

UTAH STATE UNIVERSITY

IMPACTS OF WILD AND SCENIC RIVER DESIGNATION

A Report for the Utah Governor's Public Lands
Office

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EXECUTIVE SUMMARY

The designation of Wild and Scenic rivers and its impact on recreation and non-recreation users of these rivers has not been widely studied. Utah State University, as a part of the Baseline Socioeconomic Study funded by the State of Utah, completed a review of the literature about the recreation and non-recreation impacts of Wild and Scenic designation.

Only eleven studies related to Wild and Scenic Rivers were identified, of which five dealt exclusively with recreation use and/or value. None of those studies identified a scientifically significant designation effect on visitation.

The studies which addressed the non-recreational effects of designation were narrowly focused on one or two of those effects (land value or the effects of expenditures). Evidence regarding a designation effect from even those studies was mixed. Therefore, a key informant interview survey of approximately 150 persons was completed in an effort to determine possible impacts of the designation of river segments in Utah as part of the Wild and Scenic Rivers System.

Several key findings were identified from the USU study, as follows:

1. There exist no *ex ante* – *ex post* examinations of the « designation effect » of Wild and Scenic designation on recreation activities.
2. One study statistically examined trends in property values adjacent to a designated river but found no statistical evidence that designation had a significant effect on those values.
3. There are some anecdotal reports in some studies that a designation effect does occur according to managers of those rivers. No scientific or statistical evidence supports those observations.
4. Evidence from two studies relative to recreators' knowledge of the status of the Wild and Scenic rivers being used suggests that users' knowledge varied widely. However, a large majority of users in both studies reported that designation had preserved the quality of the riverine environment.

5. In one *ex ante* study of the value (contingent valuation) of potential designation, Colorado respondents' willingness to pay for designation of 11 rivers was significant.
6. Non-recreation impacts identified in the key informant survey included those on water rights, private land uses, and public land uses.
7. In general, since the law specifies that existing water rights will not be impacted, no evidence of impact on those rights from designation was found. There is currently one case in litigation relative to unallocated "excess" water production on the Lemhi River in Idaho.
8. In several cases, priority dates for potential upstream uses senior to the Federal reserved water rights for the designated segment(s) of the river were guaranteed in the specific designation Act or amendment to the Act.
9. Some private land has been obtained by condemnation, although not in the Western United States, due to the legal limits placed on land purchase by the Act.
10. Scenic easements have been obtained by the managing agency through condemnation of private property, without specific limit in the Act. Agency regulation of activities on those easements has occurred, including limiting both physical and use modifications.
11. The existence of a local (county or regional) planning and/or zoning commission usually provides local input to private land management. Where no zoning exists, the managing Federal agency may control private property uses.
12. There is some evidence of limited ability to construct flood protection on private property in Washington. In general, however, respondents were satisfied with the designation and felt little impact on their private land.
13. Some public land uses (Federally permitted uses) have been affected by designation. At least one placer mining claim has been closed and others have been regulated (particularly gravel operations).

14. The largest issue to date appears to be grazing in riparian areas. Several court cases have determined that grazing fails to maintain the water quality in the designated segments and grazing has been eliminated in those areas.
15. To date, timber harvest does not appear to have been affected by designation (although timber harvest on Federal land has continued to decline for other reasons).
16. It is the opinion of the researchers that, in order that local users and landowners can maintain their property rights and privileges, local citizens and officials and state officials should become involved in the designation process more deeply than simply providing comments on designation plans. Official committees or task forces made up of local residents and officials, state officials, and Federal managers should be formed to determine what segments are recommended to Congress to be designated.

INTRODUCTION

Phase 1 of the Utah Governor's Public Lands Policy Coordination Office Socioeconomic Baseline Study was undertaken in order to determine specific issues that were important to both the Utah general population and State, regional, and local government officials. After completion of a general population survey and focus group-type meetings with local government officials, several Phase 2 studies were identified that would fill information gaps regarding various specific issues of public land management and its impact on the State and local communities. Among these studies were (1) a survey of attitudes about and uses of public lands by the general population of Utah; (2) a study of the dependency on and alternatives to public land grazing by livestock operators in Utah; (3) a study of the management of watershed vegetation for water production and the value of changes in water production; (4) a study of off highway vehicle (OHV) uses and users; and (5) a study of the impacts of Wild and Scenic River designation on recreation use and on economic development of local communities. This report deals with the fifth of the studies.

Both the Bureau of Land Management (BLM) and the Forest Service are revising their land and resource management plans within the State of Utah. Each of the various revision processes includes Wild and Scenic River Studies, as required by Section 5(d)(1) [1276(d)(1)] of the Wild and Scenic River Act (16 U.S.C. §§ 1271-1287, October 2, 1968, as amended [the Act]). The Act establishes National policy for the preservation and protection of certain rivers of the Nation and their immediate environments. The Act specifically "[d]eclares that the established national policy of dam 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." Additionally, the Act implements the stated policy "[b]y instituting a national wild and scenic river system, by designating the initial components of that system, and by prescribing the methods by which and standards according to which additional components may be added to the system from time to time." The prescribed methods are found in the aforementioned Section 5(d)(1) (The Act, excepting the description of specific rivers or river segments so designated, is included in Appendix 1).

Intuitively, designated rivers could have a positive impact on recreation visitation and positive or negative impacts on current or future uses other than recreation.

METHODOLOGY AND PROCEDURES

The State of Utah desires to understand the economic benefits and costs of Wild and Scenic River designation, as well as the impacts of designation, in order to be able to cooperate in and respond to the development of Federal agency plans regarding designation of sections of Utah rivers. The distinction between benefits and impacts is discussed in Appendix 2. In order to determine benefits, costs and impacts, the ideal approach would be a “before” and “after” methodology. That is, one would take an economic snapshot of the situation on a river without the Wild and Scenic River designation and then take another snapshot on the same river after the designation. In this way the State could gauge the net benefits of Wild and Scenic Rivers designation: a positive net benefit would indicate that Wild and Scenic Rivers designation is desirable whereas a negative net benefit would indicate that designation is undesirable. Such an approach is beyond the scope of this report. Therefore, we are forced to examine what has been done in other states.

We have used two approaches: reviews of existing literature and key informant interviews. For this reason, the study was divided into two parts: (1) a review and analysis of studies of the recreation impacts of Wild and Scenic designation; and (2) a literature review and case study approach to analyzing the impact of designation on non-recreational aspects of the economies of local communities and users. The report is based on those two parts of the study. In each section, the report presents the literature review and analyses followed by a summary of our findings. The final section of the report summarizes both parts of the study.

RECREATION IMPACTS OF DESIGNATION

The impact of Wild and Scenic designation on recreational use of a river or river segment has been a topic of relatively few studies. In general, it is popularly held that special designations

(national parks, national monuments, wilderness areas, and so on) have a “designation effect” on recreation activities. It is postulated that the designation will make information about the site and its recreational attributes more available to the recreating general public, increase interest in the site, and result in increasing visitation.

Review of Recreation Effects

Unfortunately there have been no reported “before and after” designation studies conducted anywhere in the country. Indeed the literature on Wild and Scenic River designation is fairly thin. There have been a few studies that examined the economic benefits of designation using willingness to pay approaches. Perhaps the most significant finding with regard to the specifically recreational effects of Wild and Scenic River (WSR) designation is this distinct lack of existing research and literature on the topic.

Designation effect

The literature that does exist on Wild and Scenic Rivers includes *ex ante* (before designation) analysis of benefits, *ex post* (after designation) analysis of benefits, and other studies which included Wild and Scenic Rivers regions but in which the Wild and Scenic designation was not a primary focus of the research. Thus, none of the studies provides a “clean” analysis of the benefits and costs associated with designation. That said, a review of this literature is useful in providing a range of benefit estimates that may be informative as to what one might expect in the state of Utah.

One of the most direct assessments of the designation effect with regard to Wild and Scenic River status comes from Palmer’s (1993) *The Wild and Scenic Rivers of America*. His perspective is primarily one of river protection rather than recreation development and, hence, he views use increases as a negative impact upon the resource. Palmer states that Wild and Scenic River managers reported in a 1975 survey that designation of their rivers had indeed increased use. Palmer contends, however, these increases are in fact unrelated to designation as visitation has grown at comparable rates on both designated and undesignated rivers. He goes on to say:

Pennsylvania’s lower Youghiogheny, which is not designated in any river system, had 5,000 paddlers in 1968 and 150,000 in 1983, making it the nation’s most

floated whitewater at the time. Virtually all of the most used rivers lack national designation: the Nantahala in North Carolina, Ocoee in Tennessee, Mohican in Ohio, South Fork American and Russian in California, Arkansas in Colorado, Salt in Arizona, and Snake River in Grand Teton National Park and Alpine Canyon. In contrast, many of the national rivers gained little or no new popularity with designation, for example, the Little Beaver in Ohio. Floating increased on the Allagash, but comparable popularity affected the neighboring and undesignated Saint John. Floating on California's Tuolumne has increased and would have grown much more without regulations following designation, but use on the undesignated South Fork American exploded by comparison. Floating use on the Sheenjek in Arctic National Wildlife Refuge increased from 190 people in 1984 to 461 in 1988, while use on the Kongakut—an undesignated but similar river also requiring air access in the same refuge—grew from 169 to 1,287 floaters in the same period. The lower Salmon River, undesignated and unregulated, received 12,000 boaters in 1991, far surpassing the Middle Fork, which had been more popular and would likely continue to be if it were not regulated as a [W]ild and [S]cenic [R]iver. The Deschutes in Oregon saw great increases in use before it was designated.

These examples suggest that designation generally causes little impact on amount of use; even when there is an impact, the effect may be small when compared with other factors, such as suitability for recreation, access, marketing by commercial outfitters, and media publicity (for example, the effect of the movie *Deliverance* on the Chattooga in the 1970s). Ultimately, as with the Middle Fork Salmon, post-designation regulations may be the only method to curb people pressure (pp. 260-261).

This assessment, however, is not sufficiently rigorous to be viewed as the final word on a designation effect related to Wild and Scenic Rivers. Moreover, it is possible that other regulations, such as the Endangered Species Act (ESA), the National Environmental Protection Act (NEPA), and others, may have played significant roles in determining the destination of recreation visitors.

Becker (1981) discussed the “Rand McNally Syndrome,” (in reference to the popular brand of road atlases) which is equivalent to a designation effect. He suggested that the effect is likely, and may cause between-user conflicts resulting from a designation effect on Wild and Scenic Rivers. His conclusions were drawn from extremely small numbers of responses and statistically suspect. He failed to identify any source suggesting that the designation effect occurred to any substantial degree on the rivers he studied.

An implicit indication regarding the designation effect of Wild and Scenic Rivers is a general lack of awareness of the Act and the system of rivers created by it, at least in comparison to knowledge about other types of protected lands such as national parks and wilderness areas. This lack of awareness is supported by both Palmer (1993) and the Farmington River study (Moore and Sideralis, 2003b). However, the Chattooga River study (Moore and Sideralis, 2003a) indicated a relatively high level of awareness, suggesting that individuals in some areas, and/or some types of recreationists may have better knowledge of the Wild and Scenic Rivers System.

Media exposure surrounding designation, as well as promotion by agencies or others based on Wild and Scenic Rivers status, can only serve to publicize an area and some increase in use might be expected. Whether increased use would prove to be a long-term phenomenon remains to be seen and is likely related to the quality of the Wild and Scenic Rivers for specific recreational purposes. While use increases associated with designation may be one factor affecting recreation on a river, as Palmer (1993) stated, this factor may be smaller and much less important than other factors.

The Wild and Scenic Rivers Act's protective and preservation regulations could result in a recreational designation effect. The natural and recreational qualities of a river, as well as its free-flowing state, are among the river attributes protected and maintained under the Act. These attributes have a direct effect on the prevalence and desirability of recreational activities on specific river segments. If an unprotected river's qualities are degraded, it is likely that recreational activities sensitive to or dependent upon these qualities will be displaced. Hence, protection could be seen as maintaining current recreational use levels and provide high quality settings for increases in various recreational uses. Nevertheless, the designation effect has yet to be clearly and scientifically demonstrated.

Value of Wild and Scenic River Designation

Colorado Studies

Walsh, Sanders, and Loomis (1985) conducted a study regarding the economic value of designating 11 rivers in Colorado as Wild and Scenic. The study was conducted ex ante, that is, prior to the designation of any river, but each river had been recommended for Wild and Scenic River status in a 1975 amendment to the original Wild and Scenic River legislation. The 11 rivers included segments of the Cache la Poudre, Colorado, Conejos, Dolores, Elk, Encampment, Green, Gunnison, Los Pinos, Piedra, and Yampa rivers. Of these rivers only one, the Cache la Poudre, is located along the Colorado Front Range, just east of which lies the major population center of the state (running north to south along I-25 from Ft. Collins to Pueblo). The remaining rivers were located on the more sparsely populated Western Slope of the Rocky Mountains.

Benefit estimates were based on a sample of 214 Colorado residents. Data were collected via a mail survey, with names and addresses selected via stratified random sampling from Colorado telephone directories. The response rate was 51% and showed little evidence of non-response bias. The mail survey included a map of Colorado indicating the location of the river segments considered for Wild and Scenic River designation. In addition to the map, a verbal description of the location and length of the proposed Wild and Scenic Rivers segments was also provided. Rivers were presented in alphabetical order.

Large pluralities (from 65% to 78%) favored Wild and Scenic Rivers designation for all river segments, with the highest favorability rating given to the Cache la Poudre. For each river, less than 10% of the sample opposed Wild and Scenic River designation, with 15-30% of the sample expressing no opinion with respect to designation for any given river. Among those favoring Wild and Scenic River status, the most common reason for their support was to protect the quality of water, air and scenery, followed by a desire to protect the rivers for future generations and to protect fish and wildlife habitat.

The economic benefits of designation were elicited using a contingent valuation methodology. Respondents were first asked to rank the four rivers they deemed most important, after which they were asked an open-ended question regarding the maximum amount of money they would

pay annually for the top-ranked river “to guarantee that [this river is] protected.” Then each respondent was asked about willingness to pay (WTP) for the top two rivers in the ranking, then the top three, the top four and, finally, willingness to pay for all 11 study rivers. Households reported they were willing to pay about \$95, or about \$202 in 2007 dollars, annually for Wild and Scenic River designation of all 11 rivers.

