

Regional Economic Impacts of Recreation on the Wild and Scenic Rogue River

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EXECUTIVE SUMMARY

In May 2008, the *Save the Wild Rogue Campaign* engaged ECONorthwest to analyze the economic impacts that recreation related spending on the Wild & Scenic Rogue River has on the Josephine County and Oregon economy. As part of the analysis, we conducted two surveys, one of commercial rafting outfitters and another of local lodging establishments. The results of the economic impact analysis and the surveys show that Josephine County and the state of Oregon enjoy direct economic benefits from recreational activities on the Rogue River. Among the findings summarized in this report are the following:

- River-based recreation on the Wild & Scenic Rogue River, which includes rafting, fishing, hiking, and jetboat tours, accounted for not less than \$30 million in total economic output, including \$15.4 million in personal income, and 445 full- and part-time jobs.
- Oregon-based outfitters were responsible for 91% of commercial activity on the Wild Rogue. Of this, outfitters based in Josephine County were responsible for 38%.
- Approximately 93% of guests on commercial rafting and fishing trips came from areas outside of southwestern Oregon and 72% came from outside of Oregon.
- Visitors to the Wild and Scenic Rogue accounted for three out of every four lodging guests in the local area during the four-month Wild Rogue permit season (May 15 through October 15).
- The designation of this portion of the Rogue River as a National Wild and Scenic River has contributed to the long-run economic growth in Josephine County and southwestern Oregon.
- It is likely that increased federal protection of critical tributaries to the Wild Rogue would not only have positive short-run economic effects, but would further enhance the long-run economic benefits accruing to Josephine County and the State of Oregon.

This study focuses on one component of the myriad of economic benefits the Wild & Scenic Rogue River provides to Oregon's residents and businesses: *the economic activity associated with visitor spending*. The benefits highlighted in this analysis include only the short-run, market-based economic effects that flow from spending by visitors on river-based recreational activities. As such, the results of the study represent a small portion of the total economic value associated with protecting this important national treasure.

The values of other benefits, many of which are not market based, such as the services provided by the Rogue's ecosystem and the direct and indirect values of its salmon runs, are not examined in this report. These other values, however, certainly contribute to the overall net economic benefits enjoyed by residents of Josephine County, the State of Oregon, and the entire nation.

INTRODUCTION

The Rogue River, located in the southwestern corner of Oregon, flows approximately 215 miles from its headwaters in the Cascade Range, near Crater Lake, and reaches the Pacific Ocean at the city of Gold Beach. In 1968, Congress designated an 84-mile stretch of the Rogue River from the confluence with the Applegate River (seven miles downstream of the City of Grants Pass) to the Lobster Creek Bridge (11 miles upstream of Gold Beach) as a National Wild & Scenic River. The Rogue River was one of the original eight rivers included in the Wild & Scenic Rivers Act, which intended to protect from development or degradation certain rivers or river segments deemed of particular importance to the nation. Specifically, the Act states:

“It is hereby declared to be the policy of the United States that certain selected rivers of the Nation which, with their immediate environments, possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural or other similar values, shall be preserved in free-flowing condition, and that they and their immediate environments shall be protected for the benefit and enjoyment of present and future generations. The Congress declares that the established national policy of dams and other construction at appropriate sections of the rivers of the United States needs to be complemented by a policy that would preserve other selected rivers or sections thereof in their free-flowing condition to protect the water quality of such rivers and to fulfill other vital national conservation purposes.”

Wild & Scenic Rivers Act, October 2, 1968¹

The management of the 84-mile Wild & Scenic corridor of the Rogue River is based on three levels of management intensity: Recreation, Scenic, and Wild. These designations define the physical accessibility of a particular section of the river, as well as the activities permitted on that section (BLM and Forest Service 2004):

- **Recreation River** is defined as a section of a river that is readily accessible by road, that may have some development along the shoreline, and that may have undergone some impoundment or diversion in the past.
- **Scenic River** is defined as a river section free of impoundments, with shorelines and watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads.

¹ As of 2006, the National Wild & Scenic River System protects more than 11,000 miles of 165 rivers in 38 states and the Commonwealth of Puerto Rico—less than one half of one percent of the nation’s rivers.

- **Wild River** is defined as a section free of impoundments and generally accessible only by trail, representing vestiges of primitive America.

The Wild & Scenic Rogue River is divided into five sections. Each section is associated with one of the three management intensities. The five sections are shown in Table 1 beginning at the confluence with the Applegate River and proceeding downriver.

Table 1: Wild & Scenic Rogue River, Sections and Management Designations

Section of Wild & Scenic Rogue	River Miles	Management Designation	Part of Study Area?
1. Applegate River to Grave Creek ("Hellgate Recreation")	27.0	Recreation	Yes
2. Grave Creek to Watson Creek ("Wild Rogue")	33.8	Wild	Yes
3. Watson Creek to Blue Jay Creek	8.9	Recreation	No
4. Blue Jay Creek to Slide Creek	7.6	Scenic	No
5. Slide Creek to Lobster Creek	7.1	Recreation	No

Source: BLM and Forest Service 2004.

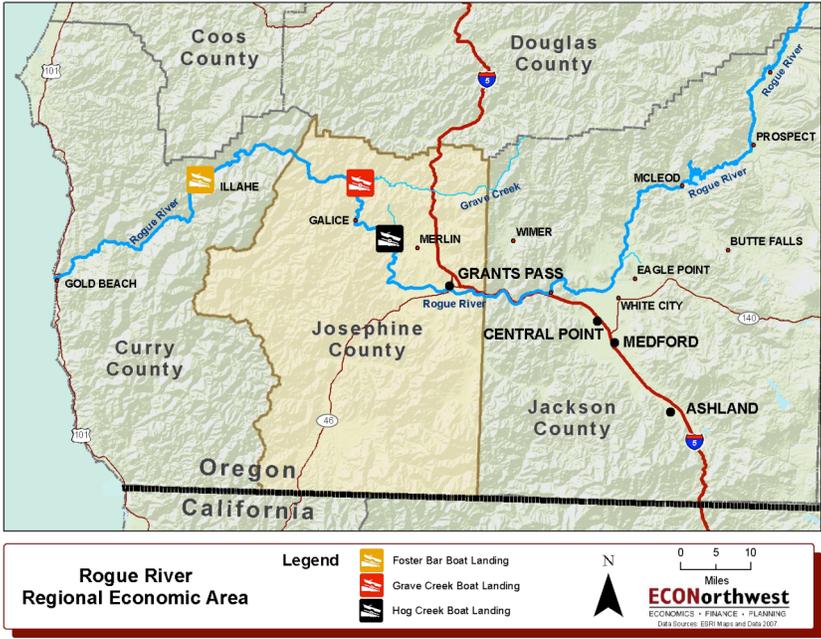
As Table 1 shows, this study is concerned with section 1 (hereafter referred to as "Hellgate Recreation"), which is entirely contained within Josephine County, and section 2 (hereafter referred to as the "Wild" section), which begins in Josephine County, but ends in Curry County. With respect to recreational activity, the two river sections differ in several significant ways. The Recreation section is accessible by road for most of its length. Commercial jetboats are active on the Recreation section throughout the summer-vacation season. There are no limits on the number of commercial or non-commercial rafters or fishermen using the river each day.

Comparatively, the Wild section is not accessible by road. Jetboat activity is not permitted on the Wild Rogue, except on the portion between Watson Creek upstream to Blossom Bar rapid.² Commercial and non-commercial rafters and fisherman are each limited to 60 person-starts each day on the Wild section during the May 15 - October 15 season. The Bureau of Land Management (BLM) and Forest Service jointly manage the Wild section, but the BLM has sole responsibility for managing the permit system. A permit is not required to run the Wild Rogue in the off-season.

² The number of commercial jetboats permitted into the Wild section is limited based on historic (pre 1968 Wild and Scenic Act) usage. Up to six daily commercial jetboat trips carry visitors from Gold Beach into the lower portion of the Wild Rogue. Each of the three lodges located below Blossom Bar rapid (Paradise Lodge, Half Moon Bar Lodge, and Clay Hill Lodge) also maintain one or more jetboats for transporting supplies to the lodges.

Figure 1 shows the geographic relationship between the Rogue River, Josephine County, and the rest of southwestern Oregon. As mentioned above, access to the first section, Hellgate Recreation, is unrestricted, but rafters prefer the stretch between Hog Creek and Grave Creek, shown in Figure 1. This segment is surrounded by public land, includes Hellgate Canyon, a popular visitor attraction, and, though relatively mild, contains the most exciting rapids on the 27-mile Hellgate section. Rafters usually cover the distance of almost 14.5 river miles in one day. The take-out point for the rafting trip on the Hellgate Recreation section is also the put-in point for the trip on the Wild section. The designated Wild section of the Rogue ends at Watson Creek, but boaters must continue for approximately one mile to the boat landing at Foster Bar (see Figure 1). Once off river, recreationalists are usually shuttled back to the Grants Pass area.

Figure 1: Josephine County, Oregon, and Landmarks on the Wild & Scenic Rogue



Economic Benefits Associated with the Wild and Scenic Rogue River

The Wild & Scenic Rogue River provides a myriad of economic benefits to the region’s residents and to people well beyond the Rogue Valley. To fully account for the economic benefits of this stretch of river, one must consider the value of all the market-based economic activities associated with the river, of which recreation is only one, as well as the many non-market-based economic values, such as the ecosystem services, wildlife and fish habitat, scenic values, and existence and option values. The purpose of this study is to quantify only a portion of the market-based values – the economic impact of the direct economic activity associated with the Wild and Hellgate Recreation sections of the Rogue

River. The regions of interest for the study are Josephine County and the state of Oregon. While looking at Josephine County, the study area excludes the economic impacts on neighboring Curry County, which certainly experiences economic impacts from recreation on the Wild and Scenic Rogue River, and Jackson County, which contains the cities of Medford, the economic hub of southwestern Oregon, and Ashland, home of the Oregon Shakespeare Festival, a popular destination for visitors from around the U.S. The study then extends the analysis to the state of Oregon to show how Rogue River-based expenditures in Josephine County impact the entire state through increased economic activity and employment in associated industries.

