90          | 1.4            |
| Texas             | 9919.72          | 2.9            |
| Utah              | 6862.04          | 2.0            |
| Vermont           | 437.25           | 0.1            |
| Washington        | 24060.16         | 7.0            |
| West Virginia     | 634.88           | 0.2            |
| Wisconsin         | 2618.84          | 0.8            |
| Wyoming           | 5840.27          | 1.7            |
| Total             | 341933.355       |                |

## Visitors to Montana for Hunting

| <u>State From</u> | <u>Frequency</u> | <u>Percent</u> |
|-------------------|------------------|----------------|
| Alaska            | 128.34           | 0.1            |
| California        | 5173.13          | 2.3            |
| Connecticut       | 469.56           | 0.2            |
| Deleware          | 184.41           | 0.1            |
| Florida           | 5655.30          | 2.5            |
| Hawaii            | 629.90           | 0.3            |
| Idaho             | 1287.32          | 0.6            |
| Iowa              | 716.67           | 0.3            |
| Kansas            | 2507.50          | 1.1            |
| Maryland          | 1087.41          | 0.5            |
| Massachusetts     | 714.89           | 0.3            |
| Michigan          | 1792.73          | 0.8            |
| Minnesota         | 4016.17          | 1.8            |
| Mississippi       | 2560.42          | 1.1            |
| Montana           | 157613.67        | 70.7           |
| Nevada            | 1311.18          | 0.6            |
| New Hampshire     | 602.36           | 0.3            |
| New Jersey        | 934.40           | 0.4            |
| North Carolina    | 2535.80          | 1.1            |
| North Dakota      | 3209.89          | 1.4            |
| Ohio              | 2896.70          | 1.3            |
| Oregon            | 1337.44          | 0.6            |
| Pennsylvania      | 12856.77         | 5.8            |
| Washington        | 7179.11          | 3.2            |
| Wisconsin         | 5104.17          | 2.3            |
| Wyoming           | 391.09           | 0.2            |
| Total             | 222896.45        |                |

## Visitors to Montana for Non-consumptive Recreation

| <u>State From</u> | <u>Frequency</u> | <u>Percent</u> |
|-------------------|------------------|----------------|
| Alabama           | 885.83           | 0.2            |
| Alaska            | 1645.05          | 0.3            |
| Arkansas          | 2272.10          | 0.4            |
| California        | 106986.39        | 19.2           |
| Colorado          | 2119.76          | 0.4            |
| Connecticut       | 2639.49          | 0.5            |
| Deleware          | 549.22           | 0.1            |
| Florida           | 33747.95         | 6.1            |
| Georgia           | 8008.56          | 0.4            |
| Hawaii            | 517.43           | 0.1            |
| Idaho             | 25300.85         | 4.5            |
| Illinois          | 10924.46         | 2.0            |
| Indiana           | 1884.21          | 0.3            |
| Iowa              | 3111.02          | 0.6            |
| Kentucky          | 3354.70          | 0.6            |
| Maryland          | 3434.82          | 0.6            |
| Massachusetts     | 1496.22          | 0.3            |
| Minnesota         | 21733.86         | 3.9            |
| Mississippi       | 1481.42          | 0.3            |
| Missouri          | 4851.64          | 0.9            |
| Montana           | 173348.48        | 31.1           |
| Nebraska          | 3577.23          | 0.6            |
| Nevada            | 2597.47          | 0.5            |
| New Jersey        | 3032.37          | 0.5            |
| New Mexico        | 2276.52          | 0.4            |
| North Dakota      | 5945.6           | 1.1            |
| Ohio              | 4375.28          | 0.8            |
| Oklahoma          | 1828.55          | 0.3            |
| Oregon            | 24363.54         | 4.4            |
| Pennsylvania      | 14412.49         | 2.3            |
| South Dakota      | 1442.41          | 0.3            |
| Texas             | 14704.51         | 2.6            |
| Utah              | 5911.84          | 1.1            |
| Washington        | 41348.33         | 7.4            |
| Wisconsin         | 11205.59         | 2.0            |
| Wyoming           | 10441.30         | 1.9            |
| Total             | 557756.500       |                |

## Visitors to Oregon For Fishing

| <u>State From</u> | <u>Frequency</u> | <u>Percent</u> |
|-------------------|------------------|----------------|
| Alaska            | 928.41           | 0.1            |
| Arizona           | 1948.79          | 0.3            |
| California        | 71122.165        | 9.9            |
| Colorado          | 2586.77          | 0.4            |
| Florida           | 3452.19          | 0.5            |
| Hawaii            | 2221.24          | 0.3            |
| Idaho             | 9762.00          | 1.4            |
| Indiana           | 4054.60          | 0.6            |
| Iowa              | 659.68           | 0.1            |
| Kansas            | 1225.23          | 0.2            |
| Louisiana         | 964.17           | 0.1            |
| Maine             | 372.33           | 0.1            |
| Massachusetts     | 2362.75          | 0.3            |
| Minnesota         | 1484.90          | 0.2            |
| Mississippi       | 864.22           | 0.1            |
| Missouri          | 1107.35          | 0.2            |
| Montana           | 1807.94          | 0.3            |
| Nebraska          | 950.47           | 0.1            |
| Nevada            | 6717.80          | 0.9            |
| New Mexico        | 433.11           | 0.1            |
| North Dakota      | 802.43           | 0.1            |
| Ohio              | 4475.65          | 0.6            |
| Oklahoma          | 1851.20          | 0.3            |
| Oregon            | 516209.40        | 72.0           |
| Pennsylvania      | 6795.63          | 0.9            |
| Tennessee         | 972.07           | 0.1            |
| Utah              | 3690.22          | 0.5            |
| Washington        | 64894.12         | 9.0            |
| Wisconsin         | 1220.53          | 0.2            |
| Wyoming           | 1360.83          | 0.2            |
| Total             | 717298.203       |                |

Visitors to Oregon For Hunting

| <u>State From</u> | <u>Frequency</u> | <u>Percent</u> |
|-------------------|------------------|----------------|
| Alaska            | 128.34           | 0.1            |
| Arizona           | 972.17           | 0.4            |
| California        | 1470.65          | 0.6            |
| Idaho             | 427.16           | 0.2            |
| Missouri          | 749.67           | 0.3            |
| Nevada            | 878.71           | 0.3            |
| Oregon            | 236905.82        | 93.8           |
| South Dakota      | 507.67           | 0.2            |
| Washington        | 10504.61         | 4.2            |
| Total             | 252544.85        |                |

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Visitors to Oregon for Non-consumptive Recreation

| <u>State From</u> | <u>Frequency</u> | <u>Percent</u> |
|-------------------|------------------|----------------|
| Alaska            | 7224.55          | 0.8            |
| Arizona           | 9838.50          | 1.1            |
| California        | 196001.04        | 22.2           |
| Colorado          | 2277.92          | 0.3            |
| Florida           | 3380.61          | 0.4            |
| Hawaii            | 2367.31          | 0.3            |
| Idaho             | 15214.17         | 1.7            |
| Iowa              | 818.62           | 0.1            |
| Louisiana         | 1677.20          | 0.2            |
| Maryland          | 3103.30          | 0.4            |
| Massachusetts     | 2171.54          | 0.2            |
| Minnesota         | 5589.37          | 0.6            |
| Montana           | 2764.49          | 0.3            |
| Nebraska          | 2049.22          | 0.2            |
| Nevada            | 1763.07          | 0.2            |
| North Dakota      | 377.00           | 0.0            |
| Oregon            | 479329.46        | 54.4           |
| South Dakota      | 308.62           | 0.0            |
| Utah              | 6955.23          | 0.8            |
| Vermont           | 649.21           | 0.1            |
| Washington        | 130784.93        | 14.8           |
| Wisconsin         | 5875.20          | 0.7            |
| Wyoming           | 1134.07          | 0.1            |
| Total             | 881654.63        |                |

### Visitors to Washington For Fishing

| <u>State From</u> | <u>Frequency</u> | <u>Percent</u> |
|-------------------|------------------|----------------|
| Alaska            | 551.98           | 0.1            |
| Arkansas          | 800.58           | 0.1            |
| California        | 23423.99         | 2.4            |
| Colorado          | 3984.22          | 0.4            |
| Connecticut       | 4376.68          | 0.4            |
| Georgia           | 2734.67          | 0.3            |
| Hawaii            | 1553.84          | 0.2            |
| Idaho             | 13599.03         | 1.4            |
| Kentucky          | 802.33           | 0.1            |
| Massachusetts     | 4752.94          | 0.5            |
| Minnesota         | 3705.17          | 0.4            |
| Mississippi       | 773.10           | 0.1            |
| Montana           | 1002.98          | 0.1            |
| Nebraska          | 515.92           | 0.1            |
| Nevada            | 6023.69          | 0.6            |
| New Mexico        | 1460.16          | 0.1            |
| North Dakota      | 362.67           | 0.0            |
| Oregon            | 45758.54         | 4.6            |
| South Dakota      | 848.46           | 0.1            |
| Tennessee         | 967.10           | 0.1            |
| Utah              | 3310.52          | 0.3            |
| Washington        | 872527.96        | 87.7           |
| Wyoming           | 1153.02          | 0.1            |
| Total             | 994989.58        |                |

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### Visitors to Washington For Hunting

| <u>State From</u> | <u>Frequency</u> | <u>Percent</u> |
|-------------------|------------------|----------------|
| California        | 2455.99          | 1.0            |
| Florida           | 2066.81          | 0.8            |
| Hawaii            | 1159.55          | 0.5            |
| Idaho             | 3462.17          | 1.4            |
| Nevada            | 295.80           | 0.1            |
| North Dakota      | 178.53           | 0.1            |
| Oregon            | 661.70           | 0.3            |
| South Dakota      | 1081.73          | 0.4            |
| Washington        | 236428.87        | 95.4           |
| Total             | 247791.19        |                |