Respondents were then asked to apportion the stated WTP amount between use and nonuse values. The authors found that about 19% of the WTP estimate was associated with recreation use values for currently visited rivers, with another 16% associated with the option to use all rivers (including those never visited) in their preserved state in the future. Some 28% of the total value was apportioned for “existence value”, or just knowing that the rivers exist in a protected state, while the last 37% is associated with “bequest value,” or the value to the current generation of preserving the rivers for future generations.

The authors then aggregated the benefits across households in the state and compared them to the cost of designation. Using a planning period of fifty years and a discount rate of 7.9%, total benefits of designating all 11 WSRs were estimated at \$599 million (about \$1.3 billion in 2007 dollars). The authors then ordered each river from highest valued to lowest valued, thus obtaining the equivalent of a marginal benefits function across the 11 rivers. The marginal benefit of designating the 11th (lowest valued) river was estimated to be \$42 million (or \$89 million in 2007 dollars). The estimated costs of designating WSRs included both management costs and the opportunity costs of foregone timber, minerals, and grazing, as well as possible water development projects on two of the 11 rivers (the Elk and Gunnison Rivers)¹; . Evaluating the marginal benefits of the 11th river against the marginal cost (\$4.8 million in 1983 dollars, \$10.2 million in 2007 dollars) indicated that all 11 rivers should be designated and, in fact, even more rivers should be designated. The authors cautioned, though, that the benefits of designation were sensitive to how one chooses to treat the values that are not associated with using the rivers, i.e., the existence and bequest values which comprised over 60% of the stated WTP. If existence

¹ Water development “opportunities” exist on other rivers that were considered, but those water developments were not valued [see Table 24 in Walsh, Loomis, and Sanders]).

and bequest values were excluded from the analysis, the marginal benefits are only a bit larger than the marginal costs for the 11th river.

The Farmington River Study

Moore and Siderelis (2003b) examined the economic value of the West Branch of the Farmington River in Connecticut. The authors also conducted an analysis of the economic impact of expenditures by visitors to the West Branch (Appendix 2 discusses the difference between economic value and economic impacts). However, neither this study nor the Chatoga River study (Moore and Siderelis, 2003a), described below, specifically examined the economic value or impact of designation itself.

Fourteen miles of the West branch was designated as a Wild and Scenic River in 1994. The Wild and Scenic River is located just west of Hartford, Connecticut, and within a two-hour drive of both Boston and New York City. The river is what the authors call a “partnership river,” that is, a river that flows through both private and public land, such that river management involves local communities and private citizens in addition to state and federal agencies. The West Branch of the Farmington is a popular river with anglers, boaters, and tubing enthusiasts, receiving over 75,000 recreation visitors per year.

Visitors were surveyed in 2001 and 2002 using a two-stage process: respondents were initially contacted via intercept procedures at the river, at which point they were asked to participate in the second-stage mail survey. Of the 483 people intercepted at the river, 433 people agreed to participate in the mail survey, with 247 (57% of the 433) returning usable surveys.

The average distance traveled to recreate at the Wild and Scenic Rivers was 59 miles (median of 30 miles), with over 80% of visitors coming from the state of Connecticut. Only about 10% of visitors reported staying overnight on their trip. The mean number of visits each year was 26 (median, 6 trips), with the most popular primary activities being fishing (76%), tubing (15%), and kayaking and canoeing (8%). Some 17% of visitors used a commercial outfitter for tube, canoe or kayak rental, or the employ of a fishing guide.

Some 86% of the respondents had visited the West Branch prior to the time of the intercept, with almost 50% of the respondents having visited the Farmington River prior to its designation as a

Wild and Scenic River. Among those who had visited the West Branch in the past, 60% stated that the quality of the river and the 100-foot corridor along its banks had not changed appreciably since their first visit, with 31% stating that quality had improved and 9% saying that quality had gotten worse. The authors report no analysis of the relationship between perceptions of the change in quality and the timing of the Wild and Scenic River designation.

Only 47% of visitors were aware that the West Branch of the Farmington River had been designated as a WSR, but 71% of respondents reported that the Wild and Scenic River designation was very important (choosing the greatest importance, 7, on a 7-point scale). Despite the fact that less than half knew of the Wild and Scenic Rivers designation, almost 95% of respondents felt that Wild and Scenic Rivers designation was moderately to very effective in protecting and preserving the river, with 88% stating that designation was moderately to very effective in protecting lands within the 100-foot corridor.

Economic impact was assessed using an analysis of visitor expenditure patterns within the region. The economic impact region was defined as “the five ‘riverfront towns’ represented on the Farmington River Coordinating Committee. Expenditure data were collected from all respondents, who were asked to separate expenditures into those occurring inside the economic impact region and those occurring outside the region. The authors were careful to exclude the expenditures of recreators who lived within the region, such that the estimated impacts include only expenditures coming from recreators who lived outside the region (i.e., goods and services “exported” from the economic impact region). The direct expenditures by visitors from outside the region totaled just under \$2.5 million (\$2.9 million in 2007 dollars), with a total economic impact of \$3.6 million (\$4.2 million in 2007 dollars) and 63 jobs.

Economic value, what the river is worth to visitors, was estimated using a combined travel cost-contingent behavior methodology. Data were collected on the number of visits in the past 12 months, the intended visits in the next twelve months, and intended visits under the following scenario:

Suppose the recreational and scenic features at the West Branch of the Farmington River were impaired by a man-made or natural disaster that left the river nearly impassable and significantly lowered water quality. How many trips

would you probably take to the West Branch of the Farmington River during the next 12 months?

Analysis of visitors' trip responses under this scenario can be used to provide a very rough measure of the river in its current state relative to this scenario. Hence, it provides an "upper bound" estimate of the value of Wild and Scenic River designation.

The travel cost variable was constructed in a standard manner (out-of-pocket cost plus one-third of travel time costs), but the baseline travel cost model at current price and quality included both observed behavior (number of trips in the past 12 months) and intended behavior (number of trips intended in the next 12 months). The authors control for the panel nature of the data (two observations per person), endogenous stratification (a statistical bias associated with the intercept sample) and over dispersion (a difference between the mean and variance of a Poisson distribution) via a random effects negative binomial model.

Results for the baseline model indicate some degree of hypothetical bias in that intended trips in the next twelve months exceeds the actual number of trips in the past twelve months. The model predicts a mean of 10.6 trips per year and per person per season consumer surplus of \$372 (\$435 in 2007 dollars). This last figure can be interpreted as the net economic value of trips to the West Branch of the Farmington; that is, the difference between what a person would be willing to pay to recreate at the West Branch and what the person actually had to pay. Under the scenario of quality impairment (the river is nearly impassable and water quality is lower), the expected number of trips per year is 1.7, with a per person per year consumer surplus estimate of \$107 (\$125 in 2007 dollars) or about 29% of consumer surplus under current conditions.

The Chattooga River Study

Moore and Siderelis (2003) contrasted their study of the Farmington with another Wild and Scenic River, the Chattooga River. The 57-mile designated segment of the Chattooga has its headwaters in western North Carolina, after which the river forms the border between Georgia and South Carolina. This river segment is well-known internationally as the scene for the motion picture *Deliverance*. It is a popular river for recreation, but has many nearby, high-quality substitute rivers: the Nantahala River and the Ocoee River, site of the 1996 Olympic kayaking events. The Chattooga was designated as Wild and Scenic in 1974, the first river in the

Southeast to be designated. In contrast with the public-private “partnership” characteristic of the Farmington, the banks of the Chattooga are almost exclusively composed of public lands owned by the US Forest Service. The Chattooga receives over 40,000 boating trips per year.

The sampling frame was developed from a mix of sources: a client list gathered from two commercial boating outfitters for the year 2002, the on-site permits collected from self-guided boaters and holders of an annual pass allowing access to fee-based public recreation facilities. The authors address issues associated with sampling bias arising from the strengths and weaknesses of using each source. Random samples were drawn from the lists of commercially guided clients and self-guided boaters, with a census taken of all annual pass holders due to the small number of people holding such passes. The overall sample response rate was 43%, with responses rates for the guided boaters at 38%, self-guided boaters at 51% and annual pass holders at 30%. Some 62% of respondents drove less than 150 miles to the Chattooga River, but almost 18% drove 400 miles or more. The average distance traveled was 230 miles (median of 100 miles). Some 87% reported that visiting the Chattooga was the primary purpose of the trip, with over half of respondents (58%) reporting that the visit was part of an overnight trip. Boating activities (rafting, kayaking, canoeing and tubing) comprised the primary activities of over 90% of the sample, with all other activities (fishing, hiking, camping, etc.) the primary activities of less than 7% of respondents. Just over 46% of respondents reported using a commercial outfitter during their visit.

Only 27% of respondents reported that the trip about which they were surveyed was the first trip to the Chattooga, although among those who had made prior visits fully 30% had made their first visit within the previous 12 months. Respondents had made an average of seven visits to the Chattooga in the previous 12 months (median of 2 trips) and intended to take 10 trips in the next 12 months (median of 2 trips). Some 66% of respondents reported no change in the quality of a recreational trip since their first trip, with 20% reporting that quality had improved and 14% reporting that quality had gotten worse. The vast majority of respondents (83%) were aware of the Wild and Scenic Rivers designation of the Chattooga, with over 97% reporting that the designation was moderately to very effective in preserving the quality of the river.

Economic impact was assessed in the same manner as the Farmington River. The economic impact region was defined as “the six counties where the river segment is located.” Expenditure data were collected from all respondents, who were asked to separate expenditures into those occurring inside the economic impact region and those occurring outside the region. The authors again excluded the expenditures of those who lived within the region, such that the estimated impacts include only expenditures coming from respondents who lived outside the region. The direct expenditures by visitors from outside the region totaled just under \$1.8 million (\$2.1 million in 2007 dollars), with a total economic impact of \$2.6 million (\$3.0 million 2007 dollars) and 60 jobs.

Economic value was estimated using a random utility version of the travel cost model that distinguishes between a guided boat trip and a self-guided boat trip. The model did not include information on the seasonal visitation, that is, the repeated discrete choice version of the model, nor did the analysis estimate a more conventional “site choice” version of the random utility model because no information was available for trips to substitute river sites. The estimated model yielded an average group WTP per choice of \$938 (\$1,090 in 2007 dollars) for guided boaters and \$72 (\$83 in 2007 dollars) for self-guided boaters. The aggregate annual WTP for all boaters on the Chattooga was \$5.8 million (\$6.7 million in 2007 dollars). The authors provide a comparison with estimates of WTP by boaters from around the country and contend that the per person values consumer surpluses reported for the Chattooga are in line with these estimates.

The authors also report portions of a revealed behavior-contingent behavior travel cost model that combines actual and intended behavior. The authors' hypothetical scenario D6 is of particular interest relative to the designation effect:

A minimum water level of 1.1 feet at the highway 76 water gauge is considered necessary for boating on the Wild & Scenic Chattooga River. Actual water levels range from below one foot to approximately 3 feet. Suppose the river level was impaired by man-made or natural conditions that left the river below one foot for the next twelve months. How many trips would you take to the Wild & Scenic Chattooga River in the next twelve months?

This scenario might be considered as representing an impairment the wild and scenic character of the river by building, for example, an upstream dam. The hypothetical scenario would cause a 32% drop in guided trips (a fall of about 0.3 trips per person) and a fall of about 69% in self-guided trips (a decline of 5.5 trips per person). The authors do not report estimates of the change in consumer surplus associated with the hypothetical scenario.

Other Relevant Studies

Colby and Smith-Incer (2005) examine the economic impacts and economic benefits of preserving riparian habitat on the Kern River in Southern California. While the study region contains a portion of the segment of the Kern River that is designated as a Wild and Scenic River, this designation is not the major emphasis of the study. Instead, the authors focus on a major bird refuge that is very popular with birding enthusiasts. The birding preserve requires surface water and relatively high ground water tables for the refuge to maintain its quality. Thus, while the physical and geographical link to the Wild and Scenic Rivers designation is fairly strong, all estimates of economic impact and economic benefits are associated with the preserve.

Community Action Partners published a briefing paper on the economic benefits of Wild and Scenic designation (Cohen and Timmer 2006). This paper outlines the distinction between economic benefits and economic impacts, after which it provides a detailed literature review of five different papers addressing issues associated with Wild and Scenic Rivers. Among the studies included are the Moore and Siderelis (2003a, 2003b) analyses of the Farmington and Chattooga rivers and the Kern River Preserve study by Colby and Smith-Incer (2005).

The document also summarizes studies of the New River Gorge (West Virginia) by Stynes et al. and the South Yuba (California) by Palmer.² The New River Gorge (NRG) is designated as a “National River” and is not technically a Wild and Scenic River. The NRG is extremely popular, receiving over 1 million visits per year, with about \$61 million in total visitor spending in 2004 (\$67 million in 2007 dollars). Within a three county economic impact region, the visitor spending results in a total of 1,300 jobs. The South Yuba was designated by the state of California as a Wild and Scenic river in 2001. Analysis conducted in the early 1990s indicated that nearly 700,000 visits were made annually to the river, with the majority of visiting coming from outside the single county economic region (Nevada County). Analysis indicated that visitors contributed at least \$5 million directly to Nevada County (\$7.4 million in 2007 dollars).

Finally, the National Park Service (1995) has provided a handbook on how citizens can use economic analysis as part of their efforts to protect rivers, trails and greenway corridors. The handbook provides an explanation of different economic concepts and measures and how economists go about estimating benefits and costs.

Conclusions

None of the studies reviewed reported scientifically supportable findings relative to the recreational impact of the designation of rivers or river segments as Wild and Scenic. Those studies that have discussed the recreational effects of designation are mixed; some suggest that the designation effect may occur, but others indicate that increases in visitation are simply reflections of long term trends. Thus, it appears that no conclusion can be drawn with respect to the designation effect on recreation visits. There is at least one study that does conclude that there is significant economic value to designation in Colorado, and that the economic benefits (value) is greater than projected costs of designation (estimated losses of timber production, grazing, mining, and water development). Nevertheless, river recreation in general does appear to generate significant economic impacts in most cases.

² The authors of this report did not have access to original copies of the Stynes et al. and Palmer studies. Discussion is taken from Cohen and Timmer.