This analysis focuses on the economic impacts that river-based recreation on the Rogue River has on the Josephine County and the Oregon State economies. The recreational activities we consider include:

- Whitewater rafting (quantify economic impacts)
- Fishing from a boat (quantify economic impacts)
- Fishing from the bank (discuss potential economic impacts)
- Hiking on the Rogue River Trail (discuss potential economic impacts)
- Commercial jetboat tours (quantify economic impacts)

Natural-Resource Amenities Contribute to Economic Growth

Traditionally it was assumed that lands protected from resource extraction, residential and commercial development, and other forms of direct economic action provide little or no economic benefits to local communities. This assumption relied on the notion that economic value is necessarily a function of resource extraction or other forms of direct commercial use. There is growing evidence, however, to suggest conservation-oriented uses of public lands and regulations limiting exploitation of privately owned lands, rather than commodity production and residential sprawl, may actually provide greater benefits to local economies. Recent research has demonstrated that, by protecting public lands and enhancing recreational opportunities in and around them, regional economies benefit and even expand. Economists at Oregon State University demonstrated that protecting natural areas benefits local economies in the Pacific Northwest in two ways (Kerkvliet et al. 2008). First, the authors found that rural counties with higher proportions of land conserved to protect biodiversity exhibit higher rates of employment growth. Second, they found evidence that the same rural counties also experience higher rates of net migrations. That is, more people move into those counties than leave. The authors also found that rural counties in the Pacific Northwest that were unable to diversify their local economies and relied heavily on timber harvesting experienced lower or even negative rates of employment growth and net migration.

Similar studies elsewhere in the country substantiate these results and confirm that, especially in the West, natural amenities explain the trajectory that rural counties have followed in terms of population and economic growth. For instance, a USDA study found that the existence of amenity features, such as a temperate climate, varied topography, and a strong presence of water areas, can explain population growth in rural counties in the last quarter of the twentieth century (McGranahan 1999). Additionally, another study found that, along with factors such as access to air travel and an educated workforce, designations that permanently protect public land play a decisive role in determining whether a Western rural county will experience economic growth (Rasker 2006). Another recent study looked at the socioeconomic impacts of recreation and tourism on the quality-of-life of rural-county residents (Reeder and Brown 2005). The authors found that recreation and tourism have a positive impact on rural communities, employment, and wages, and contribute to the reduction of poverty and to the improvement of education and health. The study also concluded that, on average, even though housing costs increase in these counties, gains in income offset such cost increases.

Research, such as the studies to which we refer above, confirms an economic reality that many rural communities experience today, namely that natural amenities and recreation foster sound economic growth and can create an economic buffer that protects them from the extremes of boom-and-bust cycles associated with natural-resource extraction. Kerkvliet et al. (2008) propose four non-mutually exclusive hypotheses to explain the mechanisms that lead from natural amenities to population and economic growth:

1. Conservation lands attract firms, whose employees value the resulting amenities;
2. Conservation lands may provide production inputs for recreation and other natural-based enterprises;
3. Firms may be attracted to a pool of workers, who, by migrating have expressed a willingness to trade income for amenities from conservation lands;
4. Environmental amenities may attract new residents with external sources of income.

A previous analysis by Partridge and Rickman (2003) confirms these assumptions, concluding that strong evidence indicates that employment opportunities follow population-migration trends almost as often as people move to follow jobs.

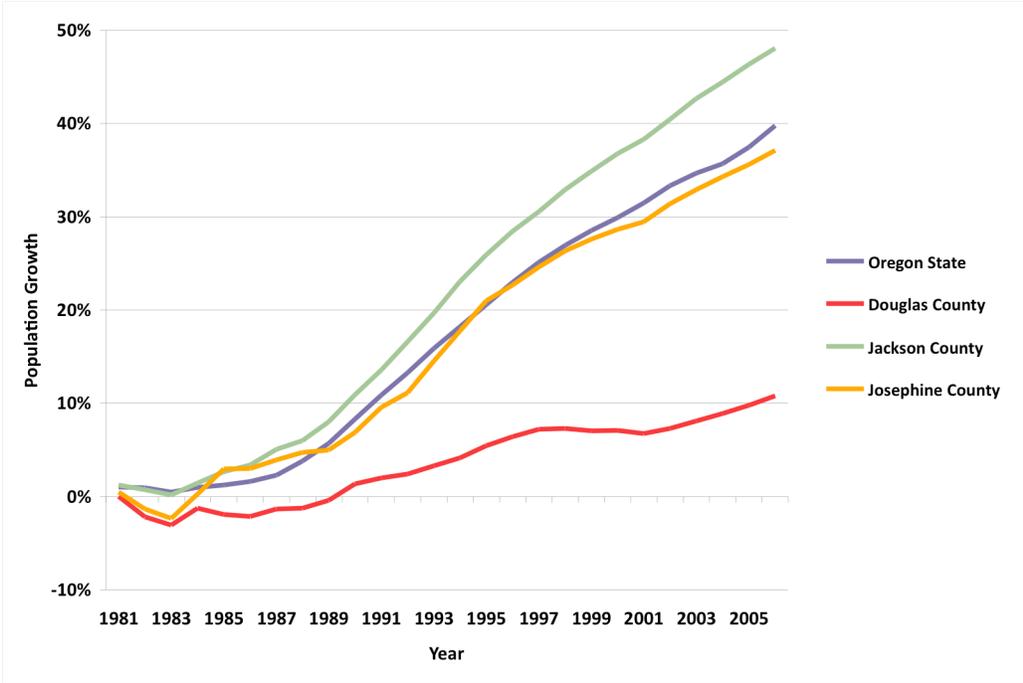
Josephine County Has Grown Since the Rogue's Designation as a Wild & Scenic River

Almost two thirds of the land area in Josephine County, or 692,000 acres, are federally owned and represent a source of economic activity. In the past, the main means to create jobs and income from forested public lands was related to

logging and wood-product manufacturing. In the last few decades, though, the industry has contracted and wood-product employment, including that from logging, declined from 20% of total employment in the mid-1970s to 4.1 percent in 2005 (Tauer 2006). Many Josephine County residents remain concerned about changes in the county's economy, as it has transitioned away from dependence on income derived from natural-resource extraction to a service-based economy. The belief that economic growth in the county suffers from the high concentration of public-land ownership with little to no timber harvesting on it subscribes to an old view of regional economic development, though, because it fails to recognize that these public lands have helped spur economic and population growth in the county over the past two decades.

Josephine County has numerous natural areas that are popular recreation sites. The county is home to two Wilderness reserves, Kalmiopsis and Red Buttes, Lake Selmac, and Oregon Caves National Monument, to name just a few. Of all natural attractions that draw tourists to Josephine County every year, the Rogue National Wild & Scenic River is its biggest asset. Many residents live in Josephine County to be near the river and many business owners have built a strong tourism industry around this natural treasure. Data from the Oregon Employment Department show that between 2001 and 2006, employment in the leisure and hospitality industry in Josephine County increased by 20%. Comparatively, overall employment growth in the county was only 15%.

Figure 2: Population Growth Since 1980, Josephine County with Comparison to Surrounding Counties and Oregon



Source: ECONorthwest analysis, with data from U.S. Bureau of Economic Analysis

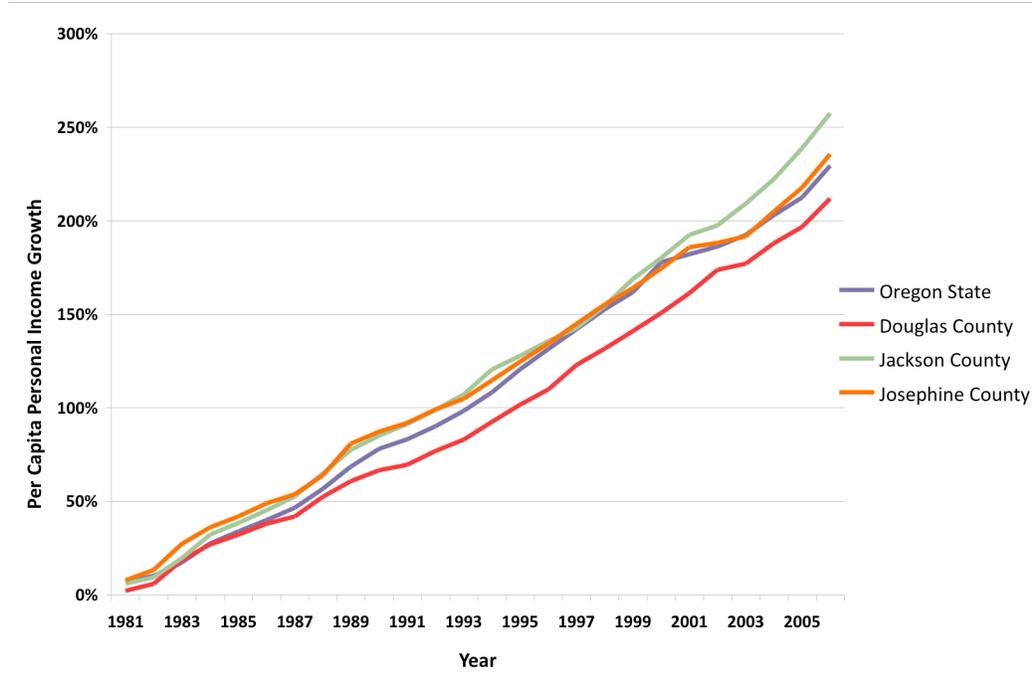
The county has exhibited both strong population growth, mainly influenced by in-migration, and vigorous income growth. Figure 2 shows that between 1980

and 2006 Josephine County experienced population growth comparable to that of the state as a whole. While population grew somewhat slower in Josephine County than in Jackson County, it grew considerably faster than Douglas County's population.

Josephine County also experienced substantial growth in per capita personal income over the past two and a half decades. Figure 3 shows a comparison of income growth between Josephine County, the two neighboring counties, and Oregon, as a whole. Nominal per capita income grew faster in Josephine County than in Douglas County but was not as strong as that in Jackson County. With few exceptions, income growth in Josephine County has generally remained just above the state average since 1980.

Forty years after Congress designated the 84-mile section of the Rogue as a National Wild and Scenic River, Josephine County's population and economy are still expanding. As Oregon Employment Department data indicate, employment in the tourism and recreation industries have contributed to this growth and it is likely that the growth is due in part to the federal designation. Although it is impossible to construct the counterfactual case of Josephine County without the Wild & Scenic River designation, it is not only likely, but indeed probable, that the growth in population and income enjoyed by the county's residents over the past four decades would have not have been as great.