## Visitors to Washington for Non-consumptive Recreation

| <u>State From</u> | <u>Frequency</u> | <u>Percent</u> |
|-------------------|------------------|----------------|
| Alaska            | 4208.67          | 0.4            |
| California        | 62692.34         | 5.9            |
| Colorado          | 12505.40         | 1.2            |
| Delaware          | 565.30           | 0.1            |
| Georgia           | 8008.56          | 0.8            |
| Hawaii            | 3398.27          | 0.3            |
| Idaho             | 13692.89         | 1.3            |
| Illinois          | 10924.46         | 1.0            |
| Kansas            | 2467.70          | 0.2            |
| Louisiana         | 1677.20          | 0.2            |
| Michigan          | 9459.29          | 0.9            |
| Minnesota         | 1426.50          | 0.1            |
| Mississippi       | 1499.43          | 0.1            |
| Montana           | 5819.91          | 0.5            |
| Nebraska          | 2049.22          | 0.2            |
| Nevada            | 4275.23          | 0.4            |
| New Hampshire     | 1260.69          | 0.1            |
| New Jersey        | 6951.83          | 0.7            |
| New Mexico        | 1939.52          | 0.2            |
| Oregon            | 60615.71         | 5.7            |
| Tennessee         | 6372.66          | 0.6            |
| Texas             | 18499.07         | 1.7            |
| Utah              | 3547.90          | 0.3            |
| Vermont           | 487.09           | 0.0            |
| Washington        | 800059.98        | 75.6           |
| Wisconsin         | 12939.65         | 1.2            |
| Wyoming           | 866.16           | 0.1            |
| Total             | 1058210.59       |                |

APPENDIX E

ECONOMIC VALUES OF RECREATION ACTIVITIES  
OCCURRING IN THE COLUMBIA RIVER  
BASIN BY ROS CLASSIFICATION

Table E-1 -- Recreational visits and economic values in 1993 for the ROS Primitive class in the Interior Columbia River Basin by activity.<sup>a</sup>

| Recreation activity           | Primitive    |                                    |
|-------------------------------|--------------|------------------------------------|
|                               | Total visits | 1993 Net annual value <sup>b</sup> |
| Trail use <sup>c</sup>        | 850,455      | 10,205,460                         |
| Camping                       | 476,932      | 2,384,660                          |
| Hunting                       | 220,686      | 7,724,010                          |
| Fishing                       | 159,230      | 8,916,880                          |
| Nonmotor boating <sup>d</sup> | 18,459       | 184,590                            |
| Viewing wildlife <sup>e</sup> | 42,063       | 1,598,394                          |
| Day use <sup>f</sup>          | 463,416      | 10,658,568                         |
| Winter sports <sup>g</sup>    | 80,858       | 2,910,888                          |
| Total                         | 2,312,099    | 44,583,450                         |

Note: Only for those reporting by 6 ROS classes.

<sup>a</sup> Implicit in the average value and expenditure figures taken from table 9 are a variety of experiences, such as those classified by the Recreation Opportunity Spectrum (ROS). However, the figures are not specific to any ROS class because, unfortunately, the data are not collected that way.

<sup>b</sup> The product of the average value per visit multiplied by the total number of recreational visitor days across all ROS classes was converted to 1993 dollars using the average annual Consumer Price Index for 1993 (CPI-U = 144.5).

<sup>c</sup> Hiking, biking, horseback riding and other such nonmotorized trail use (biking is generally not permitted in the primitive ROS class).

<sup>d</sup> Canoeing, kayaking, rafting, drift boating, and other such nonmotorized boating.

<sup>e</sup> Nonconsumptive wildlife viewing, photography and feeding.

<sup>f</sup> Picnicking, nature study, interpretive visits, photography, collecting objects or special forest products, swimming, wading, and other such day uses.

<sup>g</sup> Winter sports other than snowmobiling.

Table E-2 -- Recreational visits and values in 1993 for the ROS Semi-primitive nonmotorized class in the Interior Columbia River Basin by activity.<sup>a</sup>

| Recreation activity           | Semi-primitive nonmotorized |                                    |
|-------------------------------|-----------------------------|------------------------------------|
|                               | Total visits                | 1993 Net annual value <sup>b</sup> |
| Trail use <sup>c</sup>        | 802,443                     | 9,629,316                          |
| Camping                       | 440,592                     | 2,202,960                          |
| Hunting                       | 320,528                     | 11,218,480                         |
| Fishing                       | 240,411                     | 13,463,016                         |
| Nonmotor boating <sup>d</sup> | 83,199                      | 831,990                            |
| Viewing wildlife <sup>e</sup> | 69,513                      | 2,641,494                          |
| Day use <sup>f</sup>          | 694,703                     | 15,978,169                         |
| Winter sports <sup>g</sup>    | 139,186                     | 5,010,696                          |
| Total                         | 2,790,575                   | 60,976,121                         |

Note: Only for those reporting by 6 ROS classes.

<sup>a</sup> Implicit in the average value and expenditure figures taken from table 9 are a variety of experiences, such as those classified by the Recreation Opportunity Spectrum (ROS). However, the figures are not specific to any ROS class because, unfortunately, the data are not collected that way.

<sup>b</sup> The product of the average value per visit multiplied by the total number of recreational visitor days across all ROS classes was converted to 1993 dollars using the average annual Consumer Price Index for 1993 (CPI-U = 144.5).

<sup>c</sup> Hiking, biking, horseback riding and other such nonmotorized trail use.

<sup>d</sup> Canoeing, kayaking, rafting, drift boating, and other such nonmotorized boating.

<sup>e</sup> Nonconsumptive wildlife viewing, photography and feeding.

<sup>f</sup> Picnicking, nature study, interpretive visits, photography, collecting objects and special forest products, swimming, wading, and other such day uses.

<sup>g</sup> Winter sports other than snowmobiling.

Table E-3 -- Total recreational visits and economic values in 1993 for the ROS Semi-primitive motorized class in the Interior Columbia River Basin by activity.<sup>a</sup>

| Recreation activity           | Semi-primitive motorized |                                    |
|-------------------------------|--------------------------|------------------------------------|
|                               | Total visits             | 1993 Net annual value <sup>b</sup> |
| Trail use <sup>c</sup>        | 981,388                  | 11,776,656                         |
| Camping                       | 654,913                  | 3,274,565                          |
| Hunting                       | 530,139                  | 18,554,865                         |
| Fishing                       | 500,103                  | 28,005,768                         |
| Nonmotor boating <sup>d</sup> | 71,382                   | 713,820                            |
| Viewing wildlife <sup>e</sup> | 329,720                  | 12,529,360                         |
| Day use <sup>f</sup>          | 1,542,715                | 35,482,445                         |
| Motor boating <sup>g</sup>    | 67,458                   | 337,290                            |
| Motor viewing <sup>h</sup>    | 1,658,384                | 11,608,688                         |
| Off-road vehicle (ORV) use    | 515,046                  | 6,180,552                          |
| Winter sports <sup>i</sup>    | 274,700                  | 9,889,200                          |
| Snowmobiling                  | 369,529                  | 13,303,044                         |
| Total                         | 7,495,477                | 151,656,253                        |

Note: Only for those reporting by 6 ROS classes.

<sup>a</sup> Implicit in the average value and expenditure figures taken from table 9 are a variety of experiences, such as those classified by the Recreation Opportunity Spectrum (ROS). However, the figures are not specific to any ROS class because, unfortunately, the data are not collected that way.

<sup>b</sup> The product of the average value per visit multiplied by the total number of recreational visitor days across all ROS classes was converted to 1993 dollars using the average annual Consumer Price Index for 1993 (CPI-U = 144.5).

<sup>c</sup> Hiking, biking, horseback riding and other such nonmotorized trail use.

<sup>d</sup> Canoeing, kayaking, rafting, drift boating, and other such nonmotorized boating.

<sup>e</sup> Nonconsumptive wildlife viewing, photography and feeding.

<sup>f</sup> Picnicking, nature study, interpretive visits, photography, collecting objects and special forest products, swimming, wading, and other such day uses.

<sup>g</sup> Motorized boat sightseeing, water skiing, and other such uses.

<sup>h</sup> Motorized sightseeing and exploring by vehicle.

<sup>i</sup> Winter sports other than snowmobiling.

Table E-4 -- Recreational visits and economic values in 1993 for the ROS Roaded natural class in the Interior Columbia River Basin by activity.<sup>a</sup>

| Recreation activity           | Roaded natural |                                    |
|-------------------------------|----------------|------------------------------------|
|                               | Total visits   | 1993 Net annual value <sup>b</sup> |
| Trail use <sup>c</sup>        | 1,461,395      | 37,367,870                         |
| Camping                       | 2,753,954      | 29,384,689                         |
| Hunting                       | 926,189        | 69,214,104                         |
| Fishing                       | 1,840,534      | 220,385,541                        |
| Nonmotor boating <sup>d</sup> | 705,213        | 15,747,406                         |
| Viewing wildlife <sup>e</sup> | 628,632        | 51,566,683                         |
| Day use <sup>f</sup>          | 9,662,545      | 222,238,535                        |
| Motor boating <sup>g</sup>    | 658,639        | 7,462,380                          |
| Motor viewing <sup>h</sup>    | 10,851,231     | 151,917,234                        |
| Off-road vehicle (ORV) use    | 582,338        | 6,988,056                          |
| Winter sports <sup>i</sup>    | 1,140,122      | 88,359,455                         |
| Snowmobiling                  | 729,959        | 56,571,823                         |
| Total                         | 31,940,751     | 957,203,776                        |

Note: Only for those reporting by 6 ROS classes.