NON-RECREATIONAL ECONOMIC IMPACTS OF DESIGNATION

The Wild and Scenic Rivers Act specifies several aspects of river and land management that could have a direct impact on economic activity other than recreation. Briefly, these are the following:

1. Federal management agencies are able to acquire privately held land (fee title) or scenic easements, including the use of condemnation procedures, subject to certain restrictions §1277;
2. No Federal approval or support (for example, a FERC license) will be provided for development of water storage or management facilities (diversion structures, barriers of various kinds, etc.) within the corridor §1278;
3. All public lands within the authorized boundaries of System components, or areas designated as additions to the System are withdrawal from entry, sale or other disposition under U.S. public land laws (unless as specifically excepted) § 1279;
4. Prospecting, mining operations and other activities on mining claims that have not been perfected, and mining operations under a mineral lease, license, or permit are subject to regulations to effectuate the Act's purposes; §1280;
5. Agencies having jurisdiction over lands that include, border upon, or are adjacent to any river included within the ... System, shall take such management actions as may be necessary to protect such rivers in accordance with the provisions of the Act §1283.

However, also under Section 1283, Management Policies section (b): “Nothing in this section shall be construed to abrogate any existing rights, privileges, or contracts affecting Federal lands held by any private party without consent of said party.” Finally, under §1284, state jurisdiction over fish and wildlife and water rights is recognized. Under subsection (b), “...any taking of a water right which is vested under either State or Federal law at the time such river is included...shall entitle the owner thereof to just compensation.” Nevertheless, the interpretation of the Act with respect to management options of the managing agency has been the subject of

considerable debate between proponents and opponents of designation. For that reason, the implementation of the Act in various cases can give a better understanding of the potential impacts of the Act on local and regional economic activity.

Literature Review

In order to assess the non-recreational economic impacts of Wild and Scenic designation, an initial literature search was completed. This search identified very few studies. Two studies of the impacts of recreation-related expenditures arising from river recreation (not necessarily tied to the designation itself) were found. Both of the studies took place in the Eastern U.S., as discussed above (Moore and Siderelis, 2003a and 2003b). Moore and Siderelis (2003b) also examined land values along the Farmington River in Connecticut and found a negative relationship between distance from the river and land value. In order to test the effect of designation on those land values, the study included a binary “dummy” variable for the year of designation of the Farmington River; that is, a variable was included that indicated the time period before the designation (all years before designation were valued at 0) and after the designation (all years after designation were valued at 1). The coefficient of this binary variable was insignificant, indicating that the designation had no statistically significant impact on adjacent land values. Thus, changes in land values along the river appeared to be affected only by long term trends.

Three studies of the Clearwater and St. Joe Rivers in Idaho were identified (Brooks and Michalson, 1980; Brooks, 1979; and Christopherson, 1974). Only the Brooks, and Brooks and Michalson studies examined ex post effects of designation. The U.S. Forest Service purchased scenic easements, through condemnation in some cases, from private landowners within the Clearwater River Wild and Scenic corridor.³ Using a comparable sales approach these two studies found that land values within the corridor were 25 to 60 percent lower than comparable land values outside the corridor. Statistical analyses indicated that the assessments of the land values for easement purchases appeared to be consistent across most parcels in that size of the parcel and developable acres were statistically significant across all observations. However, the

³ Private land in developed commercial areas, the towns of Kooskia and Syringa in particular, were not included in the scenic easement program.

statistical models used explained a maximum of 62 percent of the variation in those easement payments. Moreover, the researchers did not compare the purchase price of land within the corridor after designation plus the easement payment with the purchase price of land outside of the designated corridor to assess the appropriateness of the easement payments. The three studies used descriptive analyses to examine changes in mineral, timber, and agricultural activities, and reported no significant change in forest harvest practices. Mining activity in the corridor prior to designation consisted of “small operations” which were “...not affected by the Act since existing uses ... are allowed to remain.” (Brooks, 1979).

Key Informant Interviews

Given the paucity of studies focused on changes in economic value and activity in designated corridors and surrounding communities, a case study approach was used to attempt to delineate actual impacts. Environmental Impact Statements (EISs) and Federal agencies’ River Management Plans were obtained for in excess of 50 river segments that were either designated or being considered for designation. A considerable number of those segments were located in national parks, national monuments, wilderness areas, or wilderness study areas. In those cases, the management of the river is based on the (usually more stringent) regulations and procedures applicable to the respective land use designation. Thus, designation as a Wild and Scenic River would not likely affect the management of the river or the corridor.⁴

Next, the EISs and Management Plans that appeared to the researchers to have significant potential impacts were identified, and a set of cases were selected including the following:

- Arizona:
 - Verde River
- California:
 - Eel River

⁴ Some environmental groups have suggested that wilderness designation does not necessarily preclude water developments. To the authors’ knowledge, no substantial water development has taken place in wilderness areas or wilderness study areas.

- Smith River
- Lower American River
- Kings River, and
- Tuolumne River

- Colorado:
 - Cache La Poudre River

- Idaho:
 - Clearwater/Salmon/Lemhi Rivers
 - St. Joe River, and
 - Owyhee River⁵

- Oregon:
 - Donner und Blitzen River
 - John Day River
 - Malheur River, and
 - Owyhee River

- Washington:
 - Skagit River and
 - Lower White Salmon and Klickitat Rivers

A “key informant interview” process was used in the study. In each of the selected cases, the lead management agency was contacted and the person(s) most closely associated with the designated river was interviewed. The focus of the semi-structured interview was to determine if the respondent had any knowledge about the impact of designation on water or other development, or other economic activities. Further contacts were elicited from these interviews and from other documents available to the study (such as EIS comments, newspaper accounts,

⁵ The Owyhee River in Idaho has not yet been designated as a Wild and Scenic River; however, the process being applied to its designation – the Owyhee Initiative – appears to present some informative possibilities.

etc.).⁶ Interviews with these “key informants” continued until either responses in the interviews became repetitive and little new information was obtained or no new knowledgeable persons were identified. Well over 100 telephone interviews were completed for the case studies listed above. Appendix 2 contains the format followed for these interviews. The responses and opinions of these “key informants” are summarized and reported below.

In general, respondents indicated relatively minimal impacts on water resources and land use associated with Wild and Scenic designation. In many cases, other regulations were cited as having considerably more impact. These included the ESA, Wilderness or other special land designations, EPA regulations regarding water quality, and local or county zoning regulations. Some respondents indicated that the designation under the Act just added to the existing administrative processes. Nevertheless, there were some consistent issues and impacts of Wild and Scenic designation that were identified by respondents: water related impacts, private land use impacts, and public resource impacts. Results are reported under these specific categories and a “general” category. “Cooperative initiatives” to designation of Wild and Scenic Rivers as well as other forms of special designation was also a common theme among respondents.

Water related impacts

As clearly stated in the Act, no federal licenses or financial aid can be issued for water structures in the Wild and Scenic corridor. In fact, according to many respondents, the designation of several rivers in California by the State of California (prior to National designation) was accomplished in order to prevent the construction of dams. Some of California’s north coast rivers had “...strong pressures...” for dam construction, which is what “...triggered the [Wild and Scenic] debate.” For example, the Dos Rios Dam on the Middle Fork of the Eel was planned as part of the California State Water Project. In fact, water contracts were sold before the project was built. The Dos Rios Dam was stopped by the Governor at the time and the Eel River was designated as a State Wild and Scenic River. Federal designation was requested and obtained ensuring that the dam issue would not come up again. In addition, one respondent stated that

⁶ In many cases, designation had taken place in the 1970’s and many of the Federal agency employees associated with the designation were no longer working in the office in which designation was implemented. Where possible, those employees were identified and interviewed.

there were a couple of dam sites on the Smith River. The Smith River was designated as both a state and federal Wild and Scenic River and remains California's only undammed river. One respondent mentioned that designation of the Kings River "...prohibited a small hydroelectric project at Ten Mile Creek." However, another respondent noted little impact from the designation of the Kings River because two reservoir sites were not included in the designated segment; there is current legislation to designate the segments of the Kings River containing those two sites as Wild and Scenic, preventing future development. On the Tuolumne River, three to five dams were planned in the 1970s, including the Clavey-Wards ferry project. These were all precluded by designation. Whether these or other water development projects would have materialized in the absence of designation is unclear. Some may have been economically infeasible; others may have been precluded by other laws and regulations. Several respondents did mention, however, that the reason for Wild and Scenic River designation in California was (and still is) to stop the construction of dams. That is, rivers are designated to put a halt to planned projects and to foreclose any possibility of future dams.

In the case of the Cache La Poudre River in Colorado, at least one site on the river had been identified as a potential site for a dam and reservoir by several entities, including the Northern Colorado Water Conservancy District. Negotiations among local environmental groups and water users yielded a compromise in which a lower segment (7 miles) of the river was omitted from designation to preserve the potential for a storage dam and reservoir. The Federal reserved water rights were given a priority date of 1986 (the date of the designation). According to several respondents, that priority date could possibly discourage future building of more storage upstream from the designated segment since the storage rights would be junior to the Federal reserved right.

Other cases of developing water control structures have arisen. In particular, the Skagit River in Washington is highly flood-prone. According to water resource managers, much of the floodwaters come from the Sauk River, a tributary to the Skagit and a designated Wild and Scenic river. Several comments were made relative to the designation eliminating the possibility of the construction of flood control dams on the Sauk. There is also a perception that flood protection in the form of bank armoring has been impeded to some degree by the Wild and Scenic designation. Although there were differing opinions expressed – including the relative

ineffectiveness of armoring in the specific geology of the River - one of the main impediments may have been the lack of fiscal participation by Federal agencies (the U.S. Army Corps of Engineers in particular). In this case, because a considerable portion of the land in the corridor was private, the law designating the river included a clause that permitted the “preservation” of agricultural land, which has been used as a legal platform for rip-rapping and other bank armoring activities. Also, there is a Corps of Engineers exemption to protect transportation and other infrastructure, which has permitted some bank armoring. To some extent, respondents mentioned constraints on flood protection activities on the Klickitat River as well, although local zoning regulations also affect flood control and construction in the flood plain. It should be noted that, although respondents did not specifically mention them, the ESA, NEPA and other regulations may also have contributed to constraints on flood control activities.

The preservation of water rights has also been an issue of concern to local residents, even though the language of the Act indicates that existing water rights could be taken only with “just compensation.” The Federal reserved water rights associated with Wild and Scenic River designation are given a priority date of the date of designation which makes them junior rights to all other rights existing at the time of designation. In the case of the Lemhi River (part of the Salmon River system), not only were existing rights preserved, but recognition of potential future water allocations was made based upon projected water requirements for agricultural and municipal/industrial development upstream. Thus, the Federal reserved water rights were “quantified” and given “junior” standing to specific future development rights through a negotiated agreement. This approach has also been included in the Owyhee Initiative, a cooperative effort to consider both Wild and Scenic River and Wilderness designations to the Owyhee River Basin in Idaho (to be discussed later). Nevertheless, the Federal agencies do have the power to “take” senior rights so long as just compensation is provided.

That does not mean water allocations have not been effected at all. There is current litigation in Idaho relative to the allocation of excess flows from the Lemhi River for which water rights have not been granted by the State. Upstream water users, historically had access to the flows and used them for agricultural production. The Forest Service claimed these flows as part of the Federal reserved right of the Wild and Scenic segment of the Lemhi and Salmon Rivers. The courts have not as yet adjudicated the case.

At the present time, the water rights on the Snake River in Idaho are being adjudicated by Idaho courts, although these adjudications are not likely to be greatly affected by Wild and Scenic designations. Moreover, some reallocation of water rights were mentioned by respondents in both Washington and California. Reallocations and changing points of diversion were identified by respondents in the Lower American River in California, although most of the judicial review and negotiation were based on California designation and the California public trust doctrine.

In the Verde River Basin in Arizona, there is a growing conflict between developers upstream from the designated segment and other water interests centered on the effect of increased groundwater pumping. The link between upstream aquifers and the flows in the Verde has not been firmly established, but some environmental and water use groups have indicated that they would oppose significantly increased groundwater use in the upstream area using the Act as a part of their case.

Private land use related impacts

Private land within Wild and Scenic corridors is not regulated by public land managers. However, the agencies can acquire private land through purchases of up to 100 acres within each mile of river corridor. If more than 50% of the land within the corridor is owned (fee title) by Federal, state or local governments, the Federal agency or agencies cannot acquire land through condemnation (note that no such limitation is imposed in cases in which the government-owned land totals less than 50%). Moreover, the use of easements (usually scenic easements, but including access easements) is not limited, including obtaining those easements through condemnation. Condemnation of property within urban areas that have zoning ordinances is also not permitted, although the zoning ordinances must conform to the objectives of the Act. The managing agency's Secretary specifies guidelines to be met in order that those local zoning ordinances are consistent with the Act. In some cases, such as the Farmington River in Connecticut, there is little public land and the river and land uses are controlled through local zoning agencies and cooperative efforts (Moore and Siderelis, 2003).

Most of the key informants in study cases in which substantial amounts of intermingled private land existed within the Wild and Scenic corridor reported few problems and indicated that the local zoning ordinances were the controlling regulations on use, development, and construction

on private land. There were a few respondents who indicated that restrictions had been placed on their ability to build or modify property within the Wild and Scenic corridors, in particular with regard to flood control in the Skagit and Klickitat/White Salmon rivers. These restrictions may have been a function of other Acts and ordinances, in addition to the Wild and Scenic designation. In general, cooperative efforts among the private landholders, local and state officials, and the managing agencies appeared common.

In the case of scenic easements purchased by a managing agency, some level of conflict was reported by respondents. In the Clearwater River case, a significant number of scenic easements were purchased by the managing agency, the U.S. Forest Service, including approximately forty per cent that were obtained by condemnation from owners who did not wish to sell easements. While most respondents indicated satisfaction with the river management and with the easement requirements, only a few had directly benefited from the purchase of the easement; the vast majority were second or third purchasers of the property. As reported above, Brooks (1979) found that the market value of the easements appeared consistent, and that the market value of the property from which the easements were sold was lower than similar property which was not included in the easement program. All the contacted current owners of property were aware of the easement when the property was purchased. However, Idaho County does not have a county zoning ordinance. Only the villages and towns in the corridor, Kooskia and Syringa in particular, have zoning plans. Thus, regulation of property use and modification within the corridor, and particularly within the scenic easements, is administered by the U.S. Forest Service and, in particular, by the local District Ranger. Applications for construction, remodeling, plantings, and land use have to be approved by that Ranger. Several private landowners suggested that approvals or rejections sometimes appeared to be “arbitrary and capricious,” based on the preferences of the Ranger and subject to change with personnel changes. The lack of a local cooperating agency, such as a county zoning board, limited the review of the Ranger’s decisions to judicial appeal (at least one of which is pending in Idaho courts). Nevertheless, most respondents were satisfied with the limits placed on private land development.