Figure 3: Growth in Per Capita Personal Income Since 1980, Josephine County with Comparison to Neighboring Counties and Oregon



Source: ECONorthwest analysis, with data from U.S. Bureau of Economic Analysis (<http://www.bea.gov/regional/reis/>)

PAST STUDIES ON THE ECONOMIC IMPACTS OF RIVER RECREATION ON LOCAL ECONOMIES

Several studies have calculated the effects of the whitewater-recreation industry on local economies. Each study relied on survey data to estimate visitor expenditures and all used the IMPLAN input-output modeling system to calculate the economic impacts on the regional or state economies of spending by river-based recreationalists. All analyses found that the rafting industry made a substantial contribution to economic output, income, and employment in the respective regions.

In a study conducted by Johnson and Moore (1993), the authors calculated the total gross output, total income, and employment generated from whitewater activities on the Klamath River in Klamath and Jackson counties in Oregon using three different models. The first model calculated the total output, income, and employment based on expenditures by non-local visitors who rafted in the region during the 1988 season. The second model included expenditures by non-local and local visitors who rafted during the 1988 season. The third model, which should give the most reliable calculation, made adjustments for non-local visitors who would still visit the region even if rafting were not an option and also for local residents who would substitute another local activity if they could not raft. The authors noted that failing to adjust for non-local residents who would continue to vacation in the region even if they could not access the river would lead to an overestimate of the economic impacts of river recreation while a failure to account for locals who would otherwise leave for vacation and spend their money in another region if they could not access the river would lead to an underestimate of the economic impacts of whitewater recreation in Klamath and Jackson counties.

The third model produced lower calculations for output, income, and employment than the first and second models, demonstrating that the effects of substitution by non-local visitors is stronger than for local visitors and that consumer substitution effects can have a considerable impact on results. After making substitution adjustments, the third model calculated that the total (direct, indirect, and induced) output in Klamath and Jackson counties associated with whitewater recreation ranged from \$490,500 to \$817,400 in 1982 dollars, the total income ranged from \$245,300 to \$408,900 and the number of jobs created ranged from 16 to 26. The authors concluded that the Klamath River recreation provided an important stimulation to the local economies even after controlling for consumer substitutions.

A study by Cordell et al. (1990) focused on three National Park Service river recreation sites. The authors did not include expenditures by local residents in their estimates. They conducted a survey of river runners to determine what fraction of trip expenses were spent in various sectors of the local economy. They found that visitor spending increased total gross output by between \$2.6 million and \$13.4 million, total income by between \$1.2 million and \$5.6 million, and employment by between 60 and 292 jobs, depending on the park studied. Cordell

et al. also calculated the Type III multipliers for the gross output, total income, and employment at each park. The Type III multiplier is a measure of the total effects of recreational expenditures. They estimated that the total gross output multiplier ranged from 2.00 to 2.10, the total income multiplier from 2.16 to 2.36, and the employment multiplier from 1.57 to 1.84. Parks where whitewater recreation brought in greater revenue had larger multipliers. The results from this study show how expenditures in the river recreation industry can have a significant impact on the economy through indirect and induced impacts, as well as direct.

English and Bowker (1996) differed from the studies above in that they analyzed the impacts of guided whitewater rafting on state economies, rather than local economies. This study only calculated expenditures by non-local visitors, assuming that the effect of local rafters who would choose to vacation out of state if they could not raft in-state would be negligible. To control for non-local visitors who would still visit the area even if rafting were not an option, English and Bowker included in the analysis all expenditures by non-local visitors who cited rafting as the primary reason for their trips and only the rafting expenses and a few other minor purchases by non-local visitors who said that rafting was not the primary purpose of their trip. The results from this study show that whitewater rafting has a significant impact on the total gross output, the total income, and the employment which is consistent with the other two studies we reviewed. The total industrial output ranged from \$94,500 (in 1992 dollars) for the Nantahala River to \$2.25 million for the Middle Fork of the Salmon River. The Type III multipliers calculated from this study were similar to those found by Cordell et al. and ranged from 2.09 to 2.49 for total gross output, 2.03 to 2.43 for total income, and from 1.67 to 1.90 for employment.

A recent study, conducted by Hjerpe and Kim (2006), discussed the socioeconomic impacts of river trips in the Grand Canyon on nearby Coconino County and the neighboring cities of Peach Springs, Arizona, and Kanab, Utah. The authors decided not to discriminate between local and non-local visitors since both groups are subject to the permit system and the long waiting list to receive river-running permits prevents locals from using the river often. Hjerpe and Kim developed a mail survey for trip leaders on private (i.e., non-commercial) river trips and developed an expenditure survey for commercial outfitters that operate on the Grand Canyon. According to the study, commercial and non-commercial river running on the Grand Canyon generated \$21.1 million in economic output in the local economy in 2001. The multipliers calculated in this study were lower than those reported by English and Bowker (1996) and Cordell et al. (1990). The total income Type SAM multipliers, which are comparable to the Type III multipliers and include employment-based Personal Consumption Expenditures, were 1.28 and 1.30 based on commercial and noncommercial boating respectively, the employment multipliers were 1.26 and 1.28, and the employee income multipliers were 1.28 and 1.24. One of the suggested reasons that the Grand Canyon had lower multipliers was the relatively high leakage rate (a measure of expenditures that are not retained in the local area). One of the reasons leakage is so high is because several of the large commercial outfitters are located outside of Coconino County in places like

Las Vegas, Salt Lake City, and California. Clearly these arrangements decrease the local spending. The authors also noted that studies like that of English and Bawker which analyze larger regional areas will report larger multipliers since a large region retains more expenditures than a small county would. Finally, Hjerpe and Kim discussed some of the adverse impacts of tourism on the Grand Canyon region, drawing attention to the fact that many of the jobs produced by the river-based recreational industry pay lower wages and that tourism often increases income inequality, demands for public infrastructure, and the cost-of-living. They emphasized the importance of diversifying the local industry in order to attract more high skilled and higher waged labor. However, they also pointed out the benefits of promoting activities such as rafting for their sustainable, and non-consumptive use of the natural setting.

The study by S.A. Whisman et al. (No date) on the economic impacts of commercial whitewater rafting in West Virginia further confirms Hjerpe and Kim's (2007) hypothesis that state multipliers will be significantly larger than local multipliers. Whisman et al. calculated the economic impacts of commercial whitewater rafting on the local region (within a fifty-mile radius of the river studied) and on the state of West Virginia as a whole. The local multipliers were similar to those found in the Grand Canyon, 1.47-1.48 for total output, 1.51-1.55 for personal income, and 1.25-1.29 for employment. Conversely, the cumulative statewide multipliers from the three rivers were 1.57 for total output, 1.59 for personal income, and 1.32 for employment. This underscores the importance of taking into account the relative size of the region being studied.

The findings from all of these studies show that river recreation typically has significant impacts on the local economy at both the county and state levels. It produces local income and jobs, and it increases the total gross output. However, it is also important to note that neglecting the substitution effect for consumers who would select another activity or travel to another site if whitewater recreation were not available will significantly alter the results of an economic impact study. It is also important to study which industries are growing and their impacts on the growth of per capita income as mentioned by Hjerpe and Kim (2007). Nevertheless, all of the studies reviewed conclude that whitewater recreation provides a positive stimulus to the local economies through direct, indirect, and induced economic effects.

Previous Economic Studies on the Rogue River

Two economic-impact studies have been conducted on the Rogue River in the past thirty years. The Oregon State Marine Board commissioned a report in 1986 (conducted by David Palazzi) and the BLM commissioned a report by Economic Strategies Northwest in 1991. Although the expenditure data used for these reports has changed considerably in recent years, the methods and results remain relevant to our findings.

Both studies used IMPLAN to calculate the indirect and induced economic effects of whitewater recreation activities. The study by Palazzi (1986) divided expenditures into expenses for travel, shuttle costs, food and beverage costs,

lodging costs, and miscellaneous expenses. Palazzi reported, for the year 1985, a total visitor spending of \$159,941, which, in turn, generated \$215,950 in total income in Oregon (approximately \$460,000 in 2007 dollars).

Economic Strategies Northwest (1991) used a method for calculating expenditures different from those used in other studies. The authors relied on studies from the local area specifically and the Pacific Northwest generally to calculate visitor spending based on major expenditure categories, such as lodging, restaurants, transportation, etc., and the types of activities they participated in. The report concluded that visitor spending in the Hellgate Recreation area generated over \$26 million in total income and approximately 1,500 jobs in 1990. The authors further suggested that alternatives which enhance fishing and motorized and non-motorized boating in the Recreation area could double the local economic activity in the following decade compared to the 1990 level.

The results of these two studies demonstrate the variation possible when different methods are used to calculate the economic impacts of river-based recreation on the Rogue. The Palazzi study did not calculate the economic output associated with river running on the Wild Rogue, but it did sum the income associated with the Wild Rogue, which totaled near \$216,000 (in 1985 dollars). The Economic Strategies Northwest study concluded that spending by visitors to Hellgate Recreation area led to over \$26 million in economic output in 1990. Although the findings of these reports differ substantially, both show that the Wild & Scenic Rogue River makes a significant contribution to economic activity in the local area and produces a large number of jobs.

SURVEY OF LOCAL BUSINESSES

In this chapter we present the results of two surveys conducted by ECONorthwest. The first was administered to commercial outfitters that provide trips on the Wild section of the Rogue River. The second survey was administered to lodging establishments in the Grants Pass/Merlin area. The Grants Pass area is the last main stop for recreationalists before they access the Wild Rogue.

Survey of Outfitters

Commercially guided rafting trips constitute a substantial portion of the recreational activity on the Rogue River. During the 2007 permit season, a total of 5,977 people floated the Wild section on commercially guided trips, representing 45 percent of total visitors. In the last 20 years, the number of visitors who rafted on the Wild section of the Rogue ranged between 42 percent in 1995 to 50 percent in 1987.