<sup>a</sup> Implicit in the average value and expenditure figures taken from table 9 are a variety of experiences, such as those classified by the Recreation Opportunity Spectrum (ROS). However, the figures are not specific to any ROS class because, unfortunately, the data are not collected that way.

<sup>b</sup> The product of the average value per visit multiplied by the total number of recreational visitor days across all ROS classes was converted to 1993 dollars using the average annual Consumer Price Index for 1993 (CPI-U = 144.5).

<sup>c</sup> Hiking, biking, horseback riding and other such nonmotorized trail use.

<sup>d</sup> Canoeing, kayaking, rafting, drift boating, and other such nonmotorized boating.

<sup>e</sup> Nonconsumptive wildlife viewing, photography and feeding.

<sup>f</sup> Picnicking, nature study, interpretive visits, photography, collecting objects and special forest products, swimming, wading, and other such day uses.

<sup>g</sup> Motorized boat sightseeing, water skiing, and other such uses.

<sup>h</sup> Motorized sightseeing and exploring by vehicle.

<sup>i</sup> Winter sports other than snowmobiling.

Table E-5 -- Recreational visits and economic values in 1993 for the ROS Roaded modified class in the Interior Columbia River Basin by activity.<sup>a</sup>

| Recreation activity           | Roaded modified  |                                    |
|-------------------------------|------------------|------------------------------------|
|                               | Total visits     | 1993 Net annual value <sup>b</sup> |
| Trail use <sup>c</sup>        | 566,851          | 14,494,380                         |
| Camping                       | 1,225,114        | 13,071,966                         |
| Hunting                       | 523,118          | 39,092,608                         |
| Fishing                       | 544,913          | 65,247,883                         |
| Nonmotor boating <sup>d</sup> | 97,728           | 2,182,266                          |
| Viewing wildlife <sup>e</sup> | 464,078          | 38,068,318                         |
| Day use <sup>f</sup>          | 1,910,596        | 43,943,708                         |
| Motor boating <sup>g</sup>    | 146,153          | 1,655,913                          |
| Motor viewing <sup>h</sup>    | 3,087,039        | 43,218,546                         |
| Off-road vehicle (ORV) use    | 368,644          | 4,423,728                          |
| Winter sports <sup>i</sup>    | 377,714          | 29,272,835                         |
| Snowmobiling                  | 255,321          | 19,787,378                         |
| <b>Total</b>                  | <b>9,567,269</b> | <b>314,459,529</b>                 |

Note: Only for those reporting by 6 ROS classes.

<sup>a</sup> Implicit in the average value and expenditure figures taken from table 9 are a variety of experiences, such as those classified by the Recreation Opportunity Spectrum (ROS). However, the figures are not specific to any ROS class because, unfortunately, the data are not collected that way.

<sup>b</sup> The product of the average value per visit multiplied by the total number of recreational visitor days across all ROS classes was converted to 1993 dollars using the average annual Consumer Price Index for 1993 (CPI-U = 144.5).

<sup>c</sup> Hiking, biking, horseback riding and other such nonmotorized trail use.

<sup>d</sup> Canoeing, rafting, drift boating, and other such nonmotorized boating.

<sup>e</sup> Nonconsumptive wildlife viewing, photography and feeding.

<sup>f</sup> Picnicking, nature study, interpretive visits, photography, collecting objects and special forest products, swimming, wading, and other such day uses.

<sup>g</sup> Motorized boat sightseeing, water skiing, and other such uses.

<sup>h</sup> Motorized sightseeing and exploring by vehicle.

<sup>i</sup> Winter sports other than snowmobiling.

Table E-6 -- Recreational visits and economic values in 1993 for the combined ROS Rural and Urban classes in the Interior Columbia River Basin by activity.<sup>a</sup>

| Recreation activity           | Rural and Urban   |                                    |
|-------------------------------|-------------------|------------------------------------|
|                               | Total visits      | 1993 Net annual value <sup>b</sup> |
| Trail use <sup>c</sup>        | 809,284           | 20,693,392                         |
| Camping                       | 1,937,574         | 20,673,915                         |
| Hunting                       | 191,256           | 14,292,561                         |
| Fishing                       | 651,934           | 78,062,577                         |
| Nonmotor boating <sup>d</sup> | 186,916           | 4,173,834                          |
| Viewing wildlife <sup>e</sup> | 415,286           | 34,065,911                         |
| Day use <sup>f</sup>          | 8,521,752         | 196,000,296                        |
| Motor boating <sup>g</sup>    | 748,934           | 8,485,422                          |
| Motor viewing <sup>h</sup>    | 2,824,147         | 39,538,058                         |
| Off-road vehicle (ORV) use    | 138,755           | 1,665,060                          |
| Winter sports <sup>i</sup>    | 3,626,415         | 281,047,163                        |
| Snowmobiling                  | 161,131           | 12,487,653                         |
| <b>Total</b>                  | <b>20,213,384</b> | <b>711,185,842</b>                 |

<sup>a</sup> Implicit in the average value and expenditure figures taken from table 9 are a variety of experiences, such as those classified by the Recreation Opportunity Spectrum (ROS). However, the figures are not specific to any ROS class because, unfortunately, the data are not collected that way.

<sup>b</sup> The product of the average value per visit multiplied by the total number of recreational visitor days across all ROS classes was converted to 1993 dollars using the average annual Consumer Price Index for 1993 (CPI-U = 144.5).

<sup>c</sup> Hiking, biking, horseback riding and other such nonmotorized trail use.

<sup>d</sup> Canoeing, kayaking, rafting, drift boating, and other such nonmotorized boating.

<sup>e</sup> Nonconsumptive wildlife viewing, photography and feeding.

<sup>f</sup> Picnicking, nature study, interpretive visits, photography, collecting objects and special forest products, swimming, wading, and other such day uses.

<sup>g</sup> Motorized boat sightseeing, water skiing, and other such uses.

<sup>h</sup> Motorized sightseeing and exploring by vehicle.

<sup>i</sup> Winter sports other than snowmobiling.

Table E-7 -- Recreational visits and economic values in 1993 for the combined Primitive, Semi-primitive nonmotorized, and Semi-primitive motorized ROS classes in the Interior Columbia River Basin by activity.<sup>a</sup>

| Recreation activity           | Primitive, semi-primitive nonmotorized, and semi-primitive motorized |                                    |
|-------------------------------|--|------------------------------------|
|                               | Total visits   | 1993 Net annual value <sup>b</sup> |
| Trail use <sup>c</sup>        | 86,240   | 1,034,880                          |
| Camping                       | 255,366  | 1,276,830                          |
| Hunting                       | 193,816  | 6,783,560                          |
| Fishing                       | 571,710  | 32,015,760                         |
| Nonmotor boating <sup>d</sup> | 15,047   | 150,470                            |
| Viewing wildlife <sup>e</sup> | 28,146   | 1,069,548                          |
| Day use <sup>f</sup>          | 2,467,511  | 56,752,753                         |
| Motor boating <sup>g</sup>    | 491,381  | 2,456,905                          |
| Motor viewing <sup>h</sup>    | 37,284   | 260,988                            |
| Off-road vehicle (ORV) use    | 39,549   | 474,588                            |
| Winter sports <sup>i</sup>    | 33,808   | 1,217,088                          |
| Snowmobiling                  | 5,638  | 202,968                            |
| Total                         | 4,225,496  | 103,696,338                        |

Note: Only for those reporting by 3 ROS classes.

<sup>a</sup> Implicit in the average value figures taken from table 9 are a variety of experiences, such as those classified by the Recreation Opportunity Spectrum (ROS). However, the figures are not specific to any ROS class because, unfortunately, the data are not collected that way.

<sup>b</sup> The product of the average value per visit multiplied by the total number of recreational visitor days across all ROS classes was converted to 1993 dollars using the average annual Consumer Price Index for 1993 (CPI-U = 144.5).

<sup>c</sup> Hiking, biking, horseback riding and other such nonmotorized trail use.

<sup>d</sup> Canoeing, kayaking, rafting, drift boating, and other such nonmotorized boating.

<sup>e</sup> Nonconsumptive wildlife viewing, photography and feeding.

<sup>f</sup> Picnicking, nature study, interpretive visits, photography, collecting objects and special forest products, swimming, wading, and other such day uses.

<sup>g</sup> Motorized boat sightseeing, water skiing, and other such uses.

<sup>h</sup> Motorized sightseeing and exploring by vehicle.

<sup>i</sup> Winter sports other than snowmobiling.

Table E-8 -- Recreational visits and economic values in 1993 for the combined Roded natural and Roded modified ROS classes in the Interior Columbia River Basin by activity.<sup>a</sup>

| Recreation activity           | Combined roded natural and roded modified classes |                                    |
|-------------------------------|---|------------------------------------|
|                               | Total visits                                      | 1993 Net annual value <sup>b</sup> |
| Trail use <sup>c</sup>        | 231,822   | 2,781,864                          |
| Camping                       | 438,217   | 2,191,085                          |
| Hunting                       | 213,341   | 7,466,935                          |
| Fishing                       | 1,307,674   | 73,229,744                         |
| Nonmotor boating <sup>d</sup> | 115,843   | 1,158,430                          |
| Viewing wildlife <sup>e</sup> | 56,229  | 2,136,702                          |
| Day use <sup>f</sup>          | 1,853,376   | 42,627,648                         |
| Motor boating <sup>g</sup>    | 164,958   | 824,790                            |
| Motor viewing <sup>h</sup>    | 532,894   | 3,730,258                          |
| Off-road vehicle (ORV) use    | 131,795   | 1,581,540                          |
| Winter sports <sup>i</sup>    | 58,665  | 2,111,940                          |
| Snowmobiling                  | 21,053  | 757,908                            |
| <b>Total</b>                  | <b>5,125,867</b>                                  | <b>140,598,844</b>                 |

Note: Only for those reporting by 3 ROS classes.