One respondent indicated that private landowners in the Cache La Poudre corridor must “check with the Forest Service” before taking action on their land, although the specific cases and extent of review could not be verified. Several respondents indicated that some restrictions had been

applied to local road construction, maintenance, and signing. In these cases, the U.S. Forest Service required consultation and approval before road work and/or signing could be completed.

Public land uses

The Act gives the power to regulate Federal land uses to the managing agency to achieve the purposes of the Act (preservation of the free-flowing condition and the outstanding values), although §1283(b) suggests that existing rights, privileges, or contracts (executed prior to designation) coming from the Federal agencies will not be affected by designation. The three main non-recreational “products” that the Federal agencies “market” from public lands are minerals, timber, and grazing. Key informant responses regarding the impact of designation on each, as well as a general “other” category, is discussed below:

Minerals.

Large scale mining within the corridors has not been permitted, although some existing mining leases have continued to operate. In most cases, this mining has been limited to small “recreational” prospecting and some gravel mining. For example, there were some gold mining claims in the Tuolumne River; these claims were not really active, being referred to as “mom and pop deals.” Designation of the Tuolumne River placed restrictions on these recreational mining activities, basically making the activities no longer possible. Along the Smith River corridor, gravel mining operations have been stopped, causing people to have to drive 90 miles to obtain sand loads that historically they could obtain locally. Although Wild and Scenic designation was probably a factor in the decision to close gravel operations, it is unclear whether it was the sole reason. On the Eel River, gravel mining takes place on sections classified as “recreational.” Existing gravel extraction projects were not stopped by designation but removal must be done in an environmentally consistent way, taking into consideration aesthetic impacts. Gravel operations must adhere to some mitigation measures, such as hours of operation, dust control, adjacent recreational use, etc. However, one respondent mentioned that the same measures are being applied to other rivers that are not Wild and Scenic.

One holder of a placer gold mine claim outside the Wild and Scenic corridor on the Salmon River drainage in Idaho reported that his mining activities were halted because the outflow from

the placer operations was degrading the water quality in the Wild and Scenic segments of the River. This report could not be substantiated by other contacts, but the Forest Service did indicate that some mining claims were being adjudicated in the river basin in response to water quality degradation (under the Wild and Scenic Act, NEPA, and the Clean Water Act).

Timber.

For the most part, timber harvest on or near Wild and Scenic Rivers is controlled by the U.S. Forest Service, although the Bureau of Land Management does manage timber harvest in some areas, most importantly in the Cascade Range in Oregon. In the case study areas, the primary timber harvest areas are found in the Clearwater/Salmon and St. Joe River basins in Idaho. Respondents indicated that the Wild and Scenic designation has had little effect on timber harvest on either private or public land in these two rivers. In general, it was reported that other restrictions on forest harvest (the Endangered Species Act, for example) have had much more impact on timber harvest in the two case study areas, as well as nationwide. Some limited private timber harvest has continued on a selective cut basis on the Clearwater River, with the approval of the U.S. Forest Service. Respondents noted that commercial timber harvest land on the Smith River in California had decreased by about 90 per cent. Although Wild and Scenic designation may have had “a small impact,” it was recognized that California state laws and the designation of a National Recreation Area had much more effect on timber harvest in that case.

Grazing.

At present, Wild and Scenic designation does appear to have had some effect on public land grazing. In the Verde River, Arizona, the Forest Service fenced cattle away from some areas of the river, although according to responding livestock operators the impacts were minimal. According to the Forest Service, if the grazing is not affecting the river’s outstanding remarkable values, grazing can continue along the river corridor; hence, in some areas grazing is allowed and in other areas it is excluded from the River corridor. In areas where they have been excluded, livestock water must be provided with methods such as developing water gaps (openings in the fences). Grazing permits have not been reduced because of designation; however, ranchers have been required to maintain the fences. One respondent indicated that livestock were fenced from the river prior to the designation.

Grazing in the Wild and Scenic corridor of the North Fork of the Eel River in California was reduced or eliminated on two allotments on the river bank from which cows could not be fenced out. In areas where the terrain precluded access to cows, allotments were not affected. The River is in a Wilderness area, on which grazing was grandfathered. However, through a local agreement, water sources were developed outside the Wild and Scenic corridor in order to eliminate grazing within the corridor. According to both Agency personnel and livestock operators, the Wild and Scenic River designation was only one of several factors considered in that decision.

In Oregon, several lawsuits have been filed during the past decade by the Oregon Natural Desert Association (ONDA), among others, to prevent grazing that impacts the “outstanding values” of Wild and Scenic Rivers. The specific rivers on which grazing has been stopped in Wild and Scenic segments are the Donner und Blitzen⁷, the John Day⁸, and the Owyhee Rivers⁹. In the case of the John Day River, the issue on which the suit was based was habitat for a threatened and endangered species (steelhead salmon and bull trout), but in the Donner und Blitzen and the Owyhee Rivers, the suits were based on the Wild and Scenic designation and the preservation of “outstanding remarkable values.” In particular, the suits cited water quality as the “outstanding remarkable value.” Both the Forest Service and Bureau of Land Management have been enjoined by the court from permitting grazing until the agencies produce management plans that can be demonstrated to be consistent with the Act, the ESA, and NEPA . One livestock operator respondent estimated that approximately 5,500 AUMs were removed from his grazing permit in the Donner und Blitzen case. In the Owyhee case, livestock operator and agency respondents indicated that there were only a few areas in which livestock could access the river, so relatively few AUMs were lost, but that access to water became more difficult and costly. Some Federal participation in developing alternative water sources was provided. According to some agency

⁷ Donner und Blitzen: Case Number: CIV-95-2013-HA; U.S. District Court for the District of Oregon; January 31, 1997

⁸ John Day: Case Number: CIV. 97-853-ST; US District Court for the District of Oregon; April 17, 2007

⁹ Owyhee River: Case Number: CIV. 98-97; US District Court for the District of Oregon; November 3, 1998 and November 18, 1999.

respondents, it is unlikely the BLM will develop a livestock management plan for the Wild and Scenic segment of the Owyhee River that will permit access for livestock. Finally, although not specifically tied to the Act, litigation costs reported by livestock operators were becoming significant impediments to continued livestock use of designated corridors.

Several livestock operators reported that they were limited with respect to the fences they could construct, even on their own property within the corridor. Others suggested that the ranchers were responsible for building and maintaining the fences within the corridor subject to agency approvals.

Other.

In the case of the Verde River, off road vehicle use was restricted in parts of the corridor, as well as moving some campgrounds. Some access roads were closed. Several respondents reported that it was difficult to get other structures, such as power lines, pipelines and bridges, approved in the corridor.

Cooperative processes

In some cases, the establishment of Wild and Scenic Rivers, as well as other land classifications, has been a cooperative process, involving representatives of stakeholders in a way that may mitigate the negative impacts of designation.

In the case of the Cache La Poudre River, Senator Brown formed a local committee comprised of water users, local community representatives, and environmental groups. This committee was in charge of writing the Wild and Scenic legislation. The committee segmented a compromise that permitted most of the river to be designated, but left the lower segment of the river open for water development.

In the Lower American River in California, local communities and water districts resolved diversion point problems above the designated segment through an agreement to manage water control below that segment. The agreement was based on maintaining “free flows” in the segment.

The Steens Mountain Cooperative Management and Protection Area (SMCMPA) in Oregon resulted from a cooperative effort among public land users, conservation groups, and the BLM. It includes “no grazing” Wilderness areas, Wilderness areas with grazing, and Wild and Scenic River segments. The SMCMPA resulted from discussions among the various stakeholders that led to compromises and designation of the area. It should be noted that the agreement has not satisfied all stakeholders.

Although the Wild and Scenic River (and Wilderness) designations have not been made as yet, the Owyhee River in Idaho has been another example of cooperative efforts to meet the needs of traditional public land users and conservation groups. The Owyhee Initiative was initiated by local, regional, and national interests. An initial charter outlining the goals and objectives of the initiative was developed by a broadly representative working group. After five years of discussions, public hearings, and compromise, the agreement was formalized in 2006 (see the Owyhee Initiative website at <http://www.owyheeinitiative.org/agreement.htm>). An act to implement this agreement was introduced in Congress by Idaho’s Senator Crapo. The agreement includes significant protection of Wilderness, Wild and Scenic Rivers, and wildlife, but also recognizes present and potential water rights, and traditional uses of the public and private lands in the region. It should be noted, however, that the Owyhee Initiative specifically excluded some groups from participation. According to members of the working group, individuals or groups who publically expressed disagreement with the charter and its goals and objectives were not included in the working group. The excluded groups have expressed opposition to the Initiative Agreement as well.

Conclusions

Clearly, the designation of a river segment as wild, scenic, or recreational will preclude further large-scale water developments within that segment or having a direct impact on that segment (such as creating a reservoir within the segment). From the case studies, it appears that most private landowners, while somewhat restricted, do not consider themselves to be significantly adversely affected. Traditional public land uses that are not consistent with maintaining the “outstanding values” identified in the Act may be impacted. The outstanding value most frequently cited to date is water quality. In our study, livestock grazing appears to have been the

most affected of the traditional public land uses by Wild and Scenic designation, although the most significant impacts are found only in Oregon and only as a result of litigation.

Nevertheless, environmental groups in other states, in particular Idaho, have suggested that they may follow the lead of the ONDA in pursuing court action against grazing in Wild and Scenic corridors.

Many of the respondents, representing almost all viewpoints, suggested that Wild and Scenic designation does impose additional administrative oversight and process. Lack of clarity in designation, coupled with no transparent and specific rules, was often highlighted as causing conflict among stakeholders and problems in management.

It is the authors' opinion that in order to minimize the costs of designation to private landowners, to public land users, and to the managing agencies themselves, it is recommended that the State of Utah, the federal management agencies, and local public and private entities support the development of efforts to further cooperation among the stakeholders involved in the designation of Wild and Scenic Rivers in Utah. Creating one or more working groups composed of representative stakeholders would provide a structure to that cooperation. Such efforts could be segment-by-segment based or based on hydrologic basins. The process is likely to take more than one or two years to reach consensus, and there is no guarantee that litigation will not occur in any specific instance. Nevertheless, a cooperative agreement would seem to be more likely to stand legal review and provide all stakeholders with a less ambiguous and uncertain future.

GENERAL CONCLUSIONS

A summary of the conclusions we draw from this study of the impacts of Wild and Scenic designation is as follows:

1. There exist no *ex ante* – *ex post* examinations of the « designation effect » of Wild and Scenic designation on recreation activities.
2. One study statistically examined trends in property values adjacent to a designated river but found no statistical evidence that designation had a significant effect on those values.

3. There are some anecdotal reports in some studies that a designation effect does occur according to managers of those rivers. No scientific or statistical evidence supports those observations.
4. Evidence from two studies relative to recreators' knowledge of the status of the Wild and Scenic rivers being used suggests that users' knowledge varied widely. However, a large majority of users in both studies reported that designation had preserved the quality of the riverine environment.
5. In one *ex ante* study of the value (contingent valuation) of potential designation, Colorado respondents' willingness to pay for designation of 11 rivers was significant.
6. Non-recreation impacts identified in the key informant survey included those on water rights, private land uses, and public land uses.
7. In general, since the law specifies that existing water rights will not be impacted, no evidence of impact on those rights from designation was found. There is currently one case in litigation relative to unallocated "excess" water production on the Lemhi River in Idaho.
8. In several cases, priority dates for potential upstream uses senior to the Federal reserved water rights for the designated segment(s) of the river were guaranteed in the specific designation Act or amendment to the Act.
9. Some private land has been obtained by condemnation, although not in the Western United States, due to the legal limits placed on land purchase by the Act.
10. Scenic easements have been obtained by the managing agency through condemnation of private property, without specific limit in the Act. Agency regulation of activities on those easements has occurred, including limiting both physical and use modifications.
11. The existence of a local (county or regional) planning and/or zoning commission usually provides local input to private land management. Where no zoning exists, the managing Federal agency may control private property uses.

12. There is some evidence of limited ability to construct flood protection on private property in Washington. In general, however, respondents were satisfied with the designation and felt little impact on their private land.
13. Some public land uses (Federally permitted uses) have been affected by designation. At least one placer mining claim has been reported as closed and others have been regulated (particularly gravel operations).
14. The largest issue to date appears to be grazing in riparian areas. Several court cases have determined that continued grazing fails to maintain the water quality in the designated segments and grazing has been eliminated in those areas.
15. To date, timber harvest does not appear to have been effected by designation (although timber harvest on Federal land has continued to decline for other reasons).

It is the opinion of the researchers that, in order that local users and landowners can maintain their property rights and privileges, local citizens and officials and state officials should become involved in the designation process at more deeply than simply providing comments on designation plans. Official committees made up of local residents and officials, state officials, and Federal managers should be formed to determine what segments are recommended to Congress to be designated.

The lack of studies focused on both the recreational and the non-recreational effects of Wild and Scenic River designation suggests a need for further research on the relationship between Wild and Scenic River designation and recreational and socioeconomic activities. Specifically, information on non-recreational use levels and prevalence of recreational uses both prior to and after river designation would be useful information, especially information across a variety of rivers in different areas and with differing characteristics. In addition to these studies, it is vitally important to monitor the same use and recreational patterns on comparable undesignated rivers. Establishing a baseline will permit comparisons among designated rivers as well as isolate the specific effects of designation from other economic and recreational trends.

Perhaps the greatest challenge for future research on this specific issue is likely to be a lack of generalizable trends across potential and designated WSRs. One of the greatest attributes of the Wild and Scenic Rivers System is its diversity, and diversity may make studying the System in aggregate challenging.