In May and June 2008, ECONorthwest conducted a phone survey of the commercial outfitters that led trips on the Wild section of the Rogue River. Outfitter selection was based on the level of commercial activity during the 2007 season. Twenty-one commercial outfitters were responsible for 95% of the commercial activity during that year and were selected for the survey. Of the 21 outfitters selected, 18 surveys were fully or nearly fully completed, with a response rate of 86%.³

The purpose of the survey was to gather quantitative and qualitative information about each of the outfitters' business related to trips on the Wild section of the Rogue. None of the questions were related to sensitive business information, and the respondents were free *not* to respond to any of the questions. A synthesis of the responses to some of the questions is presented below, organized by the four areas identified in the survey:

1. Outfitters
2. River Guides
3. Wild Rogue Trips
4. Guests

1. Outfitters

There are 46 commercial permits to operate rafting and fishing trips on the Wild Rogue. Each permit is based on historic use by outfitters prior to the enactment of the permit system in 1974. Each permit defines specific days when a river trip can begin ("starts") and the number of persons, including guides, which may

³ Up to four attempts were made to reach the other three outfitters.

participate on that particular trip. Permits differ greatly in the number of start dates and the size of the starts. Currently, the 46 permits are associated with 30 outfitters that operate on the Wild Rogue.⁴ The outfitter businesses differ substantially in size based on the number of visitors their permit(s) allow.

The outfitters also differ with respect to the location of their operation. Of the 22 largest outfitters operating on the Wild Rogue:

- 7 are based in Josephine County,
- 5 are based in Jackson County,
- 7 are based elsewhere in Oregon, and
- 3 are based in California.

Based on the activity of these companies during the 2007 season, we estimate that 42% of commercial rafting was conducted with a Josephine County outfitter. This is an important factor when estimating the economic impact of commercial rafting on the Josephine County economy because it allows us to allocate the portion of total revenue received by outfitters to that which flowed directly into the Josephine County economy.

Of the five surveys completed with outfitters based in Josephine County, four stated that outfitting on the Wild Rogue was their only or their primary source of income in 2007. The fifth stated that outfitting was his sole source of income in 2007, but the Wild Rogue constituted only 30% of his total business. Three of the five outfitters noted that the Hellgate Recreation section was an important part of their business and two of the five indicated that rafting-equipment rentals associated with the Hellgate Recreation or Wild Rogue and other miscellaneous sales were also important sources of income.

Comparatively, few outfitters based outside Josephine County stated that they run trips on the Hellgate Recreation section or rent rafting equipment for use on the Hellgate Recreation or Wild Rogue. The outfitters that did are located in Jackson County and none indicated that the Hellgate Recreation section or rental equipment were important parts of their businesses.

The survey also asked outfitters how important maintaining the Wild Rogue at its current level of environmental quality was to their business. Not surprisingly, all respondents stated that it is very important. According to the outfitters surveyed, many of their guests said they had chosen the Wild Rogue for their vacation because of its beautiful scenery, fishing, wildlife, and water quality. Any decrease in the quality of the water, wildlife habitat, or scenery would likely affect the decision of many would-be-visitors about floating the Wild Rogue.

⁴ Outfitters operate under the *special use permits*. As such, the permits are associated with a particular company. The permits cannot be sold unattached to the company, however a company can be sold with the accompanying permit attached.

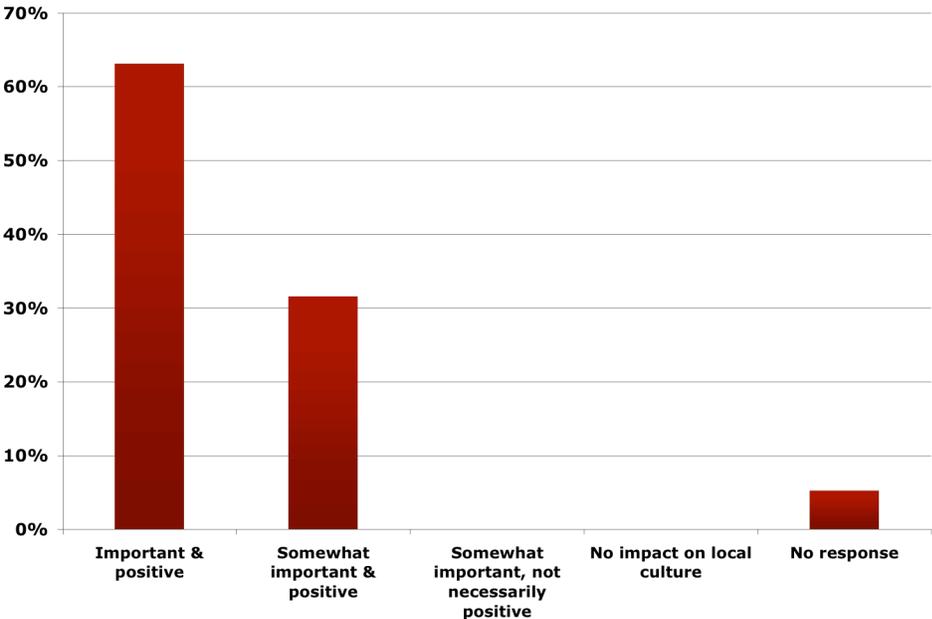
2. River Guides

A common criticism of the tourism industry in rural areas such as Josephine County is that it promotes low-wage jobs. Many of those employed in the rafting and fishing industry do earn annual incomes below the regional average and most jobs in the industry are seasonal. Nevertheless, most people enter the guiding profession knowing other jobs offer greater income potential. Guides must be able to communicate effectively and interact positively with guests, ensure all food and equipment needed for the trip is packed, deal with unforeseen circumstances, prepare meals, and safely guide guests down the river. Clearly, guiding is not a low-skill profession. So why do many people go into guiding? Because it offers many job characteristics not available in other industries.

Of those that go into guiding, some will remain in the industry for many years, working other jobs in the off-season. Others enter the industry when they are young and go on to other professions after several years. Many of the young people that work in the industry are students and guiding is an ideal summer job for them. Some that leave guiding as their primary job, move into professional employment, but still work one or more trips each year during the peak of the summer rafting season or as a fall fishing guide.

Regardless of the income earned by guides or the seasonality of the industry, guiding is an important part of the culture of the Grants Pass area. In fact, as Figure 4 indicates, the majority of the outfitters interviewed believe the occupation of river guide has an important and positive influence on the local culture. Only one outfitter did not respond to the question.

Figure 4: Perceived Importance of River Guiding to the Local Culture



Source: Survey and analysis by ECONorthwest

Based on the information provided by the outfitters surveyed, we estimate that about 65% of guides on the Wild Rogue are over the age of 30 and, of these, approximately 34% regard river guiding as their primary occupation. Of guides under 30 years of age, about half are students. Our survey also found that 14% of guides are teachers or other public school staff, who pursue guiding during summer breaks.

These findings demonstrate that although the tourism industry may pay lower than average wages, many guides dedicate time to this occupation because they value the lifestyle associated with it. This was confirmed by statements made by outfitters during the interviews. The fact that there are people who prefer guiding to other occupations indicates that there are aspects of guiding that offer non-monetary benefits large enough to offset the foregone wages from other employment.

It should also be noted that many fishing guides are self-employed, own their own boat and equipment, and contract out to the outfitters. Some of these guides also work as employees during the summer rafting season, thus earning income as both business owners and employees.

3. Wild Rogue Trips

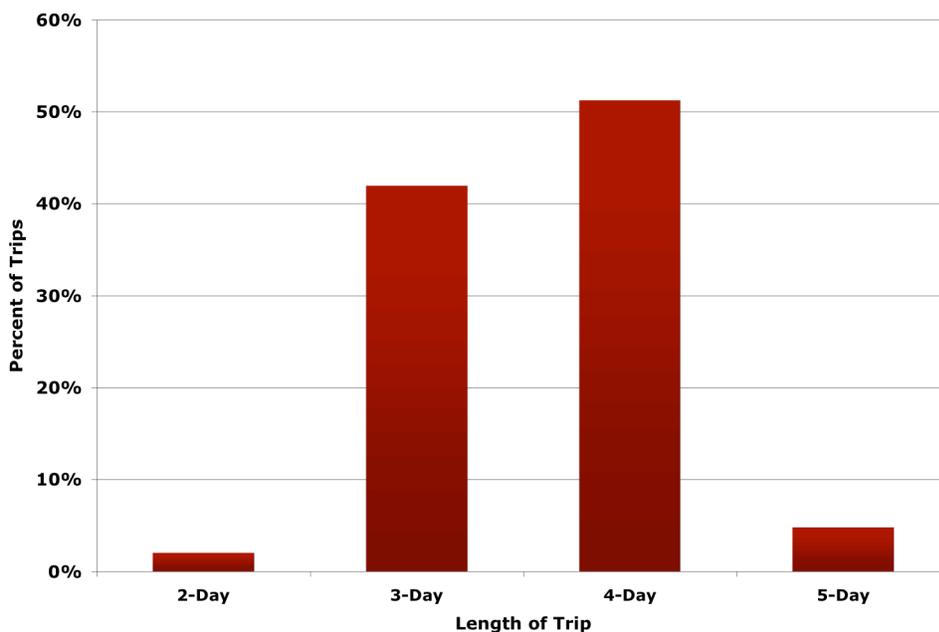
Commercially guided trips down the Wild Rogue generally last between 3 days (42% of the trips) and 4 days (52% of the trips). The survey results indicate that about 66% of the trips include at least one overnight stay at a wilderness lodge along the Wild Rogue, while 34% of the trips offer camping as the only option for overnight stay, as shown in Figure 5.⁵ The remaining 11% offer a combination of the two.

The BLM has collected data on the number of people who floated the Wild Rogue since 1994 when the permit system was instituted. Visitor numbers are segregated by commercial and non-commercial use and are shown in Figure 6. During the 35 years since the initiation of the permit system, visitor numbers have increased for both commercial and non-commercial guided trips. Part of the increase is due to the lengthening of the permit season in 1995 from 107 days to 154 days. This change in the management of the Wild Rogue is reflected in Figure 6. Since 1994, the number of commercially guided rafters has been basically flat and 1994 represents a peak in non-commercial usage.⁶

⁵ Many outfitters offer a “camp-lodge” trip, which includes one or two nights of camping and one or two nights of lodging. There are five lodges located within the Wild Rogue corridor. This analysis does not measure the impact of the lodges independent of their business relationships with the rafting and fishing outfitters. Only one lodge, Black Bar, is definitely tied to the Grants Pass economy.