<sup>a</sup> Implicit in the average value figures taken from table 9 are a variety of experiences, such as those classified by the Recreation Opportunity Spectrum (ROS). However, the figures are not specific to any ROS class because, unfortunately, the data are not collected that way.

<sup>b</sup> The product of the average value per visit multiplied by the total number of recreational visitor days across all ROS classes was converted to 1993 dollars using the average annual Consumer Price Index for 1993 (CPI-U = 144.5).

<sup>c</sup> Hiking, biking, horseback riding and other such nonmotorized trail use.

<sup>d</sup> Canoeing, kayaking, rafting, drift boating, and other such nonmotorized boating.

<sup>e</sup> Nonconsumptive wildlife viewing, photography and feeding.

<sup>f</sup> Picnicking, nature study, interpretive visits, photography, collecting objects and special forest products, swimming, wading, and other such day uses.

<sup>g</sup> Motorized boat sightseeing, water skiing, and other such uses.

<sup>h</sup> Motorized sightseeing and exploring by vehicle.

<sup>i</sup> Winter sports other than snowmobiling.

Table F-1. Recreational Job and Income Multipliers by Activity for Region 1<sup>a</sup> of the CRB.

| Recreation Activity           | Job Multipliers <sup>b</sup>   |                      |              | Income Multipliers <sup>c</sup> |                      |              |
|-------------------------------|--|----------------------|--------------|---------------------------------|----------------------|--------------|
|                               | Direct   | Indirect and Induced | Total        | Direct                          | Indirect and Induced | Total        |
|                               | Number of Jobs or Income (1991 dollars) per 1000 visits <sup>d</sup> |                      |              |                                 |                      |              |
| Trail Use <sup>e</sup>        | 1.23   | 0.60                 | 1.83         | .0174                           | .0087                | .0261        |
| Camping                       | 1.54   | 0.76                 | 2.30         | .0230                           | .0111                | .0341        |
| Hunting                       | 1.79   | 0.86                 | 2.65         | .0272                           | .0124                | .0396        |
| Fishing                       | 1.40   | 0.69                 | 2.09         | .0204                           | .0101                | .0305        |
| Nonmotor boating <sup>f</sup> | 0.47   | 0.19                 | 0.66         | .0069                           | .0028                | .0097        |
| View Wildlife <sup>g</sup>    | 1.20   | 0.57                 | 1.77         | .0176                           | .0083                | .0259        |
| Day Use <sup>h</sup>          | 1.33   | 0.65                 | 1.98         | .0195                           | .0095                | .0290        |
| Motor boating                 | 0.80   | 0.32                 | 1.12         | .0118                           | .0047                | .0165        |
| Motor Viewing                 | 1.47   | 0.71                 | 2.18         | .0222                           | .0103                | .0325        |
| ORV Use                       | 0.68   | 0.26                 | 0.94         | .0105                           | .0039                | .0144        |
| Winter Sports <sup>i</sup>    | 0.22   | 0.09                 | 0.31         | .0032                           | .0013                | .0045        |
| Snowmobile                    | 0.75   | 0.31                 | 1.06         | .0111                           | .0045                | .0156        |
| <b>TOTAL</b>                  | <b>12.88</b>   | <b>6.01</b>          | <b>18.89</b> | <b>.1908</b>                    | <b>.0876</b>         | <b>.2784</b> |

<sup>a</sup> Includes Okanogan, Chelan, Kittitas, Yakima, and Klickitat Counties in Washington State.

<sup>b</sup> Job multiplier values are from IMPLAN as in Alward and Caudill (1994)

<sup>c</sup> Income multiplier values are from IMPLAN as in Alward and Caudill (1994).

<sup>d</sup> Primary Visit = a visit by one individual to a recreation area for the purpose of participating in one or more recreation activities for any length of time where only the primary activity for the visitor is considered.

<sup>e</sup> Hiking, biking, horseback riding and other such nonmotorized trail use.

<sup>f</sup> Canoeing, kayaking, rafting, drift boating and other such nonmotorized boating.

<sup>g</sup> Nonconsumptive wildlife viewing, photography and feeding

<sup>h</sup> Picnicking, nature study, interpretive visits, photography, collecting objects and special forest products, swimming, wading and other such day uses.

<sup>i</sup> Winter sports other than snowmobiling

Table F-2. Recreational Job and Income Multipliers by Activity for Region 2<sup>a</sup> of the CRB.

| Recreation Activity           | Job Multipliers <sup>b</sup>   |                      |       | Income Multipliers <sup>c</sup> |                      |       |
|-------------------------------|--|----------------------|-------|---------------------------------|----------------------|-------|
|                               | Direct   | Indirect and Induced | Total | Direct                          | Indirect and Induced | Total |
|                               | Number of Jobs or Income (1991 dollars) per 1000 visits <sup>d</sup> |                      |       |                                 |                      |       |
| Trail Use <sup>e</sup>        | 1.04   | 0.79                 | 1.83  | .0144                           | .0121                | .0265 |
| Camping                       | 1.36   | 1.06                 | 2.42  | .0200                           | .0162                | .0362 |
| Hunting                       | 1.62   | 1.23                 | 2.85  | .0241                           | .0188                | .0429 |
| Fishing                       | 1.21   | 0.95                 | 2.16  | .0173                           | .0145                | .0318 |
| Nonmotor boating <sup>f</sup> | 0.25   | 0.15                 | 0.40  | .0038                           | .0023                | .0061 |
| View Wildlife <sup>g</sup>    | 1.01   | 0.75                 | 1.76  | .0146                           | .0115                | .0261 |
| Day Use <sup>h</sup>          | 1.14   | 0.88                 | 2.02  | .0166                           | .0133                | .0299 |
| Motor boating                 | 0.59   | 0.35                 | 0.94  | .0086                           | .0054                | .0140 |
| Motor Viewing                 | 1.29   | 0.99                 | 2.28  | .0191                           | .0152                | .0343 |
| ORV Use                       | 0.48   | 0.26                 | 0.74  | .0074                           | .0040                | .0114 |
| Winter Sports <sup>i</sup>    | 0.22   | 0.14                 | 0.36  | .0032                           | .0021                | .0053 |
| Snowmobile                    | 0.54   | 0.33                 | 0.87  | .0079                           | .0051                | .0130 |
| <b>TOTAL</b> *                | 10.75  | 7.88                 | 18.63 | .1570                           | .1205                | .2775 |

<sup>a</sup> Includes Ferry, Pend Oreille, Lincoln, Grant, Adams, Spokane, Whitman, Franklin, Benton, Garfield, Columbia, Walla Walla and Asotin Counties in the state of Washington as well as Benewah, Bonner, Boundary, Kootenai, Shoshone, Clearwater, Idaho, Latah, Lewis, and Nez Perce Counties in Idaho.

<sup>b</sup> Job multiplier values are from IMPLAN as in Alward and Caudill (1994)

<sup>c</sup> Income multiplier values are from IMPLAN as in Alward and Caudill (1994).

<sup>d</sup> Primary Visit = a visit by one individual to a recreation area for the purpose of participating in one or more recreation activities for any length of time where only the primary activity for the visitor is considered.

<sup>e</sup> Hiking, biking, horseback riding and other such nonmotorized trail use.

<sup>f</sup> Canoeing, kayaking, rafting, drift boating and other such nonmotorized boating.

<sup>g</sup> Nonconsumptive wildlife viewing, photography and feeding

<sup>h</sup> Picnicking, nature study, interpretive visits, photography, collecting objects and special forest products, swimming, wading and other such day uses.

<sup>i</sup> Winter sports other than snowmobiling

Table F-3. Recreational Job and Income Multipliers by Activity for Region 3<sup>a</sup> of the CRB.

| Recreation Activity           | Job Multipliers <sup>b</sup>   |                      |       | Income Multipliers <sup>c</sup> |                      |       |
|-------------------------------|--|----------------------|-------|---------------------------------|----------------------|-------|
|                               | Direct   | Indirect and Induced | Total | Direct                          | Indirect and Induced | Total |
|                               | Number of Jobs or Income (1991 dollars) per 1000 visits <sup>d</sup> |                      |       |                                 |                      |       |
| Trail Use <sup>e</sup>        | 1.24   | 1.00                 | 2.24  | .0160                           | .0127                | .0287 |
| Camping                       | 1.63   | 1.32                 | 2.95  | .0217                           | .0170                | .0387 |
| Hunting                       | 1.93   | 1.70                 | 3.63  | .0272                           | .0217                | .0489 |
| Fishing                       | 1.46   | 1.18                 | 2.64  | .0191                           | .0151                | .0342 |
| Nonmotor boating <sup>f</sup> | 0.30   | 0.18                 | 0.48  | .0041                           | .0024                | .0065 |
| View Wildlife <sup>g</sup>    | 1.20   | 0.95                 | 2.15  | .0165                           | .0121                | .0286 |
| Day Use <sup>h</sup>          | 1.37   | 1.10                 | 2.47  | .0185                           | .0140                | .0325 |
| Motor boating                 | 0.71   | 0.43                 | 1.14  | .0095                           | .0055                | .0150 |
| Motor Viewing                 | 1.59   | 1.25                 | 2.84  | .0207                           | .0161                | .0368 |
| ORV Use                       | 0.57   | 0.32                 | 0.89  | .0085                           | .0041                | .0126 |
| Winter Sports <sup>i</sup>    | 0.28   | 0.18                 | 0.46  | .0035                           | .0023                | .0058 |
| Snowmobile                    | 0.65   | 0.40                 | 1.05  | .0085                           | .0052                | .0137 |
| <b>TOTAL</b>                  | 12.93  | 10.01                | 22.94 | .1738                           | .1282                | .3020 |

<sup>a</sup> Includes Lincoln, Flathead, Sanders, Lake, Mineral, Missoula, Powell, Granite, Ravalli, Deer Lodge and Silver Bow Counties in Montana.