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APPENDIX 1

THE WILD AND SCENIC RIVER ACT

(Excepting specific river or river section designations)

WILD AND SCENIC RIVERS ACT

16 U.S.C. §§ 1271-1287, October 2, 1968, as amended 1972, 1974-1976, 1978-1980, 1984, 1986-1994 and 1996.

§ 1271. Congressional declaration of policy

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 dam 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.

§ 1272. Congressional declaration of purpose

The purpose of this chapter is to implement the policy set out in section [1271](#) of this title by instituting a national wild and scenic rivers system, by designating the initial components of that system, and by prescribing the methods by which and standards according to which additional components may be added to the system from time to time.

§ 1273. National wild and scenic rivers system

(a) Composition; application; publication in Federal Register; expense; administration of federally owned lands

The national wild and scenic rivers system shall comprise rivers

(i) that are authorized for inclusion therein by Act of Congress, or

(ii) that are designated as wild, scenic or recreational rivers by or pursuant to an act of the legislature of the State or States through which they flow, that are to be permanently administered as wild, scenic or recreational rivers by an agency or political subdivision of the State or States concerned that are found by the Secretary of the Interior, upon application of the Governor of the State or the Governors of the States concerned, or a person or persons thereunto duly appointed by him or them, to meet the criteria established in this chapter and such criteria supplementary thereto as he may prescribe, and that are approved by him for inclusion in the system, including, upon application of the Governor of the State concerned, the Allagash Wilderness Waterway, Maine; that segment of the Wolf River, Wisconsin, which flows through Langlade County; and that segment of the New River in North Carolina extending from its confluence with Dog Creek downstream approximately 26.5 miles to the Virginia State line.

Upon receipt of an application under clause (ii) of this subsection, the Secretary shall notify the

Federal Energy Regulatory Commission and publish such application in the Federal Register. Each river designated under clause (ii) shall be administered by the State or political subdivision thereof without expense to the United States other than for administration and management of federally owned lands. For purposes of the preceding sentence, amounts made available to any State or political subdivision under the Land and Water Conservation Act of 1965 [[16 U.S.C. 4601-4](#) et seq.] or any other provision of law shall not be treated as an expense to the United States. Nothing in this subsection shall be construed to provide for the transfer to, or administration by, a State or local authority of any federally owned lands which are within the boundaries of any river included within the system under clause (ii).

(b) Classification, designation, and administration of rivers

A wild, scenic or recreational river area eligible to be included in the system is a free-flowing stream and the related adjacent land area that possesses one or more of the values referred to in section [1271](#) of this title. Every wild, scenic or recreational river in its free-flowing condition, or upon restoration to this condition, shall be considered eligible for inclusion in the national wild and scenic rivers system and, if included, shall be classified, designated, and administered as one of the following:

(1) Wild river areas—Those rivers or sections of rivers that are free of impoundments and generally inaccessible except by trail, with watersheds or shorelines essentially primitive and waters unpolluted. These represent vestiges of primitive America.

(2) Scenic river areas—Those rivers or sections of rivers that are free of impoundments, with shorelines or watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads.

(3) Recreational river areas—Those rivers or sections of rivers that are readily accessible by road or railroad, that may have some development along their shorelines, and that may have undergone some impoundment or diversion in the past.

§ 1274. Component rivers and adjacent lands

(a) This paragraph of the law lists the original segments within the Wild and Scenic River System and the agreements under which they were entered into the system.

(b) Establishment of boundaries; classification

The agency charged with the administration of each component of the national wild and scenic rivers system designated by subsection (a) of this section shall, within one year from the date of designation of such component under subsection (a) of this section

(except where a different date if ^[14] provided in subsection (a) of this section), establish detailed boundaries therefore (which boundaries shall include an average of not more than 320 acres of land per mile measured from the ordinary high water mark on both sides of the river); and determine which of the classes outlined in section [1273 \(b\)](#) of this title best fit the river or its various segments.

Notice of the availability of the boundaries and classification, and of subsequent boundary amendments shall be published in the Federal Register and shall not become effective until ninety days after they have been forwarded to the President of the Senate and the Speaker of the House of Representatives.

(c) Public inspection of maps and descriptions

Maps of all boundaries and descriptions of the classifications of designated river segments, and subsequent amendments to such boundaries, shall be available for public inspection in the offices of the administering agency in the District of Columbia and in locations convenient to the designated river.

(d) Comprehensive management plan for protection of river values; review of boundaries, classifications, and plans

(1) For rivers designated on or after January 1, 1986, the Federal agency charged with the administration of each component of the National Wild and Scenic Rivers System shall prepare a comprehensive management plan for such river segment to provide for the protection of the river values. The plan shall address resource protection, development of lands and facilities, user capacities, and other management practices necessary or desirable to achieve the purposes of this chapter. The plan shall be coordinated with and may be incorporated into resource management planning for affected adjacent Federal lands. The plan shall be prepared, after consultation with State and local governments and the interested public within 3 full fiscal years after the date of designation. Notice of the completion and availability of such plans shall be published in the Federal Register.

(2) For rivers designated before January 1, 1986, all boundaries, classifications, and plans shall be reviewed for conformity within the requirements of this subsection within 10 years through regular agency planning processes.

§ 1275. Additions to national wild and scenic rivers system

(a) Reports by Secretaries of the Interior and Agriculture; recommendations to Congress; contents of reports

The Secretary of the Interior or, where national forest lands are involved, the Secretary of Agriculture or, in appropriate cases, the two Secretaries jointly shall study and submit to the President reports on the suitability or unsuitability for addition to the national wild and scenic

rivers system of rivers which are designated herein or hereafter by the Congress as potential additions to such system. The President shall report to the Congress his recommendations and proposals with respect to the designation of each such river or section thereof under this chapter. Such studies shall be completed and such reports shall be made to the Congress with respect to all rivers named in section [1276 \(a\)](#) (1) through (27) of this title no later than October 2, 1978. In conducting these studies the Secretary of the Interior and the Secretary of Agriculture shall give priority to those rivers

(i) with respect to which there is the greatest likelihood of developments which, if undertaken, would render the rivers unsuitable for inclusion in the national wild and scenic rivers system, and

(ii) which possess the greatest proportion of private lands within their areas. Every such study and plan shall be coordinated with any water resources planning involving the same river which is being conducted pursuant to the Water Resources Planning Act [[42 U.S.C. 1962](#) et seq.].

Each report, including maps and illustrations, shall show among other things the area included within the report; the characteristics which do or do not make the area a worthy addition to the system; the current status of land ownership and use in the area; the reasonably foreseeable potential uses of the land and water which would be enhanced, foreclosed, or curtailed if the area were included in the national wild and scenic rivers system; the Federal agency (which in the case of a river which is wholly or substantially within a national forest, shall be the Department of Agriculture) by which it is proposed the area, should it be added to the system, be administered; the extent to which it is proposed that such administration, including the costs thereof, be shared by State and local agencies; and the estimated cost to the United States of acquiring necessary lands and interests in land and of administering the area, should it be added to the system. Each such report shall be printed as a Senate or House document.

(b) Study of report by affected Federal and State officials; recommendations and comments; transmittal to President and Congress

Before submitting any such report to the President and the Congress, copies of the proposed report shall, unless it was prepared jointly by the Secretary of the Interior and the Secretary of Agriculture, be submitted by the Secretary of the Interior to the Secretary of Agriculture or by the Secretary of Agriculture to the Secretary of the Interior, as the case may be, and to the Secretary of the Army, the Secretary of Energy, the head of any other affected Federal department or agency and, unless the lands proposed to be included in the area are already owned by the United States or have already been authorized for acquisition by Act of Congress, the Governor of the State or States in which they are located or an officer designated by the Governor to receive the same. Any recommendations or comments on the proposal which the said officials furnish the Secretary or Secretaries who prepared the report within ninety days of

the date on which the report is submitted to them, together with the Secretary's or Secretaries' comments thereon, shall be included with the transmittal to the President and the Congress.

(c) Publication in Federal Register

Before approving or disapproving for inclusion in the national wild and scenic rivers system any river designated as a wild, scenic or recreational river by or pursuant to an act of a State legislature, the Secretary of the Interior shall submit the proposal to the Secretary of Agriculture, the Secretary of the Army, the Secretary of Energy, and the head of any other affected Federal department or agency and shall evaluate and give due weight to any recommendations or comments which the said officials furnish him within ninety days of the date on which it is submitted to them. If he approves the proposed inclusion, he shall publish notice thereof in the Federal Register.

(d) Areas comprised by boundaries; scope of study report

The boundaries of any river proposed in section [1276 \(a\)](#) of this title for potential addition to the National Wild and Scenic Rivers System shall generally comprise that area measured within one-quarter mile from the ordinary high water mark on each side of the river. In the case of any designated river, prior to publication of boundaries pursuant to section [1274 \(b\)](#) of this title, the boundaries also shall comprise the same area. This subsection shall not be construed to limit the possible scope of the study report to address areas which may lie

§ 1276. Rivers constituting potential additions to national wild and scenic rivers system

- a) And b) of this section list potential river segments and various studies and submission dates for those segments.

(c) State participation

The study of any of said rivers shall be pursued in as close cooperation with appropriate agencies of the affected State and its political subdivisions as possible, shall be carried on jointly with such agencies if request for such joint study is made by the State and shall include a determination of the degree to which the State or its political subdivisions might participate in the preservation and administration of the river should it be proposed for inclusion in the national wild and scenic rivers system.

(d) Continuing consideration by Federal agencies to potential national, wild, scenic and recreational river areas

(1) In all planning for the use and development of water and related land resources, consideration shall be given by all Federal agencies involved to potential national wild, scenic and recreational river areas, and all river basin and project plan reports submitted to the Congress shall consider and discuss any such potentials. The Secretary of the Interior and the Secretary of Agriculture shall make specific studies and investigations to determine which additional wild, scenic and recreational river areas within the United

States shall be evaluated in planning reports by all Federal agencies as potential alternative uses of the water and related land resources involved.

(2) The Congress finds that the Secretary of the Interior, in preparing the Nationwide Rivers Inventory as a specific study for possible additions to the National Wild and Scenic Rivers System, identified the Upper Klamath River from below the John Boyle Dam to the Oregon-California State line. The Secretary, acting through the Bureau of Land Management, is authorized under this subsection to complete a study of the eligibility and suitability of such segment for potential addition to the National Wild and Scenic Rivers System. Such study shall be completed, and a report containing the results of the study shall be submitted to Congress by April 1, 1990. Nothing in this paragraph shall affect the authority or responsibilities of any other Federal agency with respect to activities or actions on this segment and its immediate environment.

§ 1277. Land acquisition

(a) Grant of authority to acquire; State and Indian lands; use of appropriated funds; acquisition of tracts partially outside component boundaries; disposition of lands

(1) The Secretary of the Interior and the Secretary of Agriculture are each authorized to acquire lands and interests in land within the authorized boundaries of any component of the national wild and scenic rivers system designated in section [1274](#) of this title, or hereafter designated for inclusion in the system by Act of Congress, which is administered by him, but he shall not acquire fee title to an average of more than 100 acres per mile on both sides of the river. Lands owned by a State may be acquired only by donation or by exchange in accordance with subsection (d) of this section. Lands owned by an Indian tribe or a political subdivision of a State may not be acquired without the consent of the appropriate governing body thereof as long as the Indian tribe or political subdivision is following a plan for management and protection of the lands which the Secretary finds protects the land and assures its use for purposes consistent with this chapter. Money appropriated for Federal purposes from the land and water conservation fund shall, without prejudice to the use of appropriations from other sources, be available to Federal departments and agencies for the acquisition of property for the purposes of this chapter.

(2) When a tract of land lies partially within and partially outside the boundaries of a component of the National Wild and Scenic Rivers System, the appropriate Secretary may, with the consent of the landowners for the portion outside the boundaries, acquire the entire tract. The land or interest therein so acquired outside the boundaries shall not be counted against the average one-hundred-acre-per-mile fee title limitation of subsection (a)(1) of this section. The lands or interests therein outside such boundaries, shall be disposed of, consistent with existing authorities of law, by sale, lease, or exchange.

(b) Curtailment of condemnation power in area 50 per centum or more of which is owned in fee title by Federal or State government

If 50 per centum or more of the entire acreage outside the ordinary high water mark on both sides of the river within a federally administered wild, scenic or recreational river area is owned in fee title by the United States, by the State or States within which it lies, or by political subdivisions of those States, neither Secretary shall acquire fee title to any lands by condemnation under authority of this chapter. Nothing contained in this section, however, shall preclude the use of condemnation when necessary to clear title or to acquire scenic easements or such other easements as are reasonably necessary to give the public access to the river and to permit its members to traverse the length of the area or of selected segments thereof.

(c) Curtailment of condemnation power in urban areas covered by valid and satisfactory zoning ordinances

Neither the Secretary of the Interior nor the Secretary of Agriculture may acquire lands by condemnation, for the purpose of including such lands in any national wild, scenic or recreational river area, if such lands are located within any incorporated city, village, or borough which has in force and applicable to such lands a duly adopted, valid zoning ordinance that conforms with the purposes of this chapter. In order to carry out the provisions of this subsection the appropriate Secretary shall issue guidelines, specifying standards for local zoning ordinances, which are consistent with the purposes of this chapter. The standards specified in such guidelines shall have the object of

(A) prohibiting new commercial or industrial uses other than commercial or industrial uses which are consistent with the purposes of this chapter, and

(B) the protection of the bank lands by means of acreage, frontage, and setback requirements on development.

(d) Exchange of property

The appropriate Secretary is authorized to accept title to non-Federal property within the authorized boundaries of any federally administered component of the national wild and scenic rivers system designated in section [1274](#) of this title or hereafter designated for inclusion in the system by Act of Congress and, in exchange therefore, convey to the grantor any federally owned property which is under his jurisdiction within the State in which the component lies and which he classifies as suitable for exchange or other disposal. The values of the properties so exchanged either shall be approximately equal or, if they are not approximately equal, shall be equalized by the payment of cash to the grantor or to the Secretary as the circumstances require.

(e) Transfer of jurisdiction over federally owned property to appropriate Secretary

The head of any Federal department or agency having administrative jurisdiction over any lands or interests in land within the authorized boundaries of any federally administered component of the national wild and scenic rivers system designated in section [1274](#) of this title or hereafter designated for inclusion in the system by Act of Congress is authorized to transfer to the appropriate secretary jurisdiction over such lands for administration in accordance with the provisions of this chapter. Lands acquired by or transferred to the Secretary of Agriculture for the purposes of this chapter within or adjacent to a national forest shall upon such acquisition or transfer become national forest lands.