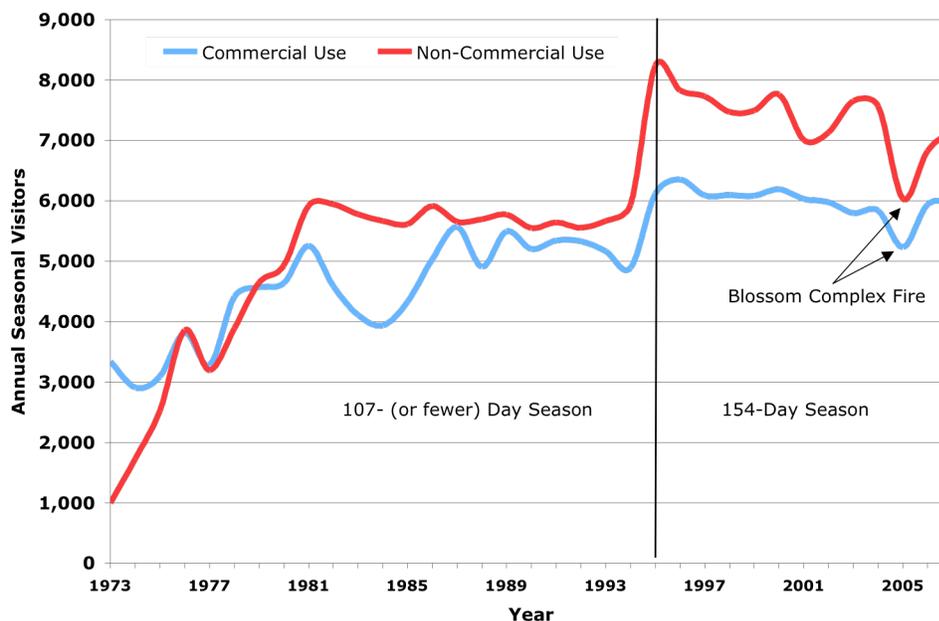
⁶ 2005 appears to be an exception to this, but the drop in visitor numbers in that year is due to the nearly two-week closure of the Wild Rogue in August 2005 because of the management of the Blossom Complex fire. August is typically one of the two busiest months for most outfitters.

Figure 5: Length of Trips on the Wild Section of the Rogue River



Source: Survey and analysis by ECONorthwest

Figure 6: Historical Usage during Permitted Season on the Wild Rogue, Commercial and Non-Commercial River Runners



Source: BLM 2008.

Note 1: In 1995 the permit season was extended from 107 to 154 days (noted by black vertical line)

Note 2: The Wild Rogue was closed to visitors between August 11, 2005 and August 22, 2005 due to the Blossom Complex fire.

4. Guests

Overwhelmingly, most people that float on the Wild Rogue using a commercial outfitter come from outside of the state of Oregon. Figure 7 shows the distribution of commercially-guided visitors by place of origin; approximately 72% of visitors come from outside Oregon, 21% come from Oregon but outside the southwestern region of the state, and 7% come from southwestern Oregon (Jackson, Josephine, Curry, and Douglas counties).

The survey also asked outfitters several questions regarding the reasons their guests chose the Wild Rogue for their vacation, the comments guests made about the environmental aspects of the Wild Rogue, and any comments guests made which compared the Wild Rogue to other rivers providing a multi-day, wilderness experience. These comments are summarized below.

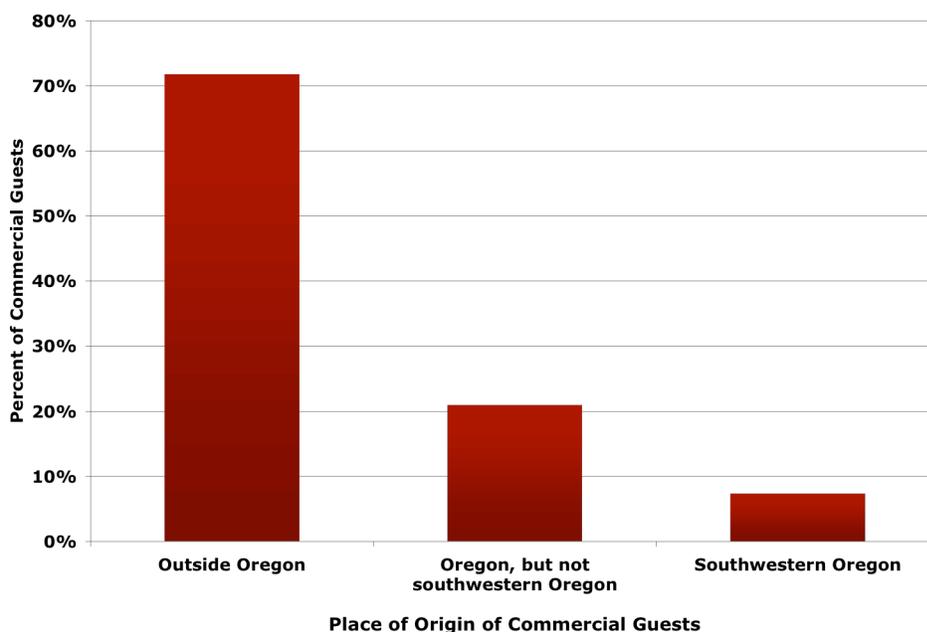
Why did your guests choose the Wild Rogue for their trip:

- Beauty of river and canyon
- Family friendly adventure
- Fishing and whitewater
- Reputation as a great family vacation
- Moderate whitewater
- Great weather
- Wildlife viewing
- The right length of trip
- The availability of the wilderness lodges
- Referral from friends
- Reputation as a premier river trip
- Proximity to major metro areas

Comments on the environmental aspects of the Wild Rogue:

- The river seems pristine
- Saw lots of wildlife
- Clarity of water not always so great
- Camp spots were nice
- The canyon seems unspoiled
- Scenery was beautiful

Figure 7: Place of Origin of Rafters Using Commercial Outfitters, 2007



Source: Survey and analysis by ECONorthwest

Survey of Lodging Establishments

ECONorthwest also developed a short telephone survey to solicit information from local-area lodging establishments on the impact of Rogue River-based recreation on their businesses. Names and contact information of lodging establishments in the Grants Pass – Merlin area were obtained from the state’s tourism website.⁷ A total of 20 establishments were identified. We attempted to contact all 20 businesses and successfully administered a total of 15 surveys, yielding a response rate of 75 percent.⁸

The responses of hotel-business owners in the local area can serve as a crosscheck to the more quantitative economic input-output analysis. Soliciting the input of local business owners also provides policy-makers with information on the perceptions of the business community regarding the economic importance of this natural and recreational resource.

Of the lodging establishments surveyed, all responded that the Rogue River is important or very important to their business. Several also identified the Wild

⁷ Travel Oregon (<http://www.traveloregon.com/>). It should be noted that the 20 lodging establishments identified probably do not represent the universe of all lodging establishments in the local area. However, we do believe they likely are representative of the lodging establishments that cater to tourism.

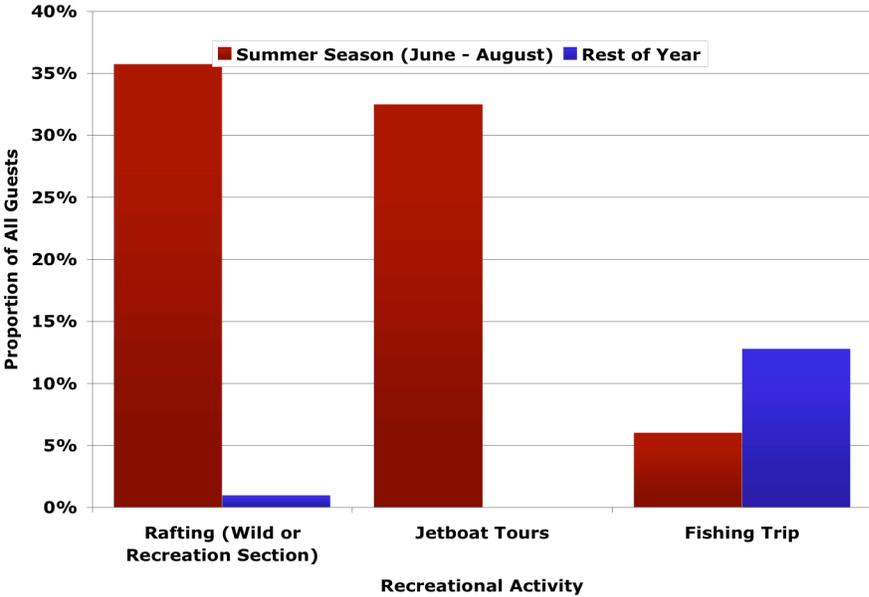
⁸ Of the other five establishments, one had a disconnected telephone number and the other four did not answer and did not respond to our voicemail messages. Three attempts were made to contact each of these establishments.

Rogue as especially important to their business and the overall regional economy. Specific comments regarding the importance of the Rogue River to their individual businesses are as follows:

- “On a scale of 1 to 10, it (the Rogue River) is a 9.”
- “The river is vital to our business.”
- “The natural scenic beauty from Crater Lake to the Wild & Scenic section and beyond is a huge boon to the area.”
- “The river is what brings people to Grants Pass for the summer months.”
- “It is the key to our business.”
- “This (the river) is the amenity that people come here to enjoy.”
- “We have folks from all over the world come and visit. It has huge name recognition all over the world.”

Our survey found that during the summer season, between June and August, whitewater recreationalists represent the main source of income for hotel owners. For instance, whitewater rafters that boated on either or both sections of the Wild & Scenic Rogue in 2007, represented 36 percent of all summer guests, jetboat tourists represented 33 percent and fishermen represented 12 percent, as Figure 8 indicates.

Figure 8: Recreational Guests at Local Lodging Establishments as a Percentage of All Guests, 2007



Source: Survey and analysis by ECONorthwest
 Note 1: Estimated proportions are not weighted by number of lodging guests in 2007.
 Note 2: Does not include the wilderness lodges located in the Wild section.

The results of the two surveys show that the whitewater industry has a strong and positive influence on the culture and economy of Josephine County. These influences cannot be easily replaced with other industries or economic activities. Economic activity and culture in Josephine County are enhanced, not stifled, by the protection and national recognition of the Rogue River as a *National Wild and Scenic River*.