<sup>b</sup> Job multiplier values are from IMPLAN as in Alward and Caudill (1994)

<sup>c</sup> Income multiplier values are from IMPLAN as in Alward and Caudill

(1994).

<sup>d</sup> Primary Visit = a visit by one individual to a recreation area for the purpose of participating in one or more recreation activities for any length of time where only the primary activity for the visitor is considered.

<sup>e</sup> Hiking, biking, horseback riding and other such nonmotorized trail use.

<sup>f</sup> Canoeing, kayaking, rafting, drift boating and other such nonmotorized boating.

<sup>g</sup> Nonconsumptive wildlife viewing, photography and feeding

<sup>h</sup> Picnicking, nature study, interpretive visits, photography, collecting objects and special forest products, swimming, wading and other such day uses.

<sup>i</sup> Winter sports other than snowmobiling

Table F-4. Recreational Job and Income Multipliers by Activity for Region 4<sup>a</sup> of the CRB.

| Recreation Activity           | Job Multipliers <sup>b</sup>   |                      |       | Income Multipliers <sup>c</sup> |                      |       |
|-------------------------------|--|----------------------|-------|---------------------------------|----------------------|-------|
|                               | Direct   | Indirect and Induced | Total | Direct                          | Indirect and Induced | Total |
|                               | Number of Jobs or Income (1991 dollars) per 1000 visits <sup>d</sup> |                      |       |                                 |                      |       |
| Trail Use <sup>e</sup>        | 1.15   | 0.72                 | 1.87  | .0169                           | .0103                | .0272 |
| Camping                       | 1.49   | 0.96                 | 2.45  | .0228                           | .0138                | .0366 |
| Hunting                       | 1.81   | 1.13                 | 2.94  | .0284                           | .0162                | .0446 |
| Fishing                       | 1.31   | 0.85                 | 2.16  | .0199                           | .0122                | .0321 |
| Nonmotor boating <sup>f</sup> | 0.28   | 0.14                 | 0.42  | .0044                           | .0020                | .0064 |
| View Wildlife <sup>g</sup>    | 1.15   | 0.71                 | 1.86  | .0176                           | .0100                | .0276 |
| Day Use <sup>h</sup>          | 1.27   | 0.81                 | 2.08  | .0194                           | .0115                | .0309 |
| Motor boating                 | 0.64   | 0.32                 | 0.96  | .0098                           | .0047                | .0145 |
| Motor Viewing                 | 1.45   | 0.91                 | 2.36  | .0221                           | .0129                | .0350 |
| ORV Use                       | 0.55   | 0.25                 | 0.80  | .0088                           | .0037                | .0125 |
| Winter Sports <sup>i</sup>    | 0.25   | 0.13                 | 0.38  | .0038                           | .0019                | .0057 |
| Snowmobile                    | 0.59   | 0.30                 | 0.89  | .0089                           | .0045                | .0134 |
| <b>TOTAL</b>                  | 11.94  | 7.23                 | 19.17 | .1828                           | .1037                | .2865 |

<sup>a</sup> Includes Hood River, Wasco, Sherman, Gilliam, Wheeler, Jefferson, Crook, Deschutes, Lake and Klamath Counties in Oregon.

<sup>b</sup> Job multiplier values are from IMPLAN as in Alward and Caudill (1994)

<sup>c</sup> Income multiplier values are from IMPLAN as in Alward and Caudill (1994).

<sup>d</sup> Primary Visit = a visit by one individual to a recreation area for the purpose of participating in one or more recreation activities for any length of time where only the primary activity for the visitor is considered.

<sup>e</sup> Hiking, biking, horseback riding and other such nonmotorized trail use.

<sup>f</sup> Canoeing, kayaking, rafting, drift boating and other such nonmotorized boating.

<sup>g</sup> Nonconsumptive wildlife viewing, photography and feeding

<sup>h</sup> Picnicking, nature study, interpretive visits, photography, collecting objects and special forest products, swimming, wading and other such day uses.

<sup>i</sup> Winter sports other than snowmobiling

Table F-5. Recreational Job and Income Multipliers by Activity for Region 5<sup>a</sup> of the CRB.

| Recreation Activity           | Job Multipliers <sup>b</sup>   |                      |       | Income Multipliers <sup>c</sup> |                      |       |
|-------------------------------|--|----------------------|-------|---------------------------------|----------------------|-------|
|                               | Direct   | Indirect and Induced | Total | Direct                          | Indirect and Induced | Total |
|                               | Number of Jobs or Income (1991 dollars) per 1000 visits <sup>d</sup> |                      |       |                                 |                      |       |
| Trail Use <sup>e</sup>        | 1.26   | 0.57                 | 1.83  | .0159                           | .0073                | .0232 |
| Camping                       | 1.64   | 0.74                 | 2.38  | .0217                           | .0097                | .0314 |
| Hunting                       | 2.00   | 0.89                 | 2.89  | .0269                           | .0115                | .0384 |
| Fishing                       | 1.45   | 0.66                 | 2.11  | .0189                           | .0087                | .0276 |
| Nonmotor boating <sup>f</sup> | 0.31   | 0.11                 | 0.42  | .0041                           | .0015                | .0056 |
| View Wildlife <sup>g</sup>    | 1.23   | 0.55                 | 1.78  | .0162                           | .0070                | .0232 |
| Day Use <sup>h</sup>          | 1.39   | 0.63                 | 2.02  | .0183                           | .0081                | .0264 |
| Motor boating                 | 0.71   | 0.26                 | 0.97  | .0094                           | .0035                | .0129 |
| Motor Viewing                 | 1.60   | 0.71                 | 2.31  | .0207                           | .0086                | .0293 |
| ORV Use                       | 0.60   | 0.21                 | 0.81  | .0084                           | .0027                | .0111 |
| Winter Sports <sup>i</sup>    | 0.27   | 0.10                 | 0.37  | .0036                           | .0013                | .0049 |
| Snowmobile                    | 0.63   | 0.24                 | 0.87  | .0084                           | .0032                | .0116 |
| <b>TOTAL</b>                  | 13.09  | 5.67                 | 18.76 | .1725                           | .0731                | .2456 |

<sup>a</sup> Includes Morrow, Umatilla, Union, Wallowa, Baker, Grant, Malheur and Harney Counties in Oregon.

<sup>b</sup> Job multiplier values are from IMPLAN as in Alward and Caudill (1994)

<sup>c</sup> Income multiplier values are from IMPLAN as in Alward and Caudill (1994).

<sup>d</sup> Primary Visit = a visit by one individual to a recreation area for the purpose of participating in one or more recreation activities for any length of time where only the primary activity for the visitor is considered.

<sup>e</sup> Hiking, biking, horseback riding and other such nonmotorized trail use.

<sup>f</sup> Canoeing, kayaking, rafting, drift boating and other such nonmotorized boating.

<sup>g</sup> Nonconsumptive wildlife viewing, photography and feeding

<sup>h</sup> Picnicking, nature study, interpretive visits, photography, collecting objects and special forest products, swimming, wading and other such day uses.

<sup>i</sup> Winter sports other than snowmobiling

Table F-6. Recreational Job and Income Multipliers by Activity for Region 6<sup>a</sup> of the CRB.

| Recreation Activity           | Job Multipliers <sup>b</sup>   |                      |              | Income Multipliers <sup>c</sup> |                      |              |
|-------------------------------|--|----------------------|--------------|---------------------------------|----------------------|--------------|
|                               | Direct   | Indirect and Induced | Total        | Direct                          | Indirect and Induced | Total        |
|                               | Number of Jobs or Income (1991 dollars) per 1000 visits <sup>d</sup> |                      |              |                                 |                      |              |
| Trail Use <sup>e</sup>        | 1.10   | 0.77                 | 1.87         | .0154                           | .0107                | .0261        |
| Camping                       | 1.45   | 1.02                 | 2.47         | .0210                           | .0144                | .0354        |
| Hunting                       | 1.71   | 1.17                 | 2.88         | .0260                           | .0164                | .0424        |
| Fishing                       | 1.29   | 0.92                 | 2.21         | .0183                           | .0130                | .0313        |
| Nonmotor boating <sup>f</sup> | 0.27   | 0.15                 | 0.42         | .0040                           | .0021                | .0061        |
| View Wildlife <sup>g</sup>    | 1.07   | 0.56                 | 1.63         | .0158                           | .0079                | .0237        |
| Day Use <sup>h</sup>          | 1.21   | 0.83                 | 2.04         | .0177                           | .0118                | .0295        |
| Motor boating                 | 0.63   | 0.36                 | 0.99         | .0091                           | .0049                | .0140        |
| Motor Viewing                 | 1.39   | 0.95                 | 2.34         | .0203                           | .0134                | .0337        |
| ORV Use                       | 0.50   | 0.25                 | 0.75         | .0080                           | .0036                | .0116        |
| Winter Sports <sup>i</sup>    | 0.23   | 0.14                 | 0.37         | .0033                           | .0019                | .0052        |
| Snowmobile                    | 0.59   | 0.33                 | 0.92         | .0082                           | .0047                | .0129        |
| <b>TOTAL</b>                  | <b>11.44</b>   | <b>7.45</b>          | <b>18.89</b> | <b>.1671</b>                    | <b>.1048</b>         | <b>.2719</b> |

<sup>a</sup> Includes Ada, Adams, Boise, Canyon, Elmore, Gem, Owyhee, Payette, Valley, Washington, Lemhi, Custer, Camas, Gooding and Twin Falls Counties in Idaho.