(f) Acceptance of donated land, funds, and other property

The appropriate Secretary is authorized to accept donations of lands and interests in land, funds, and other property for use in connection with his administration of the national wild and scenic rivers system.

(g) Retained right of use and occupancy; termination; fair market value; “improved property” defined

(1) Any owner or owners (hereinafter in this subsection referred to as “owner”) of improved property on the date of its acquisition, may retain for themselves and their successors or assigns a right of use and occupancy of the improved property for noncommercial residential purposes for a definite term not to exceed twenty-five years or, in lieu thereof, for a term ending at the death of the owner, or the death of his spouse, or the death of either or both of them. The owner shall elect the term to be reserved. The appropriate Secretary shall pay to the owner the fair market value of the property on the date of such acquisition less the fair market value on such date of the right retained by the owner.

(2) A right of use and occupancy retained pursuant to this subsection shall be subject to termination whenever the appropriate Secretary is given reasonable cause to find that such use and occupancy is being exercised in a manner which conflicts with the purposes of this chapter. In the event of such a finding, the Secretary shall tender to the holder of that right an amount equal to the fair market value of that portion of the right which remains unexpired on the date of termination. Such right of use or occupancy shall terminate by operation of law upon tender of the fair market price.

(3) The term “improved property”, as used in this chapter, means a detached, one-family dwelling (hereinafter referred to as “dwelling”), the construction of which was begun before January 1, 1967, (except where a different date is specifically provided by law with respect to any particular river) together with so much of the land on which the dwelling is situated, the said land being in the same ownership as the dwelling, as the appropriate Secretary shall designate to

be reasonably necessary for the enjoyment of the dwelling for the sole purpose of noncommercial residential use, together with any structures accessory to the dwelling which are situated on the land so designated.

§ 1278. Restrictions on water resources projects

(a) Construction projects licensed by Federal Energy Regulatory Commission

The Federal Energy Regulatory Commission shall not license the construction of any dam, water conduit, reservoir, powerhouse, transmission line, or other project works under the Federal Power Act ([41 Stat. 1063](#)), as amended ([16 U.S.C. 791a](#) et seq.), on or directly affecting any river which is designated in section [1274](#) of this title as a component of the national wild and scenic rivers system or which is hereafter designated for inclusion in that system, and no department or agency of the United States shall assist by loan, grant, license, or otherwise in the construction of any water resources project that would have a direct and adverse effect on the values for which such river was established, as determined by the Secretary charged with its administration. Nothing contained in the foregoing sentence, however, shall preclude licensing of, or assistance to, developments below or above a wild, scenic or recreational river area or on any stream tributary thereto which will not invade the area or unreasonably diminish the scenic, recreational, and fish and wildlife values present in the area on the date of designation of a river as a component of the National Wild and Scenic Rivers System. No department or agency of the United States shall recommend authorization of any water resources project that would have a direct and adverse effect on the values for which such river was established, as determined by the Secretary charged with its administration, or request appropriations to begin construction of any such project, whether heretofore or hereafter authorized, without advising the Secretary of the Interior or the Secretary of Agriculture, as the case may be, in writing of its intention so to do at least sixty days in advance, and without specifically reporting to the Congress in writing at the time it makes its recommendation or request in what respect construction of such project would be in conflict with the purposes of this chapter and would affect the component and the values to be protected by it under this chapter. Any license heretofore or hereafter issued by the Federal Energy Regulatory Commission affecting the New River of North Carolina shall continue to be effective only for that portion of the river which is not included in the National Wild and Scenic Rivers System pursuant to section [1273](#) of this title and no project or undertaking so licensed shall be permitted to invade, inundate or otherwise adversely affect such river segment.

(b) Construction projects on rivers designated for potential addition to system

The Federal Energy Regulatory Commission shall not license the construction of any dam, water conduit, reservoir, powerhouse, transmission line, or other project works under the Federal Power Act, as amended [[16 U.S.C. 791a](#) et seq.], on or directly affecting any river which is listed in section [1276 \(a\)](#) of this title, and no department or agency of the United States shall assist by loan, grant, license, or otherwise in the construction of any water resources project that would

have a direct and adverse effect on the values for which such river might be designated, as determined by the Secretary responsible for its study or approval—

(i) during the ten-year period following October 2, 1968, or for a three complete fiscal year period following any Act of Congress designating any river for potential addition to the national wild and scenic rivers system, whichever is later, unless, prior to the expiration of the relevant period, the Secretary of the Interior and, where national forest lands are involved, the Secretary of Agriculture, on the basis of study, determine that such river should not be included in the national wild and scenic rivers system and notify the Committee on Energy and Natural Resources of the Senate and the Committee on Natural Resources of the House of Representatives, in writing, including a copy of the study upon which the determination was made, at least one hundred and eighty days while Congress is in session prior to publishing notice to that effect in the Federal Register: Provided, That if any Act designating any river or rivers for potential addition to the national wild and scenic rivers system provides a period for the study or studies which exceeds such three complete fiscal year period the period provided for in such Act shall be substituted for the three complete fiscal year period in the provisions of this clause (i); and

(ii) during such interim period from the date a report is due and the time a report is actually submitted to the Congress; and

(iii) during such additional period thereafter as, in the case of any river the report for which is submitted to the President and the Congress, is necessary for congressional consideration thereof or, in the case of any river recommended to the Secretary of the Interior for inclusion in the national wild and scenic rivers system under section [1273 \(a\)\(ii\)](#) of this title, is necessary for the Secretary's consideration thereof, which additional period, however, shall not exceed three years in the first case and one year in the second.

Nothing contained in the foregoing sentence, however, shall preclude licensing of, or assistance to, developments below or above a potential wild, scenic or recreational river area or on any stream tributary thereto which will not invade the area or diminish the scenic, recreational, and fish and wildlife values present in the potential wild, scenic or recreational river area on the date of designation of a river for study as provided for in section [1276](#) of this title. No department or agency of the United States shall, during the periods hereinbefore specified, recommend authorization of any water resources project on any such river or request appropriations to begin construction of any such project, whether heretofore or hereafter authorized, without advising the Secretary of the Interior and, where national forest lands are involved, the Secretary of Agriculture in writing of its intention so to do at least sixty days in advance of doing so and without specifically reporting to the Congress in writing at the time it makes its recommendation or request in what respect construction of such project would be in conflict with the purposes of

this chapter and would affect the component and the values to be protected by it under this chapter.

(c) Activities in progress affecting river of system; notice to Secretary

The Federal Energy Regulatory Commission and all other Federal agencies shall, promptly upon enactment of this chapter, inform the Secretary of the Interior and, where national forest lands are involved, the Secretary of Agriculture, of any proceedings, studies, or other activities within their jurisdiction which are now in progress and which affect or may affect any of the rivers specified in section [1276 \(a\)](#) of this title. They shall likewise inform him of any such proceedings, studies, or other activities which are hereafter commenced or resumed before they are commenced or resumed.

(d) Grants under Land and Water Conservation Fund Act of 1965

Nothing in this section with respect to the making of a loan or grant shall apply to grants made under the Land and Water Conservation Fund Act of 1965 [[16 U.S.C. 4601-4](#) et seq.].

§ 1279. Withdrawal of public lands from entry, sale, or other disposition under public land laws

(a) Lands within authorized boundaries of components of system

All public lands within the authorized boundaries of any component of the national wild and scenic rivers system which is designated in section [1274](#) of this title or which is designated after October 2, 1968, for inclusion in that system are hereby withdrawn from entry, sale, or other disposition under the public land laws of the United States. This subsection shall not be construed to limit the authorities granted in section [1277 \(d\)](#) or section [1285a](#) of this title.

(b) Lands constituting bed or bank of river; lands within bank area

All public lands which constitute the bed or bank, or are within one-quarter mile of the bank, of any river which is listed in section [1276 \(a\)](#) of this title are hereby withdrawn from entry, sale, or other disposition under the public land laws of the United States for the periods specified in section [1278 \(b\)](#) of this title. Notwithstanding the foregoing provisions of this subsection or any other provision of this chapter, subject only to valid existing rights, including valid Native selection rights under the Alaska Native Claims Settlement Act [[43 U.S.C. 1601](#) et seq.], all public lands which constitute the bed or bank, or are within an area extending two miles from the bank of the river channel on both sides of the river segments referred to in paragraphs (77) through (88) of section [1276 \(a\)](#) of this title are hereby withdrawn from entry, sale, State selection or other disposition under the public land laws of the United States for the periods specified in section [1278 \(b\)](#) of this title.

§ 1280. Federal mining and mineral leasing laws

(a) Applicability to components of system

Nothing in this chapter shall affect the applicability of the United States mining and mineral leasing laws within components of the national wild and scenic rivers system except that—

(i) all prospecting, mining operations, and all other activities on mining claims which, in the case of a component of the system designated in section [1274](#) of this title, have not heretofore been perfected or which, in the case of a component hereafter designated pursuant to this chapter or any other Act of Congress, are not perfected before its inclusion in the system and all mining operations and other activities under a mineral lease, license, or permit issued or renewed after inclusion of a component in the system shall be subject to such regulations as the Secretary of the Interior or, in the case of national forest lands, the Secretary of Agriculture may prescribe to effectuate the purposes of this chapter;

(ii) subject to valid existing rights, the perfection of, issuance of a patent to, any mining claim affecting lands within the system shall confer or convey a right or title only to the mineral deposits and such rights only to the use of the surface and the surface resources as are reasonably required to carrying on prospecting or mining operations and are consistent with such regulations as may be prescribed by the Secretary of the Interior or, in the case of national forest lands, by the Secretary of Agriculture; and

(iii) subject to valid existing rights, the minerals in Federal lands which are part of the system and constitute the bed or bank or are situated within one-quarter mile of the bank of any river designated a wild river under this chapter or any subsequent Act are hereby withdrawn from all forms of appropriation under the mining laws and from operation of the mineral leasing laws including, in both cases, amendments thereto.

Regulations issued pursuant to paragraphs (i) and (ii) of this subsection shall, among other things, provide safeguards against pollution of the river involved and unnecessary impairment of the scenery within the component in question.

(b) Withdrawal from appropriation of minerals in Federal river beds or bank areas; prospecting, leases, licenses, and permits

The minerals in any Federal lands which constitute the bed or bank or are situated within one-quarter mile of the bank of any river which is listed in section [1276 \(a\)](#) of this title are hereby withdrawn from all forms of appropriation under the mining laws during the periods specified in section [1278 \(b\)](#) of this title. Nothing contained in this subsection shall be construed to forbid prospecting or the issuance of leases, licenses, and permits under the mineral leasing laws subject to such conditions as the Secretary of the Interior and, in the case of national forest lands, the Secretary of Agriculture find appropriate to safeguard the area in the event it is subsequently

included in the system. Notwithstanding the foregoing provisions of this subsection or any other provision of this chapter, all public lands which constitute the bed or bank, or are within an area extending two miles from the bank of the river channel on both sides of the river segments referred to in paragraphs (77) through (88) of section [1276 \(a\)](#) of this title are hereby withdrawn subject to valid existing rights, from all forms of appropriation under the mining laws and from operation of the mineral leasing laws including, in both cases, amendments thereto, during the periods specified in section [1278 \(b\)](#) of this title.

§ 1281. Administration

(a) Public use and enjoyment of components; protection of features; management plans

Each component of the national wild and scenic rivers system shall be administered in such manner as to protect and enhance the values which caused it to be included in said system without, insofar as is consistent therewith, limiting other uses that do not substantially interfere with public use and enjoyment of these values. In such administration primary emphasis shall be given to protecting its esthetic, scenic, historic, archeological, and scientific features. Management plans for any such component may establish varying degrees of intensity for its protection and development, based on the special attributes of the area.

(b) Wilderness areas

Any portion of a component of the national wild and scenic rivers system that is within the national wilderness preservation system, as established by or pursuant to the Wilderness Act [[16 U.S.C. 1131](#) et seq.], shall be subject to the provisions of both the Wilderness Act and this chapter with respect to preservation of such river and its immediate environment, and in case of conflict between the provisions of the Wilderness Act and this chapter the more restrictive provisions shall apply.

(c) Areas administered by National Park Service and Fish and Wildlife Service

Any component of the national wild and scenic rivers system that is administered by the Secretary of the Interior through the National Park Service shall become a part of the national park system, and any such component that is administered by the Secretary through the Fish and Wildlife Service shall become a part of the national wildlife refuge system. The lands involved shall be subject to the provisions of this chapter and the Acts under which the national park system or national wildlife system, as the case may be, is administered, and in case of conflict between the provisions of this chapter and such Acts, the more restrictive provisions shall apply. The Secretary of the Interior, in his administration of any component of the national wild and scenic rivers system, may utilize such general statutory authorities relating to areas of the national park system and such general statutory authorities otherwise available to him for recreation and preservation purposes and for the conservation and management of natural resources as he deems appropriate to carry out the purposes of this chapter.

(d) Statutory authorities relating to national forests

The Secretary of Agriculture, in his administration of any component of the national wild and scenic rivers system area, may utilize the general statutory authorities relating to the national forests in such manner as he deems appropriate to carry out the purposes of this chapter.

(e) Cooperative agreements with State and local governments

The Federal agency charged with the administration of any component of the national wild and scenic rivers system may enter into written cooperative agreements with the Governor of a State, the head of any State agency, or the appropriate official of a political subdivision of a State for State or local governmental participation in the administration of the component. The States and their political subdivisions shall be encouraged to cooperate in the planning and administration of components of the system which include or adjoin State- or county-owned lands.

§ 1282. Assistance to State and local projects

(a) Assistance of Secretary of the Interior

The Secretary of the Interior shall encourage and assist the States to consider, in formulating and carrying out their comprehensive statewide outdoor recreation plans and proposals for financing assistance for State and local projects submitted pursuant to the Land and Water Conservation Fund Act of 1965 ([78 Stat. 897](#)) [[16 U.S.C. 4601–4](#) et seq.], needs and opportunities for establishing State and local wild, scenic and recreational areas.