ECONOMIC-IMPACT ANALYSIS OF RIVER-RECREATION ACTIVITIES

The economic impact of river recreation on the economy in Josephine County and Oregon State was calculated using an input-output modeling approach. The approach is an economic modeling framework that calculates the direct, indirect, and induced economic effects associated with an industry sector, an individual business, or a proposed or actual project. The direct impacts account for all expenditures visitors to the river make. Indirect impacts include the impacts associated with all expenditures made by businesses in the local economy to buy inputs to meet the increased demand. Finally, the induced impacts account for all additional household expenditures on consumer goods in the region that are stimulated by the added income from the tourist activity.

Input-output models provide an empirical representation of an economy and the relationships among the various industry sectors, final consumers, and the larger (regional or national) economy. In order to model the input-output relationships of county and regional economies, special data techniques have been developed to estimate the necessary empirical relationships from a combination of national and county-level measures of economic activity. This planning framework, called IMPLAN (for Impact analysis for PLANning), is commonly used in regional economic analyses. IMPLAN is also the software used in all of the published studies presented in the literature review.

Estimating the Number of Persons Who Floated on the Wild Rogue

First we analyze the economic impact of whitewater activities, both commercial and non-commercial, on the Wild section of the Rogue River on the economy of Josephine County. These activities include whitewater rafting and fishing.⁹ Based on BLM data, during the 2007 permit season (May 15 through October 15), 13,147 rafters and fishermen floated this section of the Rogue. Of these, 5,977 (45%) were on commercial guided trips and the remainder, 7,170 (55%) boaters, organized and guided their trips independently without the use of a commercial outfitter.

Boaters also float on the Wild Rogue outside of the 5-month permit season. However, the only available data for the off-season usage is for October 2006 through May 2007. A total of 889 people floated the Wild Rogue during this period. However, the data are not divided into commercial/non-commercial visitors. It is necessary, therefore, to make two assumptions.

⁹ Note: At least one outfitter (Rogue Wilderness) provides guided hikes of the Wild Rogue via the popular Rogue River Trail. However, these visitors have the opportunity to leave the trail for a spot in a raft. Thus, a river running permit is required for each hiker.

Assumption 1: we assume the number of boaters that floated on the Wild Rogue in 2007 after the permit season ended is equal to the number of boaters that floated on the same section in 2006 after the season ended.

Assumption 2: we assume the distribution of commercial and non-commercial boaters during the off-season is the same as during the permitting season.

Therefore, based on Assumption 1, we estimate there were a total of 889 people who floated the Wild Rogue in 2007 outside of the permit season; based on Assumption 2, we estimate that 404 were on commercial guided trips and 485 were non-commercial boaters.

Calculating the Economic Impact of Recreation on the Wild Rogue and Hellgate Recreation Sections

Recreation on the Rogue River brings dollars into the Josephine County economy in two ways:

1. Through the direct cost of a commercial rafting or fishing trip; and
2. Through the visitors' spending on food, lodging, transportation, and miscellaneous sales.

Outfitters, hotels, and other business that receive dollars directly from visitors spend some of those dollars on employee salaries and goods and services at other local businesses. The employees and other local businesses in turn do the same. This is referred to as the multiplier effect. Of course, from the beginning, some money spent on a Rogue River trip either does not come into the Josephine County economy or quickly passes out of the economy without providing much impact. The IMPLAN analysis accounts for this phenomenon. For example, we know that many outfitters are located outside Josephine County and many are located outside southwestern Oregon. Much of the spending on a Rogue River trip, therefore, does not enter into the Josephine County economy because the outfitter, office staff, and all or some of the guides do not live in the county. Likewise, these outfitters may purchase supplies for their trips in Jackson County or elsewhere in Oregon or California.

For this analysis, we assume that 42% of direct spending on Wild Rogue trips and 100% of Hellgate-Recreation trips are paid to outfitters located in Josephine County.¹⁰ For the analysis, we assume that the typical weighted average Wild-Rogue trip costs \$896. To arrive to these estimates, we used three sources of data:

¹⁰ The 42% is based on the volume of guests that outfitters located in Josephine County guided down the Wild Rogue in 2007 (as a percentage of all commercially guided guests). It also includes a small portion of the revenue received by outfitters located outside of Josephine County, but which maintain a satellite office or warehouse in the county.

1. Published prices on outfitter websites for rafting and fishing trips of various length trips (in days) and various nightly accommodations (camp, lodge, camp/lodge).¹¹
2. BLM data on the number of guests each outfitter guided down the Wild Rogue during in 2007¹²
3. Information from the outfitter interviews regarding the proportion of trips that were 2, 3, 4, or 5 days long and the proportion of their trips that offered camp, lodge, or camp/lodge for overnight stays.

Josephine County Impacts

Based on the estimate of the average price paid for a Wild-Rogue trip and the information from the BLM on the number of persons that floated on the two sections of the Rogue, we estimate that the total direct spending on commercial float trips on the Wild Rogue was \$7,772,934. Of this total, we estimate \$3,264,632 flowed directly into Josephine County. For the Hellgate Recreation section, we rely on the BLM's count of gross receipts paid to outfitters, which is \$445,773. We assume all spending for commercial trips on the Hellgate Recreation section flowed directly into the Josephine County economy.

Dollars also flow into Josephine County through the purchase of food, lodging, transportation services, and miscellaneous sales by visitors on commercially guided trips and visitors that choose to do the trip on their own. To estimate spending patterns of non-commercial river runners, we contacted the BLM to obtain the names and addresses of all non-commercial trip leaders during the 2007 season. Our intention was to send each trip leader a short survey asking them about their spending patterns. This is the method followed by Hjerpe and Kim (2007) in their analysis of the economic impacts associated with river runners on the Grand Canyon. However, the BLM refused to provide this information to us following our Freedom of Information Act request.¹³ Our request is currently under appeal.¹⁴ As an alternative approach, we examined the

The 100% local for Hellgate Recreation guests is based on the outfitter interviews, which revealed that practically no commercially guided trips on the Hellgate Recreation section were conducted by outfitters outside of Josephine County.

¹¹ Note: Fishing trips are much more expensive than rafting trips due to the guide-guest ratio associated with drift boats. This results in a weighted average price of per trip that is considerably higher than most rafting trips.

¹² The BLM was not able to provide the number of guests by outfitter that floated the Hellgate Recreation section. However, they did provide the total number of commercial guided river runners and the total revenue earned by outfitters from these trips.

¹³ The BLM and the National Park Service which provide Hjerpe and Kim (2007) with their data are both within the Department of the Interior.

¹⁴ In August 2008 ECONorthwest received a letter from the BLM office in Washington DC informing us that they are backlogged with FOIA request and , though they are under legal obligation to consider our appeal within 40 days of submission, they would be unable to meet this

spending patterns presented in the published literature and developed three alternative assumptions, which yielded values ranging from \$79 per person to \$293 per person for commercial visitors and \$94 to \$391 per person for non-commercial.

Table 2: Estimated Spending by River Runners in Josephine County, 2007¹⁵

Sector	Commercial River Runners (6,381 non-local)		Non-Commercial River Runners (5,971 non-local; 842 local)*	
	Spending Per Person	Total Spending	Spending Per Person	Total Spending
Lodging (Hotels)	\$42.69	\$272,415	\$35.82	\$225,050
Lodging (RV parks, camps)	\$10.67	\$68,104	\$8.96	\$56,262
Gasoline/Auto	\$3.57	\$22,806	\$3.00	\$18,840
Eating and drinking	\$63.24	\$403,569	\$53.07	\$333,400
Food stores	\$25.51	\$162,769	\$21.40	\$134,468
Misc Retail	\$24.67	\$157,403	\$48.10	\$302,184
Total	\$170	\$1,087,065	\$170	\$1,070,205

Source: Analysis by ECONorthwest of data from BLM, Whisman et al (No date), and IMPLAN

*We assume 22% of non-commercial river runners are local, that only half of them would have substituted a trip outside the region, and that they spent 37% the amount of a non-local

We settled on the mid-range estimate of \$170 per person for both commercial and non-commercial river runners (see Table 2), based on Whisman et al. (No date).¹⁶ The distribution of spending among the various industry sectors differs for commercial and non-commercial river runners and is based on the results from the Johnson and Moore (1993) analysis of river runners on the Klamath River.

Whereas nearly all commercial river runners come from outside of Josephine County, many non-commercial river runners live in or near Josephine County and so their spending patterns related to a Wild Rogue trip will differ substantially from those who come from outside the county. To begin, we rely on the results of the Johnson and Moore (1993) analysis of river runners on the

obligation. As of January 2009, the BLM has still not notified ECONorthwest as to whether our FOIA appeal had been processed.

¹⁵ Differences between commercial and non-commercial river runners in spending per sector are based on Johnson and Moore (1993).

¹⁶ While the ideal scenario is a survey of the local river, the literature does provide reasonable estimates of spending, which can be thought of as lower and upper bounds on spending.

Klamath River (also in southwestern Oregon). The authors found that 22% of rafters were from the local area. They also found that half the local rafters would have substituted a trip on another river, had the Klamath River not been available. In other words, but for the Klamath River, their spending related to a river running trip would have left the local area. Finally, Johnson and Moore (1993) found that the average expenditures of local boaters represent 37% of the spending of non-locals boaters. We assume these proportions hold for non-commercial river runners on the Wild Rogue.

Summing up the spending estimates for commercial and non-commercial river runners in 2007, we believe total spending on the Wild Rogue that flowed directly into Josephine County to be \$5,665,628.¹⁷

We followed a similar process to develop estimates of spending by commercial and non-commercial river runners on the Hellgate Recreation section. The Hellgate Recreation section does not have the Wild Rogue’s reputation for wilderness. However, its greater accessibility makes it a popular destination for many commercial and non-commercial river runners. Summing up the spending estimates for commercial and non-commercial river runners, we estimate total spending on the Hellgate Recreation section in 2007 to be:

Spending on Outfitters:	\$445,773
Visitor Spending by Commercial Guests:	\$356,017
Visitor Spending by Non-Commercial Guests:	<u>\$593,212</u>
Total Spending by River Runners on Hellgate Recreation	<u>\$1,395,002</u>

The estimates of spending within Josephine County by river runners visiting the Wild Rogue and Hellgate Recreation sections are used as inputs to the IMPLAN model to calculate three measures of economic activity within Josephine County:

1. Total direct, indirect, and induced economic output
2. Total direct, indirect, and induced income
3. Total direct, indirect, and induced jobs supported.