<sup>b</sup> Job multiplier values are from IMPLAN as in Alward and Caudill (1994)

<sup>c</sup> Income multiplier values are from IMPLAN as in Alward and Caudill (1994).

<sup>d</sup> Primary Visit = a visit by one individual to a recreation area for the purpose of participating in one or more recreation activities for any length of time where only the primary activity for the visitor is considered.

<sup>e</sup> Hiking, biking, horseback riding and other such nonmotorized trail use.

<sup>f</sup> Canoeing, kayaking, rafting, drift boating and other such nonmotorized boating.

<sup>g</sup> Nonconsumptive wildlife viewing, photography and feeding

<sup>h</sup> Picnicking, nature study, interpretive visits, photography, collecting objects and special forest products, swimming, wading and other such day uses.

<sup>i</sup> Winter sports other than snowmobiling

Table F-7. Recreational Job and Income Multipliers by Activity for Region 7<sup>a</sup> of the CRB.

| Recreation Activity           | Job Multipliers <sup>b</sup>   |                      |              | Income Multipliers <sup>c</sup> |                      |              |
|-------------------------------|--|----------------------|--------------|---------------------------------|----------------------|--------------|
|                               | Direct   | Indirect and Induced | Total        | Direct                          | Indirect and Induced | Total        |
|                               | Number of Jobs or Income (1991 dollars) per 1000 visits <sup>d</sup> |                      |              |                                 |                      |              |
| Trail Use <sup>e</sup>        | 1.13   | 0.73                 | 1.86         | .0152                           | .0096                | .0248        |
| Camping                       | 1.48   | 0.97                 | 2.45         | .0209                           | .0129                | .0338        |
| Hunting                       | 1.76   | 1.12                 | 2.88         | .0255                           | .0148                | .0403        |
| Fishing                       | 1.32   | 0.87                 | 2.19         | .0182                           | .0116                | .0298        |
| Nonmotor boating <sup>f</sup> | 0.28   | 0.14                 | 0.42         | .0040                           | .0019                | .0059        |
| View Wildlife <sup>g</sup>    | 1.12   | 0.70                 | 1.82         | .0158                           | .0092                | .0250        |
| Day Use <sup>h</sup>          | 1.25   | 0.80                 | 2.05         | .0175                           | .0106                | .0281        |
| Motor boating                 | 0.64   | 0.33                 | 0.97         | .0090                           | .0045                | .0135        |
| Motor Viewing                 | 1.46   | 0.92                 | 2.38         | .0199                           | .0122                | .0321        |
| ORV Use                       | 0.51   | 0.25                 | 0.76         | .0078                           | .0033                | .0111        |
| Winter Sports <sup>i</sup>    | 0.25   | 0.13                 | 0.38         | .0032                           | .0018                | .0050        |
| Snowmobile                    | 0.60   | 0.31                 | 0.91         | .0084                           | .0043                | .0127        |
| <b>TOTAL</b>                  | <b>11.80</b>   | <b>7.27</b>          | <b>19.07</b> | <b>.1654</b>                    | <b>.0967</b>         | <b>.2621</b> |

<sup>a</sup> Includes Blaine, Cassia, Jerome, Lincoln, Minidoka, Bonneville, Butte, Clark, Fremont, Jefferson, Madison, Teton, Bannock, Bear Lake, Bingham, Caribou, Franklin, Oneida, and Power Counties in Idaho.

<sup>b</sup> Job multiplier values are from IMPLAN as in Alward and Caudill

(1994)

<sup>c</sup> Income multiplier values are from IMPLAN as in Alward and Caudill (1994).

<sup>d</sup> Primary Visit = a visit by one individual to a recreation area for the purpose of participating in one or more recreation activities for any length of time where only the primary activity for the visitor is considered.

<sup>e</sup> Hiking, biking, horseback riding and other such nonmotorized trail use.

<sup>f</sup> Canoeing, kayaking, rafting, drift boating and other such nonmotorized boating.

<sup>g</sup> Nonconsumptive wildlife viewing, photography and feeding

<sup>h</sup> Picnicking, nature study, interpretive visits, photography, collecting objects and special forest products, swimming, wading and other such day uses.

<sup>i</sup> Winter sports other than snowmobiling.

APPENDIX G

Special Use Permit Revenues by Agency and Activity

Table G-1--Number of permits and revenue generated from recreational activities on Bureau of Land Management lands in the Interior Columbia River Basin, 1993 data<sup>a</sup>.

| PERMITTED RECREATION ACTIVITY <sup>b</sup>  | TOTAL NUMBER OF PERMITS <sup>c</sup> | TOTAL AGENCY REVENUE <sup>d</sup> |
|---|--------------------------------------|-----------------------------------|
|   |                                      | dollars                           |
| General User Fees or Permits:               |                                      |                                   |
| Campground fees                             | 4,907                                | 14,723                            |
| Backcountry use fees                        | 12,871                               | 76,761                            |
| River use fees                              | 0                                    | 0                                 |
| Other: _____                                | 10                                   | 99                                |
| Recreational Special Forest Products:       |                                      |                                   |
| Christmas trees                             | 833                                  | 2,798                             |
| Firewood                                    | 932                                  | 19,034                            |
| Personal use mushrooms, berries, etc        | 21                                   | 340                               |
| Other: _____                                | 92                                   | 10,754                            |
| Special use permits:                        | 7                                    | 1,300                             |
| Horse or llama packers                      | 15                                   | 1,884                             |
| Cross-country skiing tours (groups)         | 2                                    | 120                               |
| Four-wheel drive tours                      | 8                                    | 1,387                             |
| Guide services--photography, hiking, and so |                                      |                                   |
| Hunting--elk, deer, cougar,                 |                                      |                                   |
| Fishing--steelhead, and so forth            | 130                                  | 26,482                            |
| River rafting operators                     | 185                                  | 124,175                           |
| Powerboat tour operators                    | 7                                    | 3,692                             |
| Schools, institutes, and so forth           | 5                                    | 24,335                            |
| Downhill ski areas                          | 1                                    | 1,200                             |
| Dude ranches                                | 2                                    | 2,450                             |
| Film and video permits                      | 1                                    | 200                               |
| Other: _____                                | 13                                   | 2,028                             |
| Concessionaires:                            |                                      |                                   |
| Other: _____                                | 1                                    | 32,164                            |
| Rentals:                                    |                                      |                                   |
| Cabins                                      | 6                                    | 60                                |
| Other: _____                                | 6                                    | 6,355                             |
|   |                                      |                                   |

|       |        |         |
|-------|--------|---------|
| Total | 22,776 | 357,237 |
|-------|--------|---------|

<sup>a</sup> The 1993 data should be an average of activity for 1991, 1992, and 1993.

<sup>b</sup> A brainstormed list of activities, by general category, happening across various Agency lands. Some activities may be administered under a variety of agreements, contracts, and so forth, depending on local circumstances.

<sup>c</sup> Total number of operator or outfitter and guide permits who are conducting business on Agency lands.

<sup>d</sup> Payments to the Agency by the operators or outfitters and guides. For example, the Forest Service revenues are generally collected at the end of each operators "season" of use. Collections are generally made based on some percentage of gross operator revenue. Some activities may be administered based on bids (i.e. concessionaires) plus an additional percentage of gross income.

#### REVENUES BY BLM DISTRICT

| BLM DISTRICT  | TOTAL NUMBER OF PERMITS | TOTAL AGENCY REVENUE (1993 dollars) |
|---------------|-------------------------|-------------------------------------|
| Spokane       | 0                       | 0                                   |
| Vale          | 1,960                   | 14,870                              |
| Prineville    | 8,740                   | 161,699                             |
| Lakeview      | 874                     | 14,928                              |
| Burns         | 7,657                   | 22,389                              |
| Garnet        | 47                      | 608                                 |
| Couer d'Alene | 988                     | 55,382                              |
| Salmon        | 1,007                   | 7,555                               |
| Boise         | 24                      | 2,780                               |
| Idaho Falls   | 563                     | 8,636                               |
| Shoshone      | 16                      | 57,384                              |
| Burley        | 893                     | 9,705                               |
| Nevada        | 7                       | 1,300                               |
|               |                         |                                     |
| Total         | 22,776                  | 357,237                             |

Table G-2--Number of permits and revenue generated from recreational activities on National Forest lands in the Interior Columbia River Basin, 1993 data<sup>a</sup>.