(b) Assistance of Secretaries of the Interior, Agriculture, or other Federal agency heads; use of Federal facilities, equipment, etc.; conditions on permits or other authorizations

(1) The Secretary of the Interior, the Secretary of Agriculture, or the head of any other Federal agency, shall assist, advise, and cooperate with States or their political subdivisions, landowners, private organizations, or individuals to plan, protect, and manage river resources. Such assistance, advice, and cooperation may be through written agreements or otherwise. This authority applies within or outside a federally administered area and applies to rivers which are components of the National Wild and Scenic Rivers System and to other rivers. Any agreement under this subsection may include provisions for limited financial or other assistance to encourage participation in the acquisition, protection, and management of river resources.

(2) Wherever appropriate in furtherance of this chapter, the Secretary of Agriculture and the Secretary of the Interior are authorized and encouraged to utilize the following:

(A) For activities on federally owned land, the Volunteers in the Parks Act of 1969 [[16 U.S.C. 18g](#) et seq.] and the Volunteers in the Forest Act of 1972 ([16 U.S.C. 558a–558d](#)).

(B) For activities on all other lands, section 6 of the Land and Water Conservation Fund Act of 1965 [[16 U.S.C. 4601-8](#)] (relating to the development of statewide comprehensive outdoor recreation plans).

(3) For purposes of this subsection, the appropriate Secretary or the head of any Federal agency may utilize and make available Federal facilities, equipment, tools and technical assistance to volunteers and volunteer organizations, subject to such limitations and restrictions as the appropriate Secretary or the head of any Federal agency deems necessary or desirable.

(4) No permit or other authorization provided for under provision of any other Federal law shall be conditioned on the existence of any agreement provided for in this section.

§ 1283. Management

(a) Action of Secretaries and heads of agencies; cooperative agreements

The Secretary of the Interior, the Secretary of Agriculture, and the head of any other Federal department or agency having jurisdiction over any lands which include, border upon, or are adjacent to, any river included within the National Wild and Scenic Rivers System or under consideration for such inclusion, in accordance with section [1273 \(a\)\(ii\)](#), [1274 \(a\)](#), or [1276 \(a\)](#) of this title, shall take such action respecting management policies, regulations, contracts, plans, affecting such lands, following November 10, 1978, as may be necessary to protect such rivers in accordance with the purposes of this chapter. Such Secretary or other department or agency head shall, where appropriate, enter into written cooperative agreements with the appropriate State or local official for the planning, administration, and management of Federal lands which are within the boundaries of any rivers for which approval has been granted under section [1273 \(a\)\(ii\)](#) of this title. Particular attention shall be given to scheduled timber harvesting, road construction, and similar activities which might be contrary to the purposes of this chapter.

(b) Existing rights, privileges, and contracts affecting Federal lands

Nothing in this section shall be construed to abrogate any existing rights, privileges, or contracts affecting Federal lands held by any private party without consent of said party.

(c) Water pollution

The head of any agency administering a component of the national wild and scenic rivers system shall cooperate with the Administrator, Environmental Protection Agency and with the appropriate State water pollution control agencies for the purpose of eliminating or diminishing the pollution of waters of the river.

§ 1284. Existing State jurisdiction and responsibilities

(a) Fish and wildlife

Nothing in this chapter shall affect the jurisdiction or responsibilities of the States with respect to fish and wildlife. Hunting and fishing shall be permitted on lands and waters administered as parts of the system under applicable State and Federal laws and regulations unless, in the case of hunting, those lands or waters are within a national park or monument. The administering Secretary may, however, designate zones where, and establish periods when, no hunting is permitted for reasons of public safety, administration, or public use and enjoyment and shall issue appropriate regulations after consultation with the wildlife agency of the State or States affected.

(b) Compensation for water rights

The jurisdiction of the States and the United States over waters of any stream included in a national wild, scenic or recreation river area shall be determined by established principles of law. Under the provisions of this chapter, any taking by the United States of a water right which is vested under either State or Federal law at the time such river is included in the national wild and scenic rivers system shall entitle the owner thereof to just compensation. Nothing in this chapter shall constitute an express or implied claim or denial on the part of the Federal Government as to exemption from State water laws.

(c) Reservation of waters for other purposes or in unnecessary quantities prohibited

Designation of any stream or portion thereof as a national wild, scenic or recreational river area shall not be construed as a reservation of the waters of such streams for purposes other than those specified in this chapter, or in quantities greater than necessary to accomplish these purposes.

(d) State jurisdiction over included streams

The jurisdiction of the States over waters of any stream included in a national wild, scenic or recreational river area shall be unaffected by this chapter to the extent that such jurisdiction may be exercised without impairing the purposes of this chapter or its administration.

(e) Interstate compacts

Nothing contained in this chapter shall be construed to alter, amend, repeal, interpret, modify, or be in conflict with any interstate compact made by any States which contain any portion of the national wild and scenic rivers system.

(f) Rights of access to streams

Nothing in this chapter shall affect existing rights of any State, including the right of access, with respect to the beds of navigable streams, tributaries, or rivers (or segments thereof) located in a national wild, scenic or recreational river area.

(g) Easements and rights-of-way

The Secretary of the Interior or the Secretary of Agriculture, as the case may be, may grant easements and rights-of-way upon, over, under, across, or through any component of the national wild and scenic rivers system in accordance with the laws applicable to the national park system and the national forest system, respectively: Provided, That any conditions precedent to granting such easements and rights-of-way shall be related to the policy and purpose of this chapter.

§ 1285. Claim and allowance of charitable deduction for contribution or gift of easement

The claim and allowance of the value of an easement as a charitable contribution under section [170](#) of title [26](#), or as a gift under section 2522 of said title shall constitute an agreement by the donor on behalf of himself, his heirs, and assigns that, if the terms of the instrument creating the easement are violated, the donee or the United States may acquire the servient estate at its fair market value as of the time the easement was donated minus the value of the easement claimed and allowed as a charitable contribution or gift.

§ 1285a. Lease of Federal lands

(a) Authority of Secretary; restrictive covenants

Where appropriate in the discretion of the Secretary, he may lease federally owned land (or any interest therein) which is within the boundaries of any component of the National Wild and Scenic Rivers System and which has been acquired by the Secretary under this chapter. Such lease shall be subject to such restrictive covenants as may be necessary to carry out the purposes of this chapter.

(b) Offer to prior owner

Any land to be leased by the Secretary under this section shall be offered first for such lease to the person who owned such land immediately before its acquisition by the United States.

§ 1285b. Establishment of boundaries for certain component rivers in Alaska; withdrawal of minerals (deleted)

§ 1286. Definitions

As used in this chapter, the term—

(a) “River” means a flowing body of water or estuary or a section, portion, or tributary thereof, including rivers, streams, creeks, runs, kills, rills, and small lakes.

(b) “Free-flowing”, as applied to any river or section of a river, means existing or flowing in natural condition without impoundment, diversion, straightening, rip-rapping, or other modification of the waterway. The existence, however, of low dams, diversion works, and other minor structures at the time any river is proposed for inclusion in the national wild and scenic rivers system shall not automatically bar its consideration for such inclusion: Provided, That this shall not be construed to authorize, intend, or encourage future construction of such structures within components of the national wild and scenic rivers system.

(c) “Scenic easement” means the right to control the use of land (including the air space above such land) within the authorized boundaries of a component of the wild and scenic rivers system, for the purpose of protecting the natural qualities of a designated wild, scenic or recreational river area, but such control shall not affect, without the owner’s consent, any regular use exercised prior to the acquisition of the easement. For any designated wild and scenic river, the appropriate Secretary shall treat the acquisition of fee title with the reservation of regular existing uses to the owner as a scenic easement for purposes of this chapter. Such an acquisition shall not constitute fee title ownership for purposes of section

§ 1287. Authorization of appropriations

There are hereby authorized to be appropriated, including such sums as have heretofore been appropriated, the following amounts for land acquisition for each of the rivers (described in section [1274 \(a\)](#) of this title): (deleted)

APPENDIX 2

BENEFITS, COSTS AND IMPACTS

Appendix 2A

Benefit-Cost Analysis

INTRODUCTION

Economic theory is based on the idea that a rational individual will make choices consistent with maximizing his or her well-being. This is done by making choices in which the difference between the benefits and costs of a choice is maximized. Benefit-cost analysis (BCA) is a procedure that extends this model of choice to public policy decisions. BCA requires the analyst to itemize and evaluate the relative benefits and costs of a given public policy decision. As with an individual, the goal of the analysis is to determine if the benefits of a decision exceed the costs. Economic efficiency requires that the difference between benefits and costs be maximized.

While BCA is a standard tool of economists, the method is perhaps more difficult to implement than at first it might appear. First, BCA requires identification of those benefits and costs to be included in the analysis. From a public policy perspective, all benefits and costs are to be included, including those accruing to private individuals and public entities, as well as tangible (out of pocket) and intangible (relating to economic well-being) benefits and costs. Intangible benefits and costs (i.e., those occurring outside well-defined markets) can be especially difficult to quantify. Second, methods of measuring or evaluating the costs and benefits must be outlined. These include the use of consumer's surplus, or "willingness to pay", to measure project benefits and the use of "willingness to accept" to measure project costs. Third, if time is an important dimension of the project, then the appropriate social discount rate must be chosen. The "appropriate" discount rate is often controversial because privately determined discount rates do not necessarily reflect a time frame consistent with many social projects, especially with respect to a concern for future generations. Brent (1996) provides a thorough review of BCA.

THE BENEFITS AND COSTS OF WILD AND SCENIC RIVER DESIGNATION

Benefits

The benefits of classifying a river or river reach as a Wild and Scenic River (WSR) fall into two major categories. *Use benefits* are those benefits derived from the actual use associated with the

WSR. These benefits can include not only direct water-based recreation such as fishing, swimming, or rafting, but also benefits from activities that do not necessarily involve contact with water, such as camping or sightseeing within or adjacent to a Wild and Scenic River corridor. In all of these activities, water serves as a key component of the enjoyment of recreation. Another potential use benefit can be increased property values.¹⁰ Property values, particularly those for vacation/retreat second homes, may be enhanced by the protection that Wild and Scenic Rivers designation confers. If Wild and Scenic River status guarantees that scenic or recreational values will be maintained by restricting the types of development in a river corridor, the “character” of the natural environment is preserved. To the degree that the natural environment contributes to property values, a benefit from Wild and Scenic River status is generated.

Nonuse benefits do not require that an individual actually use the waters as described above. Several types of nonuse benefits, or nonuse values, have been identified (Randall 1991). “Existence” values can be held by a person who values the existence of a Wild and Scenic River even though he or she does not plan on ever using the WSR. “Vicarious use value” can be derived from enjoying pictures, articles, television shows, etc. about an area. “Option value” is the premium a person might pay to retain the option to visit a WSR, even if he or she has not yet visited. Finally, “quasi-option value” addresses the unique nature of some natural environments and the degree to which these environments are subject to irreversible change as might occur with some water development projects such as a dam. Quasi-option values can be thought of as a “preservation value”.

Both use values and non-use values may be appropriate for BCA of a proposed WSR. Nonuse values remain highly controversial, not so much for their theoretical existence, but rather when

¹⁰ It is also conceivable that Wild and Scenic River designation may involve restrictions on land use that diminish property values. In this case the costs of Wild and Scenic River designation can be thought of as “negative benefits”. We examine this relationship between property values and Wild and Scenic River designation in greater detail in later in this appendix.

they are appropriate to include and how they can be measured. Nonuse values can be a particularly important part of total value if the Wild and Scenic River region is nationally or internationally recognized.

Costs

The key feature of Wild and Scenic River designation is that the wild, scenic or recreational attributes of the river should be protected for the benefit and enjoyment of present and future generations. The Wild and Scenic River designation can result in costs of two different forms. The first type of cost can be termed “out-of-pocket” costs, that is, costs that are explicit. For example, designation of a Wild and Scenic River may cause increased costs to a rancher grazing animals within or near the WSR corridor. If additional fencing is required, or if alternative water sources need to be developed, the rancher may incur all or part of the explicit cost associated with the Wild and Scenic River designation. Similarly, if restrictions on the way in which private property can be used causes a decrease in the value of land located within or adjacent to a WSR corridor, a cost of the designation is incurred at the time of sale.

A second form of costs can be termed “opportunity costs”, or the costs associated with choices that are foreclosed by the Wild and Scenic River designation. For example, suppose construction of a water development project such as a dam is prevented due to WSR designation of a river. The foregone benefits of the dam—more reliable supplies of water for agricultural, municipal, and industrial use and the decreased risk of flooding in downstream regions—are opportunity costs associated with the WSR designation. Other opportunity costs are those associated with commercial activities that would be restricted or reduced due to the designation, such as those that may affect the timber, agricultural, or mining industries.

Summary of Benefits and Costs

- *Use Benefits*: Recreation values, Property values (if positive)
- *Nonuse Benefits*: Existence values, Vicarious Use values, Option values, Quasi-Option values

- *Out-of-Pocket Costs*: Increased costs to firms, Property values (if negative)
- *Opportunity Costs*: Foregone agricultural, timber, mineral, residential or industrial development

MEASURING THE BENEFITS OF WILD AND SCENIC RIVER DESIGNATION.

The U.S. government has formalized the principles governing economic and environmental analysis of water projects and water protection regulations, with perhaps the most well-known document being the 1983 report of the U.S. Water Resources Council. This document outlined procedures to estimate the economic impact and value of proposed implementation studies on water projects and water protection measures for recreation, a key category of benefits. The Water Resources Council directs agencies to evaluate recreation benefits and costs by the *net change in economic value*, using any of three different methods (Chapter 2, Section VIII).

Economists use three major approaches to determine economic value and impact of changes in recreational access and water quality: the *travel cost demand* model, based on observed behavior and recreational choices, *stated preference* models, based on intended behavior under hypothesized scenarios, and *hedonic property value* models, based on the relationship between property values and Wild and Scenic River designation. All types of models have been developed by economists because the wild, scenic and recreational attributes of a river are not commodities that can be traded in a market at an equilibrium market price (as can steel, automobiles, bread, etc.). Instead, the value of these attributes is measured indirectly by connecting these characteristics to the observed choices that people make.