We estimate that whitewater rafting and fishing on the Wild Rogue generated \$7.7 million in total economic output in Josephine County and 140 full- and part-time jobs in 2007 (see Table 3).¹⁸ From total output, \$3.6 million was paid as business income and wages. Approximately one-third of total output and income was associated with indirect and induced effects (i.e., spending by other business

¹⁷ Spending on Outfitters: \$3,264,632
 Visitor Spending by Commercial Guests: \$1,087,065
 Visitor Spending by Non-Commercial Guests: \$1,313,930
 Total Spending by River Runners on Wild Rogue: \$5,665,628

¹⁸ The IMPLAN modeling system provides estimates of “jobs,” rather than an estimate of full-time equivalent jobs.

to support the directly affected businesses and spending by employees and business owners).

Table 3: Economic Impacts in Josephine County Associated with Recreation on the Wild Section of the Rogue River, 2007*

Type of Impact	Direct	Indirect	Induced	Total Impact
Output	\$5,071,600	\$1,317,560	\$1,298,360	\$7,687,520
Income**	\$2,252,220	\$593,190	\$748,240	\$3,593,650
Jobs	109	14	17	140

Source: ECONorthwest analysis of BLM and outfitter survey data

*Commercial and non-commercial impacts combined. See Appendix A for breakout

** Income is a subset of Output and includes both employee wages and business income

Table 4 shows the economic impact on Josephine County associated with recreation on the Hellgate Recreation section. In addition to commercial and non-commercial rafting and fishing, the Recreation section can be experienced by commercial jetboat. Based on BLM data, there were 4,493 commercial boaters, at least 25,000 non-commercial users,¹⁹ and 84,840 guests of commercial jetboats on the Hellgate Recreation section in 2007. Estimates of the proportion of rafters and anglers that are local and non-local and the proportion of visitors that would have substituted another local site if the Hellgate Recreation section was not available are based on Johnson and Moore (1993). Accounting for differences in spending patterns between locals and non-locals as well as substitution of other sites is necessary so as to not overstate the economic impact of river users.

¹⁹ Non-commercial use on the Hellgate Recreation section includes rafting, fishing (both boat and bank), picnicking, sightseeing, and recreational placer mining. Estimates of non-commercial use on the Hellgate Recreation section are based on BLM float survey data for 2007. In 1994, the last year for which we were able to obtain a detailed report from the BLM, 24% of recreationalists on the Hellgate Recreation section (including rafters, float anglers, bank anglers, and guest on commercial jet boats), or 25,562 people were non-commercial users. We conservatively assume that this number has not increased.

Table 4: Economic Impacts in Josephine County Associated with Recreation on the Hellgate Recreation Section of the Rogue River, 2007

Type of Impact	Direct	Indirect	Induced	Total Impact
Rafting and Fishing on Hellgate Recreational Section				
Output	\$2,139,920	\$525,390	\$576,260	\$3,241,570
Income*	\$966,110	\$235,050	\$332,090	\$1,533,250
Jobs	45	5	8	58
Jetboat Tours				
Output	\$3,315,530	\$342,920	\$1,660,490	\$5,318,940
Income*	\$2,382,490	\$172,170	\$894,030	\$3,448,690
Jobs	33	3	22	59

Source: ECONorthwest analysis of BLM and outfitter survey data

* Income is a subset of Output and includes both employee wages and business income

River recreation on the Hellgate Recreation section was responsible for nearly \$8.6 million in total economic output, almost \$5 million in income, and more than 100 full- and part-time jobs in Josephine County in 2007.

Total Economic Impacts of Recreation on the Wild Rogue & Hellgate Recreation Sections to Josephine County in 2007

Considering both the Wild Rogue and Hellgate Recreation sections we find that river-based recreation generated more than \$16 million in economic impact in Josephine County in 2007. Of this total, approximately \$8.4 million was paid in wages and business income and approximately 250 full- and part-time jobs were supported. Table 5 summarizes these results.

Table 5: Total Economic Impacts in Josephine County Associated with Recreation on the Wild and Hellgate Recreation Sections of the Rogue River, 2007*

River Section	Direct Spending	Total Economic Output	Income
Wild Rogue	\$5,665,628	\$7,687,520	\$3,417,750
Hellgate Recreation	\$6,054,690	\$8,560,510	\$4,981,940
Total Wild and Recreation Sections	\$11,720,318	\$16,248,030	\$8,399,690

Source: ECONorthwest analysis of BLM and outfitter survey data

* Please see Appendix A for a detailed breakdown by river section

Statewide Impacts

Statewide economic impacts were estimated following the same procedures outlined for the county-level estimates, though several of the underlying assumptions are different for the statewide analysis. The most important assumption difference is the inclusion of all Wild Rogue commercial outfitters located within the state. Recall that only the direct spending on commercial Wild Rogue trips provided by outfitters physically located in Josephine County were included in the county-level analysis (42% in 2007). For the statewide analysis, we include all Wild Rogue trips led by a commercial outfitters physically located anywhere in the state of Oregon—about 91% of trips in 2007. The other assumption differences pertain to spending patterns of visitors and the availability of substitute sites.²⁰

Based on the estimate of the average price paid for a Wild-Rogue trip and the information from the BLM on the number of persons that floated on the two sections of the Rogue, we estimate that the total direct spending on commercial float trips on the Wild Rogue was \$7,772,934. Of this total, we estimate \$7,073,370 flowed to outfitters located in Oregon. For the Hellgate Recreation section, we assume no additional statewide spending beyond the \$445,773 paid to Josephine County outfitters. Statewide estimates of per visitor and total spending are shown Appendix B.

Summing up the estimates of travel spending and direct spending on outfitters, we believe total statewide spending by visitors to the Wild Rogue and Hellgate Recreation section in 2007 to be \$18.6 million. As in the countywide analysis, the estimates of statewide visitor spending are used as inputs to the IMPLAN model, to calculate measures of statewide economic impacts.

We estimate that whitewater rafting, fishing, and hiking on the Wild Rogue generated \$18.1 million in total economic activity and supported nearly 300 full- and part-time jobs in Oregon in 2007 (see Table 6). \$8.8 million in income was paid out to employees or earned by business owners (nearly \$30,000 per job supported).

²⁰ We include estimates of all spending within the state to access the Wild Rogue or Hellgate Recreation section. However, we acknowledge greater substitution opportunities associated with the statewide perspective. The result is a slightly higher total visitor spending. Because of the unique qualities of the Wild Rogue (e.g., aesthetic beauty, summer water flows, appealing climate), we assume that any substitutable site is outside the State of Oregon.

Table 6: Economic Impacts in Oregon Associated with Recreation on the Wild Section of the Rogue River, 2007*

Type of Impact	Direct	Indirect	Induced	Total Impact
Output	\$10,005,830	\$3,933,560	\$4,166,630	\$18,106,020
Income**	\$4,532,380	\$1,880,740	\$2,356,920	\$8,770,040
Jobs	217	35	46	298

Source: ECONorthwest analysis of BLM and outfitter survey data

*Commercial and non-commercial impacts combined. See Appendix A for breakout

** Income is a subset of Output and includes both employee wages and business income

Table 7 shows the economic impacts in Oregon associated with recreation on the Hellgate Recreation section. The data are broken down so that the economic impacts of jetboat tours can be viewed separately from the economic impacts of rafting and fishing.

Table 7: Economic Impacts in Oregon Associated with Recreation on the Hellgate Recreation Section of the Rogue River, 2007

Type of Impact	Direct	Indirect	Induced	Total Impact
Rafting and Fishing on Hellgate Recreational Section				
Output	\$2,495,410	\$1,030,270	\$1,066,020	\$4,591,700
Income*	\$1,233,360	\$473,760	\$601,810	\$2,308,930
Jobs	51	8	12	71
Jetboat Tours				
Output	\$3,787,010	\$721,640	\$2,513,140	\$7,021,790
Income*	\$2,593,930	\$363,090	\$1,401,850	\$4,358,870
Jobs	41	6	28	74

Source: ECONorthwest analysis of BLM and outfitter survey data

* Income is a subset of Output and includes both employee wages and business income

River recreation on the Hellgate Recreation section was responsible for approximately \$11.6 million in total economic output, over \$6.6 million in income, and 145 full- and part-time jobs in Oregon State in 2007.

Total Economic Impacts of Recreation on the Wild Rogue & Hellgate Recreation Sections to Oregon State in 2007

Considering both the Wild Rogue and Hellgate Recreation sections we find that river-based recreation generated nearly \$30 million in economic impact in Oregon in 2007. Of this total, approximately \$15.4 million was paid in wages and business income and 445 full- and part-time jobs were supported (see Table 8). For more detailed results by river section and recreational activity, please see Appendix B.

Table 8: Total Economic Impacts in Oregon Associated with Recreation on the Wild and Hellgate Recreation Sections of the Rogue River, 2007*

River Section	Direct Spending	Total Economic Output	Income
Wild Rogue	\$11,644,978	\$18,106,020	\$8,770,040
Hellgate Recreation	\$6,935,565	\$11,613,490	\$6,667,800
Total Wild and Recreation Sections	\$18,580,543	\$29,719,510	\$15,437,840

Source: ECONorthwest analysis of BLM and outfitter survey data

* Please see Appendix A for a detailed breakdown by river section

DISCUSSION

The tourism and recreation industries have grown in Josephine County in the last couple of decades, with the rate of employment in the leisure and hospitality sectors exceeding the growth rate of the overall employment in the county by 5% between 2001 and 2006. The goods and services that the Wild & Scenic Rogue River offers represent a gateway that opens Josephine County up to tourists who come to recreate on the river and to people who decide to relocate in the county to have faster access to the river amenities. The two surveys of the local businesses, outfitters and lodging that ECONorthwest conducted show that the strength of the connection between the Wild & Scenic Rogue and Josephine County is indisputable, with the river playing an essential part in the cultural identity of the county residents.

Our analysis presents evidence that whitewater recreational activities associated with the Wild & Scenic Rogue contribute substantially to the economy of Josephine County and to the statewide economy as a whole and account for part of the growth, both in demographic and economic terms. The input-output model we use estimates that in 2007 whitewater recreational activities on the Hellgate Recreation and the Wild sections of the Rogue contributed \$14 million in total economic output, including \$7.4 million in personal income, and 225 full- and part-time jobs for Josephine County alone. We calculate that statewide impacts generated from whitewater recreational activities on these sections of the Rogue in 2007 account for nearly \$30 million in economic output, including \$15.4 million in personal income, and 445 million full- and part-time jobs.