| PERMITTED RECREATION ACTIVITY <sup>b</sup> | TOTAL NUMBER OF PERMITS <sup>c</sup> | TOTAL AGENCY REVENUE <sup>d</sup> |
|--|--------------------------------------|-----------------------------------|
|  |                                      | dollars                           |
| General User Fees or Permits:              |                                      |                                   |
| Campground fees                            | 89,478                               | 1,513,034                         |
| River use fees                             | 2,854                                | 17,125                            |
| Other: _____                               | 1,616                                | 232,453                           |
| Recreational Special Forest Products:      |                                      |                                   |
| Firewood                                   | 99,690                               | 1,153,234                         |
| Personal use mushrooms, berries, etc       | 12,842                               | 224,903                           |
| Other: _____                               | 285                                  | 255,500                           |
| Special use permits:                       |                                      |                                   |
| Drop camps                                 | 11                                   | 6,320                             |
| Mountain biking tours (groups)             | 19                                   | 3,338                             |
| Cross-country skiing tours (groups)        | 13                                   | 3,034                             |
| Snowmobile tours                           | 26                                   | 10,394                            |
| Four-wheel drive tours                     | 4                                    | 272                               |
| Guide services-photography                 |                                      |                                   |
| Hunting-elk, deer, cougar,                 |                                      |                                   |
| Fishing-steelhead, and so forth            | 23                                   | 11,026                            |
| Scenic overflights                         | 1                                    | 60                                |
| Helicopter skiing                          | 2                                    | 1,519                             |
| River rafting operators                    | 153                                  | 248,956                           |
| Powerboat tour operators                   | 23                                   | 38,671                            |
| Schools, institutes, and so forth          | 21                                   | 40,366                            |
| Downhill ski areas                         | 35                                   | 896,166                           |
| Dude ranches                               | 5                                    | 7,803                             |
| Working ranches                            | 16                                   | 1,291                             |
| Film and video permits                     | 63                                   | 90,216                            |
| Other: _____                               | 772                                  | 742,900                           |
| Concessionaires:                           |                                      |                                   |
| Facilities                                 | 20                                   | 99,651                            |
| Lodging                                    | 55                                   | 175,544                           |
| Other: _____                               | 685                                  | 342,645                           |
| Rentals:                                   | 2                                    | 780                               |

|              |         |           |
|--------------|---------|-----------|
| Lookouts     | 571     | 18,660    |
| Cabins       | 474     | 29,571    |
| Facilities   | 51      | 11,292    |
| Other: _____ | 2       | 814       |
|              |         |           |
| Total        | 273,564 | 7,071,360 |

Note: Data does not include the Gifford Pinchot National Forest.

<sup>a</sup> The 1993 data should be an average of activity for 1991, 1992, and 1993.

<sup>b</sup> A brainstormed list of activities, by general category, happening across various Agency lands. Some activities may be administered under a variety of agreements, contracts, and so forth, depending on local circumstances.

<sup>c</sup> Total number of operator or outfitter and guide permits who are conducting business on Agency lands.

<sup>d</sup> Payments to the Agency by the operators or outfitters and guides. For example, the Forest Service revenues are generally collected at the end of each operators "season" of use. Collections are generally made based on some percentage of gross operator revenue. Some activities may be administered based on bids (i.e. concessionaires) plus an additional percentage of gross income.

REVENUES BY NATIONAL FOREST

| NATIONAL FOREST | TOTAL NUMBER OF PERMITS | TOTAL AGENCY REVENUE |
|-----------------|-------------------------|----------------------|
| Gifford Pinchot | 14                      | 17,534               |
| Colville        | 4,985                   | 46,440               |
| Okanogan        | 3,376                   | 138,597              |
| Wenatchee       | 15,596                  | 921,219              |
| Mt. Hood        | 1,679                   | 160,336              |
| Wallowa-Whitman | 21,375                  | 239,053              |
| Malheur         | 4,357                   | 93,393               |
| Umatilla        | 24,538                  | 90,092               |
| Winema          | 17,714                  | 382,184              |
| Ochoco          | 7,355                   | 54,247               |
| Deschutes       | 21,146                  | 1,341,869            |
| Fremont         | 4,376                   | 17,445               |
| Bitterroot      | 7,700                   | 130,379              |
| Deerlodge       | 11,120                  | 384,180              |
| Flathead        | 9,906                   | 362,652              |
| Helena          | 5,290                   | 33,279               |
| Kootenai        | 11,191                  | 154,733              |
| Lolo            | 14,871                  | 210,289              |
| Idaho Panhandle | 24,943                  | 278,520              |
| Clearwater      | 11,071                  | 140,861              |
| Nez Perce       | 3,434                   | 95,228               |
| Boise           | 9,840                   | 250,430              |
| Caribou         | 3,612                   | 66,622               |
| Challis         | 1,972                   | 175,923              |
| Payette         | 6,484                   | 157,184              |
| Salmon          | 2,182                   | 103,408              |
| Sawtooth        | 6,706                   | 341,539              |
| Targhee         | 11,251                  | 462,683              |
| Humboldt        | 1,301                   | 13,098               |
| Bridger-Teton   | 4,182                   | 207,953              |
|                 |                         |                      |
| Total           | 273,564                 | 7,071,360            |



Table G-3--Number of permits and revenue generated from recreational activities on National Parks lands in the Interior Columbia River Basin, 1993 data<sup>a</sup>.

| PERMITTED RECREATION ACTIVITY <sup>b</sup> | TOTAL NUMBER OF PERMITS <sup>c</sup> | TOTAL AGENCY REVENUE <sup>d</sup> |
|--|--------------------------------------|-----------------------------------|
|  |                                      | dollars                           |
| General User Fees or Permits:              |                                      |                                   |
| Campground fees                            | 69,021                               | 653,839                           |
| Backcountry use fees                       | 5,820                                | 0                                 |
| Other: _____                               | 5,988                                | 18,986                            |
| Recreational Special Forest Products:      |                                      |                                   |
| Firewood                                   | 20                                   | 1,751                             |
| Special use permits:                       |                                      |                                   |
| Guide services-photography                 |                                      |                                   |
| Fishing-steelhead, and so forth            | 2                                    | 200                               |
| River rafting operators                    | 13                                   | 1,300                             |
| Powerboat tour operators                   | 1                                    | 100                               |
| Schools, institutes, and so forth          | 1                                    | 0                                 |
| Film and video permits                     | 6                                    | 4,200                             |
| Other: _____                               | 7                                    | 700                               |
| Concessionaires:                           |                                      |                                   |
| Facilities                                 | 1                                    | 7,460                             |
| Lodging                                    | 2                                    | 18,643                            |
| Other: _____                               | 4                                    | 12,153                            |
| Rentals:                                   |                                      |                                   |
| Other: _____                               | 3                                    | 26,647                            |
|  |                                      |                                   |
| Total                                      | 731,776                              | 2,492,217                         |

<sup>a</sup> The 1993 data should be an average of activity for 1991, 1992, and 1993.

<sup>b</sup> A brainstormed list of activities, by general category, happening across various Agency lands. Some activities may be administered under a variety of agreements, contracts, and so forth, depending on local circumstances.

<sup>c</sup> Total number of operator or outfitter and guide permits who are conducting business on Agency lands.

<sup>d</sup> Payments to the Agency by the operators or outfitters and guides. For example, the Forest Service revenues are generally collected at the end of each operators "season" of use. Collections are generally made based on some percentage of gross operator revenue. Some activities may be administered based on bids (i.e. concessionaires) plus an additional percentage of gross income.

REVENUES BY NATIONAL PARKS

| NATIONAL PARK         | TOTAL NUMBER OF PERMITS | TOTAL AGENCY REVENUE |
|-----------------------|-------------------------|----------------------|
| Coulee Dam            | 7                       | 184,800              |
| Whitman Mission       | 7,000                   | 16,060               |
| Lake Chelan           | 9,994                   | 32,611               |
| Crater Lake           | 491,723                 | 611,010              |
| John Day              | 0                       | 0                    |
| Nez Perce             | 0                       | 13,428               |
| Glacier               | 191,596                 | 1,494,762            |
| Grant Kohrs Ranch     | 4,370                   | 6,133                |
| City of Rocks         | 4,958                   | 30,262               |
| Hagermann Fossil Beds | 0                       | 0                    |
| Craters of the Moon   | 22,123                  | 101,400              |
|                       |                         |                      |
| Total                 | 731,776                 | 2,492,217            |

Table G-4--Number of permits and revenue generated from recreational activities on US Fish and Wildlife Service lands in the Interior Columbia River Basin, 1993 data<sup>a</sup>.

| PERMITTED RECREATION ACTIVITY <sup>b</sup> | TOTAL NUMBER OF PERMITS <sup>c</sup> | TOTAL AGENCY REVENUE <sup>d</sup> |
|--|--------------------------------------|-----------------------------------|
|  |                                      | dollars                           |
| General User Fees or Permits:              |                                      |                                   |
| Backcountry use fees                       | 149                                  | 1,125                             |
| Other: _____                               | 1,800                                | 9,800                             |
| Recreational Special Forest Products:      |                                      |                                   |
| Firewood                                   | 3                                    | 0                                 |
| Special use permits:                       |                                      |                                   |
| Cross-country skiing tours (groups)        | 375                                  | 0                                 |
| Guide services-photography                 |                                      |                                   |
| Hunting-elk, deer, cougar,                 |                                      |                                   |
| Fishing-steelhead, and so forth            | 13,050                               | 0                                 |
| Schools, institutes, and so forth          | 7,140                                | 0                                 |
| Film and video permits                     | 5                                    | 125                               |
| Rentals:                                   |                                      |                                   |
| Other: _____                               | 5                                    | 0                                 |
|  |                                      |                                   |
| <b>Total</b>                               | <b>277,530</b>                       | <b>12,825</b>                     |

<sup>a</sup> The 1993 data should be an average of activity for 1991, 1992, and 1993.

<sup>b</sup> A brainstormed list of activities, by general category, happening across various Agency lands. Some activities may be administered under a variety of agreements, contracts, and so forth, depending on local circumstances.

<sup>c</sup> Total number of operator or outfitter and guide permits who are conducting business on Agency lands.

<sup>d</sup> Payments to the Agency by the operators or outfitters and guides. For example, the Forest Service revenues are generally collected at the end of each operators "season" of use. Collections are generally made based on some percentage of gross operator revenue. Some activities may be administered based on bids (i.e. concessionaires) plus an additional percentage of gross income.

REVENUES BY NATIONAL WILDLIFE REFUGES

| NATIONAL WILDLIFE REFUGE | TOTAL NUMBER OF PERMITS | TOTAL AGENCY REVENUE |
|--------------------------|-------------------------|----------------------|
| Bison Range              | 275,720                 | 1,275                |
| Klamath Basin            | 1,707                   | 11,550               |
| Conboy                   | 3                       | 0                    |
| Malheur                  | 100                     | 0                    |
|                          |                         |                      |
| Total                    | 277,530                 | 12,825               |

Table G-5--Number of permits and revenue generated from recreational activities on Corps of Engineers lands in the Interior Columbia River Basin, 1993 data<sup>a</sup>.

| PERMITTED RECREATION ACTIVITY <sup>b</sup> | TOTAL NUMBER OF PERMITS <sup>c</sup> | TOTAL AGENCY REVENUE <sup>d</sup> |
|--|--------------------------------------|-----------------------------------|
|  |                                      | dollars                           |
| General User Fees or Permits:              |                                      |                                   |
| Campground fees                            | 2,405                                | 33,556                            |
| Concessionaires:                           |                                      |                                   |
| Lodging                                    | 3                                    | 0                                 |
| Other: _____                               | 1                                    | 0                                 |
|  |                                      |                                   |
| Total                                      | 2,409                                | 33,556                            |

Note: Data is for the Dalles district only.

<sup>a</sup> The 1993 data should be an average of activity for 1991, 1992, and 1993.

<sup>b</sup> A brainstormed list of activities, by general category, happening across various Agency lands. Some activities may be administered under a variety of agreements, contracts, and so forth, depending on local circumstances.

<sup>c</sup> Total number of operator or outfitter and guide permits who are conducting business on Agency lands.

<sup>d</sup> Payments to the Agency by the operators or outfitters and guides. For example, the Forest Service revenues are generally collected at the end of each operators "season" of use. Collections are generally made based on some percentage of gross operator revenue. Some activities may be administered based on bids (i.e. concessionaires) plus an additional percentage of gross income.

Table G-6--Number of permits and revenue generated from recreational activities on Oregon Parks and Recreation Forest lands in the Interior Columbia River Basin, 1993 data<sup>a</sup>.

| PERMITTED RECREATION ACTIVITY <sup>b</sup> | TOTAL NUMBER OF PERMITS <sup>c</sup> | TOTAL AGENCY REVENUE <sup>d</sup> |
|--|--------------------------------------|-----------------------------------|
|  |                                      | dollars                           |
| General User Fees or Permits:              |                                      |                                   |
| Campground fees                            | 0                                    | 1,848,940                         |
| Concessionaires:                           |                                      |                                   |
| Facilities                                 | 3                                    | 62,893                            |
|  |                                      |                                   |
| Total                                      | 3                                    | 1,953,933                         |

<sup>a</sup> The 1993 data should be an average of activity for 1991, 1992, and 1993.

<sup>b</sup> A brainstormed list of activities, by general category, happening across various Agency lands. Some activities may be administered under a variety of agreements, contracts, and so forth, depending on local circumstances.

<sup>c</sup> Total number of operator or outfitter and guide permits who are conducting business on Agency lands.

<sup>d</sup> Payments to the Agency by the operators or outfitters and guides. For example, the Forest Service revenues are generally collected at the end of each operators "season" of use. Collections are generally made based on some percentage of gross operator revenue. Some activities may be administered based on bids (i.e. concessionaires) plus an additional percentage of gross income.

Table G-7--Number of permits and revenue generated from recreational activities on Idaho State Agency lands in the Interior Columbia River Basin, 1993 data<sup>a</sup>.

| PERMITTED RECREATION ACTIVITY <sup>b</sup> | TOTAL NUMBER OF PERMITS <sup>c</sup> | TOTAL AGENCY REVENUE <sup>d</sup> |
|--|--------------------------------------|-----------------------------------|
|  |                                      | dollars                           |
| General User Fees or Permits:              |                                      |                                   |
| Campground fees                            | 0                                    | 689,690                           |
| Other: _____                               | 0                                    | 35,051                            |
| Recreational Special Forest Products:      |                                      |                                   |
| Other: _____                               | 0                                    | 8,715                             |
| Special use permits:                       |                                      |                                   |
| Other: _____                               | 0                                    | 214,915                           |
| Concessionaires:                           |                                      |                                   |
| Facilities (Moorage)                       | 0                                    | 291,711                           |
| Other: _____                               | 0                                    | 136,080                           |
| Rentals:                                   |                                      |                                   |
| Cabins                                     | 592                                  | 942,320                           |
| Other: _____                               | 0                                    | 119,886                           |
|  |                                      |                                   |
| <b>Total</b>                               | <b>592</b>                           | <b>2,709,620</b>                  |

Note: Data is for Idaho Parks and Rec and Idaho Dept of Lands.

<sup>a</sup> The 1993 data should be an average of activity for 1991, 1992, and 1993.

<sup>b</sup> A brainstormed list of activities, by general category, happening across various Agency lands. Some activities may be administered under a variety of agreements, contracts, and so forth, depending on local circumstances.

<sup>c</sup> Total number of operator or outfitter and guide permits who are conducting business on Agency lands.

<sup>d</sup> Payments to the Agency by the operators or outfitters and guides. For example, the Forest Service revenues are generally collected at the end of each operators "season" of use. Collections are generally made based on some percentage of gross operator revenue. Some activities may be administered based on bids (i.e. concessionaires) plus an additional percentage of gross income.

Table G-8--Number of permits and revenue generated from recreational activities on lands in the Interior Columbia River Basin, 1993 data<sup>a</sup>.

| PERMITTED RECREATION ACTIVITY <sup>b</sup> | TOTAL NUMBER OF PERMITS <sup>c</sup> | TOTAL AGENCY REVENUE <sup>d</sup> |
|--|--------------------------------------|-----------------------------------|
|  |                                      | dollars                           |
| General User Fees or Permits:              | 900,073                              | 1,816,453                         |
| Campground fees                            | 165,811                              | 4,736,993                         |
| Backcountry use fees                       | 18,840                               | 77,886                            |
| River use fees                             | 2,854                                | 17,125                            |
| Other:_____                                | 9,414                                | 296,389                           |
| Recreational Special Forest Products:      | 63,987                               | 180,165                           |
| Firewood                                   | 100,645                              | 1,174,019                         |
| Personal use mushrooms, berries, etc       | 12,863                               | 225,243                           |
| Other:_____                                | 377                                  | 274,969                           |
| Special use permits:                       | 636                                  | 255,022                           |
| Drop camps                                 | 11                                   | 6,320                             |
| Mountain biking tours (groups)             | 19                                   | 3,338                             |
| Cross-country skiing tours (groups)        | 390                                  | 3,154                             |
| Snowmobile tours                           | 26                                   | 10,394                            |
| Four-wheel drive tours                     | 12                                   | 1,659                             |
| Guide services-photography                 | 365                                  | 30,017                            |
| Hunting-elk, deer, cougar,                 | 8,095                                | 252,135                           |
| Fishing-steelhead, and so forth            | 13,205                               | 37,708                            |
| Scenic overflights                         | 1                                    | 60                                |
| Helicopter skiing                          | 2                                    | 1,519                             |
| River rafting operators                    | 351                                  | 374,431                           |
| Powerboat tour operators                   | 31                                   | 42,463                            |
| Schools, institutes, and so forth          | 7,167                                | 64,701                            |
| Downhill ski areas                         | 36                                   | 897,366                           |
| Dude ranches                               | 7                                    | 10,253                            |
| Working ranches                            | 16                                   | 1,291                             |
| Film and video permits                     | 74                                   | 94,591                            |
| Other:_____                                | 791                                  | 960,483                           |
| Concessionaires:                           | 61                                   | 432,203                           |
| Facilities                                 | 24                                   | 461,715                           |
| Lodging                                    | 60                                   | 194,187                           |

|              |                  |                   |
|--------------|------------------|-------------------|
| Other: _____ | 691              | 523,042           |
| Rentals:     | 573              | 19,440            |
| Cabins       | 1,061            | 971,486           |
| Facilities   | 51               | 11,292            |
| Other: _____ | 16               | 153,702           |
|              |                  |                   |
| <b>TOTAL</b> | <b>1,308,650</b> | <b>14,630,748</b> |

<sup>a</sup> The 1993 data should be an average of activity for 1991, 1992, and 1993.

<sup>b</sup> A brainstormed list of activities, by general category, happening across various Agency lands. Some activities may be administered under a variety of agreements, contracts, and so forth, depending on local circumstances.

<sup>c</sup> Total number of operator or outfitter and guide permits who are conducting business on Agency lands.

<sup>d</sup> Payments to the Agency by the operators or outfitters and guides. For example, the Forest Service revenues are generally collected at the end of each operators "season" of use. Collections are generally made based on some percentage of gross operator revenue. Some activities may be administered based on bids (i.e. concessionaires) plus an additional percentage of gross income.