Assumptions and caveats imbedded in our analysis may under- or overestimate the magnitude of these results. Despite such shortcomings, our study demonstrates that these types of recreation activities related to the Wild & Scenic Rogue River are significant factors that account for a considerable amount of growth in Josephine County and in the entire state of Oregon.

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APPENDIX A: DETAILED RESULTS OF ECONOMIC IMPACT ANALYSIS FOR JOSEPHINE COUNTY

Table 9: Economic Impacts of Recreation on the Wild Section of the Rogue River on Josephine County, 2007

Type of Impact	Direct	Indirect	Induced	Total Impact
Commercial Rafting, Fishing, and Hiking				
Output	\$4,127,950	\$1,095,000	\$1,036,300	\$6,259,250
Income	\$1,820,460	\$493,620	\$596,850	\$2,910,930
Business Inc.	\$750,940	\$246,710	\$176,250	\$1,173,900
Wages	\$1,069,520	\$246,910	\$420,600	\$1,737,030
Jobs	89.4	11.8	13.9	115.1
Non-Commercial Rafting, Fishing, and Hiking				
Output	\$943,650	\$222,560	\$262,060	\$1,428,270
Income	\$431,760	\$99,570	\$151,390	\$682,720
Business Inc.	\$159,240	\$49,970	\$44,480	\$253,690
Wages	\$272,520	\$49,600	\$106,910	\$429,030
Jobs	19.5	2.3	3.5	25.3

Source: ECONorthwest analysis of BLM and outfitter survey data

Table 10: Economic Impacts of Recreation on the Hellgate Recreation Section of the Rogue River on Josephine County, 2007

Type of Impact	Direct	Indirect	Induced	Total Impact
Commercial Rafting and Fishing on Recreational Section				
Output	\$728,510	\$189,140	\$185,910	\$1,103,560
Income	\$323,370	\$84,960	\$107,020	\$515,350
Wages	\$129,990	\$42,570	\$31,640	\$204,200
Business Inc.	\$193,380	\$42,390	\$75,380	\$311,150
Jobs	15.5	2	2.5	20
Non-Commercial Rafting and Fishing on Recreation Section				
Output	\$1,411,410	\$336,250	\$390,350	\$2,138,010
Income	\$642,740	\$150,090	\$225,070	\$1,017,900
Business Inc.	\$236,640	\$75,500	\$66,340	\$378,480
Wages	\$406,100	\$74,590	\$158,730	\$639,420
Jobs	29.7	3.4	5.2	38.3
Jetboat Tours				
Output	\$3,315,530	\$342,920	\$1,660,490	\$5,318,940
Income	\$2,382,490	\$172,170	\$894,030	\$3,448,690
Business Inc.	\$1,390,580	\$84,070	\$241,380	\$1,716,030
Wages	\$991,910	\$88,100	\$652,650	\$1,732,660
Jobs	33	3	22	59

Source: ECONorthwest analysis of BLM and outfitter survey data

Table 11: Economic Impacts of Recreation on the Two Sections of the Rogue River on Josephine County, 2007

River Section	Activity	Direct Spending	Total Economic Output	Income (1)
Wild Section	Commercial Rafting & Fishing	\$4,351,698	\$6,259,250	\$2,910,930
	Non-Comm. Rafting, Fishing, & Hiking	\$1,313,930	\$1,428,270	\$506,820
	Total	\$5,665,628	\$7,687,520	\$3,417,750
Recreation Section	Commercial Rafting & Fishing	\$801,790	\$1,103,560	\$515,350
	Non-Comm. Rafting & Fishing	\$1,937,376	\$2,138,010	\$1,017,900
	Jetboat Tours	\$3,315,524	\$5,318,940	\$3,448,690
	Total	\$6,054, 690	\$8,560,510	\$4,981,940
Total Wild and Recreation Sections		\$11,720,318	\$16,248,030	\$8,399,690

Source: ECONorthwest analysis of BLM and outfitter survey data

(1) Includes personal and business income

APPENDIX B: DETAILED RESULTS OF ECONOMIC IMPACT ANALYSIS FOR OREGON

Table 12: Estimated Statewide Spending by Visitors to the Wild & Scenic Rogue River, 2007²¹

Sector	Commercial River Runners (6,381 non-local)		Non-Commercial River Runners (5,971 non-local; 842 local)*	
	Spending Per Person	Total Spending	Spending Per Person	Total Spending
Lodging (Hotels)	\$21	\$135,883	\$21	\$133,775
Lodging (RV parks, camp)**	\$0	\$0	\$0	\$0
Gasoline/Auto	\$31	\$198,316	\$31	\$195,240
Eating and drinking	\$89	\$568,137	\$89	\$559,326
Food stores	\$38	\$243,487	\$38	\$239,711
Misc Retail	\$113	\$723,484	\$212	\$1,330,523
Total	\$293	\$1,869,308	\$391	\$2,458,575

Source: Analysis by ECONorthwest of data from BLM, Hjerpe & Kim (2007), and IMPLAN

*We assume 22% of non-commercial river runners are local, that only half of them would have substituted a trip outside the region, and that they spent 37% the amount of a non-local

*** Spending per person based on Hjerpe & Kim (2007). The authors do not break out RV park and camp lodging from hotel and other lodging.

²¹ Differences between commercial and non-commercial river runners in spending per sector are based on Johnson and Moore (1993).

Table 13: Economic Impacts of Recreation on the Wild Section of the Rogue River on Josephine County, 2007

Type of Impact	Direct	Indirect	Induced	Total Impact
Commercial Rafting, Fishing, and Hiking				
Output	\$8,332,110	\$3,243,140	\$3,419,900	\$14,995,150
Income	\$3,704,780	\$1,573,080	\$1,931,890	\$7,209,750
Business Inc.	\$1,515,980	\$697,020	\$563,770	\$2,776,770
Wages	\$2,259,580	\$900,140	\$1,389,060	\$4,548,780
Jobs	181	30	38	249
Non-Commercial Rafting, Fishing, and Hiking				
Output	\$1,673,720	\$690,420	\$746,730	\$3,110,870
Income	\$827,600	\$307,660	\$425,030	\$1,560,290
Business Inc.	\$274,990	\$139,570	\$122,520	\$537,080
Wages	\$662,010	\$199,540	\$330,940	\$1,192,490
Jobs	35.8	5.1	8.3	49.2

Source: ECONorthwest analysis of BLM and outfitter survey data

Table 14: Economic Impacts in Oregon of Recreation on the Hellgate Recreation Section of the Rogue River on Josephine County, 2007

Type of Impact	Direct	Indirect	Induced	Total Impact
Commercial Rafting & Fishing on Recreational Section				
Output	\$1,062,220	\$433,370	\$443,370	\$1,938,960
Income	\$505,000	\$202,520	\$250,010	\$957,530
Wages	\$285,850	\$102,970	\$134,390	\$523,210
Business Inc.	\$219,150	\$99,550	\$115,620	\$434,320
Jobs	21.8	3.6	4.9	30.3
Non-Commercial Rafting & Fishing on Recreational Section				
Output	\$1,433,190	\$596,900	\$622,650	\$2,652,740
Income	\$728,360	\$271,240	\$351,800	\$1,351,400
Wages	\$478,970	\$151,280	\$249,160	\$879,410
Business Inc.	\$249,390	\$119,960	\$102,640	\$471,990
Jobs	29.4	4.6	6.9	40.9
Jetboat Tours				
Output	\$3,787,010	\$721,640	\$2,513,140	\$7,021,790
Income	\$2,593,930	\$363,090	\$1,401,850	\$4,358,870
Wages	\$1,466,080	\$158,570	\$417,740	\$2,042,390
Business Inc.	\$1,150,880	\$214,720	\$991,470	\$2,357,070
Jobs	41	6	28	74

Source: ECONorthwest analysis of BLM and outfitter survey data

Table 15: Statewide Economic Impacts of Recreation on the Hellgate and Wild Rogue Sections of the Rogue River, 2007

River Section	Activity	Direct Spending	Total Economic Output	Income (1)
Wild Section	Commercial Rafting & Fishing	\$8,942,678	\$14,995,150	\$7,209,750
	Non-Commercial Rafting & Fishing	\$2,702,300	\$3,110,870	\$1,560,290
	Total	\$11,644,978	\$18,106,020	\$8,770,040
Recreation Section	Commercial Rafting & Fishing	\$1,211,179	\$1,938,960	\$957,530
	Non-Commercial Rafting & Fishing	\$1,937,376	\$2,652,740	\$1,351,400
	Jetboat Tours	\$3,787,010	\$7,021,790	\$4,358,870
	Total	\$6,935,565	\$11,613,490	\$6,667,800
Total Wild and Recreation Sections		\$18,580,543	\$29,719,510	\$15,437,840

Source: ECONorthwest analysis of BLM and outfitter survey data

(1) Includes personal and business income

APPENDIX C: POTENTIAL LIMITATIONS OF ECONOMIC-IMPACT ANALYSIS

While the IMPLAN modeling framework is quite sophisticated in both construction and specification, its results are constrained by limitations of which the policy analyst or decision-maker has to be aware. One of the main shortcomings of the IMPLAN model is that it is static, presenting one snapshot in time, and so it fails to account for the adjustments the economy will make to respond to different stimuli.

Another limitation of the model is that it assumes that production relationships are constant and don't adjust and that businesses will use the same bundle of inputs even when their prices change. Thus, the IMPLAN model does not recognize substitution within the production process.

Additionally, the model assumes that supplies of inputs to production are not limited. Under an assumption of no supply constraints, an outfitter simply responds to a change in final demand by increasing the number of trips. This is not a realistic assumption for the Wild section, where the number of visitors is limited by the number of available permits. For the Recreation section, this assumption is also unreasonable: the river would get so crowded that rafters would choose to go elsewhere.

Furthermore, the IMPLAN model does not account for social costs imposed by the influx of non-local recreationalists. As Hjerpe and Kim (2007) noted in their study, tourism brings with it increased congestion, crime, and environmental degradation, through Wildlife disturbance, pollution, and erosion. Again, the IMPLAN model does not have the tools to capture these costs.

This is not to say that employing the IMPLAN model is without merit. We are simply stating that, when interpreting the results of the model, one must take into account all the assumptions that are imbedded in them to get a more accurate understanding of the mechanisms that fuel that particular industry and of its contributions to the regional economy.