Travel Cost Models

Under the travel cost model, economists treat “visits” to a site (or visitor days) as a measure of quantity and use the cost to travel to a site as an implicit measure of price (Bockstael et al. 1991,

Parsons 2003). Intuitively, people will visit recreation sites which are closer to where they live more frequently than sites which are further away. This is due to the fact that it is cheaper (in terms of time and vehicle costs) to visit sites which are closer. A demand curve relating visits to sites can then be constructed, showing the relationship between visits and cost, all other factors held constant (Figure 1). For example, at travel cost TC_1 the person will make V_1 trips, while at travel cost TC_2 the person will make V_2 trips.

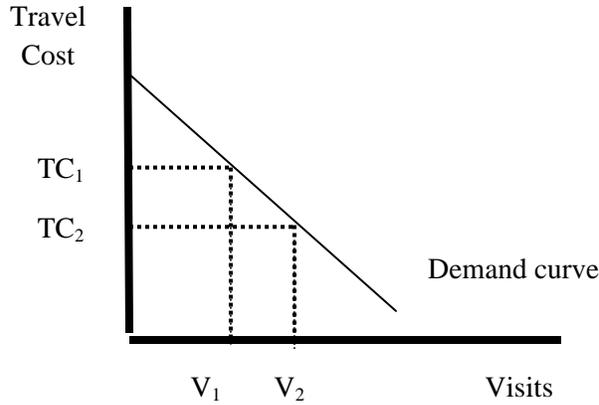


Figure 1: The travel cost demand curve

Other factors are not constant across sites, however. Site quality also impacts the visitation decision, where people respond to the wild and scenic attributes of a site, or respond to the recreational facilities available at a site. Quality attributes may also include measures of water quality (e.g. nutrient or coliform levels), fishing quality (e.g., the average catch rate or total fish biomass) or water quantity (e.g., the flow in a river). One might drive past a closer, low quality site, to recreate at a higher quality site, even though it is further away and thus more costly to visit. In the case of two sites with the same travel cost but differing qualities, we would expect the site with greater quality to be visited more frequently than the site with lower quality. For example, consider the impact of an increase in flow sufficient for whitewater boating. This would have the effect of shifting the demand curve to the right, as shown in Figure 2. For example, for a site with quality level Q_1 and travel cost TC_1 , a person will make V_1 visits whereas a site with travel cost TC_1 but higher quality level Q_2 , a person might make V_3 visits.

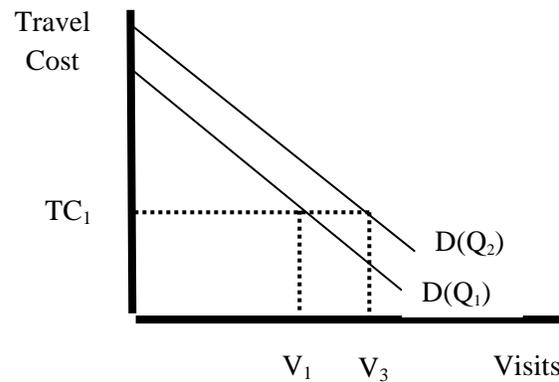


Figure 2. Shifts in demand due to different levels of environmental quality

Changes in water quality are not the only factors which can increase recreation demand. A conceptually equivalent shift can occur simply through “special” designation of a natural resource, where the special designation acts as advertising for the region, bringing it greater attention in the general public. For example, upgrading an area from a national monument to a national park can lead to an increase in visitors, as happened with Nevada’s Great Basin National Park in the mid-1980’s (see Keith et al. 1993). The designation of a region as a Wild and Scenic River may shift the demand curve to the right, such that increased visitation occurs after the designation.

Stated Preference Models

An alternative to the travel cost model—which measures changes in economic value indirectly through statistical models of travel behavior—is a group of techniques known collectively as stated preference models (see Boyle 2003, Holmes and Adamowicz 2003, and Brown and Peterson, 2003). Two historically popular approaches involve *intended* behavior *contingent* on a hypothesized state of the world. The *contingent behavior* approach involves asking people direct question: “If the river were designated as a Wild and Scenic River, how many more times might

you visit?” The *contingent valuation* approach would ask: “How much would you be willing to pay to have the river designated as a Wild and Scenic River?” Models based on contingent behavior or contingent valuation approaches are controversial because they rely on a person’s stated intentions, in contrast to the actual observed behavior used in the travel cost model (e.g., Mitchell and Carson 1989, Diamond and Hausman 1994). Despite the controversy, many economists, and the Water Resources Council, agree that stated preference methods do provide useful information for evaluating policy changes such as the one considered in this report (Arrow et al. 1993).

A more recent type of stated preference model is known as the *choice experiment*, which is based fundamentally on conjoint analysis. Conjoint (CJ) analysis models individuals’ preferences by asking them to consider the tradeoffs that they are willing to make. In contrast to contingent models which ask individuals to explicitly state their willingness to pay for (or how behavior would change in response to) a proposed policy, conjoint models ask individuals to rate, rank or choose from a series of possible outcomes (choice sets). Each choice set is composed of two or more alternatives, each of which varies in the “level”, or quantity, of attributes offered.¹¹ The fact that the “levels” of each choice attribute vary across alternatives allows the researcher to obtain the tradeoffs that an individual is willing to make between any two attributes presented in the choice sets. It also permits estimation of a dollar value for any one attribute or group of attributes.

The tasks required of a conjoint survey participant are more representative of the choices that individuals regularly face in making market transactions. When thinking about the purchase of any market commodity, a person considers substitute goods as part of the selection process, where goods are differentiated based on attributes. Individuals routinely make choices among goods that have multiple attributes; consider, for example, the choice among automobiles having

¹¹ In the Wild and Scenic River context, for example, important attributes might be miles of river having wild, scenic, or recreational attributes, miles of shoreline developed, risk of downstream flooding, and intensity of timber, mining, and agricultural use within or adjacent to the Wild and Scenic River corridor..

different colors, engines, interiors, *etc.* Thus, in conjoint analysis the role of substitute goods and their attribute levels is explicitly recognized.¹² In most contingent behavior or contingent valuation analyses, the role of substitute goods or attributes is often relegated to a reminder sentence or two in the description of the good. CJ analysis relies less on the information contained in the “all-encompassing” description of a given hypothetical scenario and more on the description of the attributes of each alternative (Boxall *et al.*, 1996, Holmes and Adamowicz 2003).

Measuring Nonmarket Economic Values with Travel Cost and Contingent Models

The conditions under which an analyst can estimate the economic value of Wild and Scenic River designation will drive the methods selected to conduct the analysis. We distinguish between three conditions, the ideal situation, the *ex ante* perspective, and the *ex post* perspective. The *ideal* situation would allow the analyst to obtain an estimate of economic value under the status quo conditions and then, following the Wild and Scenic River designation, estimate the economic value again. The difference in value can be ascribed to the designation. A more common scenario for the analyst is the *ex ante* situation. Specifically, shifts in recreation demand and the additional costs of the designation will not occur until *after* the designation is made, yet the analysis must be completed *before* the designation decision is made. Travel cost and contingent behavior models can be used in combination to estimate the change in economic value due to the designation. A less common scenario is *ex post* analysis, that is, the situation in which the river has already been designated as a Wild and Scenic River and an estimate of the net economic value of designation is desired, yet no “before designation” economic study is available. We examine each of these in turn. Discussion is centered around the estimation of recreation benefits but other benefits and costs can follow the same conceptual approach.

The “Ideal” Situation. In this case the analyst has the opportunity to study the region before and after the designation. First we must estimate the economic value per recreation trip that is

¹² Attribute levels may be categorical (*e.g.*, a blue, red, or white car) or continuous (*e.g.*, horsepower).

already enjoyed by recreationists prior to the Wild and Scenic River designation. *Economic value*, or benefits of a good (like recreation), is the difference between what a person would be willing to pay for access to a recreation site versus what was actually paid. Graphically, this is the distance between the travel cost demand curve and the actual travel cost. For the V_1 trips made at travel cost TC_1 in Figure 3, the actual cost to the person is TC_1 for every trip. But the “height” of the travel cost demand curve shows what the person *would have been willing to pay*. For the first trip the person would have been willing to pay A but only paid TC_1 . For the second trip he or she would have been willing to pay B, but only paid TC_1 , and so on. The person will take the final trip (the V_1^{th} trip) when willingness to pay is exactly equal to what is actually paid. At this point on the travel cost demand curve (V_1, TC_1) the person no longer receives any value or personal benefits in *surplus* to what he or she was willing to pay. (No more trips will be taken because willingness to pay for a trip is less than the travel cost.) On all trips previous to the V_1^{th} trip some positive surplus value was received. The sum of the surplus across all trips (area TC_1CD) is called *consumer surplus*, and is a measure of the consumer’s satisfaction from recreation at the site for the given travel cost/site quality combination. Average economic value per trip can be estimated by dividing the total consumer surplus by the total number of trips.

Now consider a change in site designation which may result in a shift of the demand curve. Following the Wild and Scenic River designation one might observe a “designation effect” that would be observed as a shift in the recreation demand curve for the site. If this effect is positive, the demand curve shifts to the right. One now estimates economic value under the new demand curve, with the difference in economic value (the difference between the “after designation” and the “before designation” value) being the net economic value of the Wild and Scenic River designation.

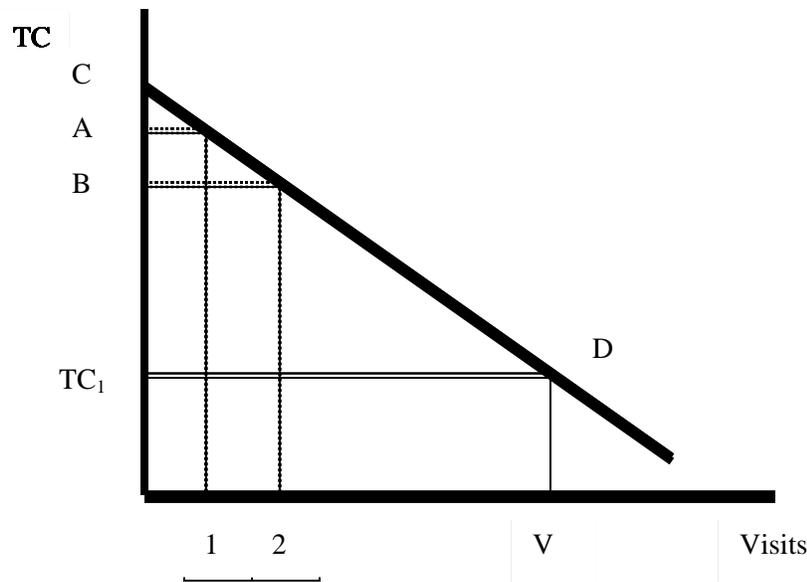


Figure 3: Measuring consumer surplus (Area TC_1CD)

The Ex Ante Situation. A situation more frequently encountered by analysts is the ex ante condition, where the analyst is asked to estimate the economic value of Wild and Scenic River designation prior to the designation taking effect. Thus, the analyst must somehow predict the net effect of Wild and Scenic River designation. A very common approach is the “benefits transfer” method, in which the analyst conducts a review of the relevant literature to find estimates of economic value for other Wild and Scenic River designation (presumably estimated under the ideal conditions described above). The analyst then uses these studies as the basis for predicting the net economic value of a Wild and Scenic River designation.

Alternatively, one could engage in an original study that combines observed and stated behavior models. While a baseline travel cost study could be conducted prior to the Wild and Scenic River designation, this study will provide no information on how much the recreation demand curve will shift in response to the designation. Instead, one may turn to a contingent behavior model by asking the question, “If the river were designated as a Wild and Scenic River, how

many more times might you visit?” The net economic benefit of naming a river as Wild and Scenic can be estimated by taking the estimated total number of new trips (from the contingent model), and multiplying by the average per trip consumer surplus for current trips (from the travel cost model).

It should be noted that negative effects of designation can also be captured under both travel cost and contingent methods. This would occur if a travel cost demand curve shifted to the left (fewer visits at any given cost), or if a person indicated they would visit an area fewer times contingent on the area being designated as a WSR. Such a response can be rational if, for example, the person expects a greater degree of congestion in the WSR.

The Ex Post Situation. The ex post approach to valuation is quite similar to the ex ante approach, indeed it is the converse. That is, the situation is that the Wild and Scenic designation has been in place for some period of time and the policymaker desires and estimate of the economic value and/or economic impact of the designation. In this case an analyst might use revealed preference methods to judge the current net economic value and impact under the status quo “with WSR designation”. This information is supplemented by a stated preference that measures changes in value or impact under the hypothetical situation of “no designation”. A comparison of the results yields the net economic value of designation or the net economic impact of designation.

Hedonic Property Value Models

Hedonic property models are based on the notion that the values of property, with or without a house, can be explained by the characteristics of the property (Palmquist 1991, Taylor 2003). For example, the selling price of a house is a function of the square footage of the house, the number of bedrooms and bathrooms, the presence or absence of a fireplace, the lot size, etc. The price paid can also reflect the environmental amenities associated with the property, such as air quality, proximity to a park, location relative to industries, landfills, or water bodies. All else equal, if the region is a popular “vacation” home area one might expect property located adjacent

to or within a Wild and Scenic River corridor to sell at a higher price relative to property outside the Wild and Scenic River region. This is because the home enjoys a greater degree of “protection” against potential environmental disamenities associated with residential, mineral, timber, agricultural or industrial development. To the degree that homeowners value the Wild and Scenic River designation, sales prices will be higher. Alternatively, Wild and Scenic River designation can result in a number of restrictions on the development of private property. All else equal, one might expect property located adjacent to or within a Wild and Scenic River corridor to sell at a lower price relative to property outside the Wild and Scenic River watershed, particularly if the property has the potential to be used for commercial endeavors that would be restricted by the designation.

MEASURING THE COSTS OF WILD AND SCENIC RIVER DESIGNATION

In most cases the measurement of costs can be considerably more straightforward than measuring benefits. The simplest costs to measure are the explicit expenditures that would occur due to restrictions associated with Wild and Scenic River designation. For ranchers grazing cattle within or adjacent to the Wild and Scenic River corridor, these costs could include expenditures for additional fencing, or provision of water gaps or alternative water structures. For owners of private property, costs could be incurred at the time of sale, if Wild and Scenic River designation has had a negative impact on property values.

The EPA guidelines document for economic analysis of water quality standards is a very useful reference for determining the social “burden” of costs that are easily measured in a market (EPA 1995).¹³ The guidelines suggest that for both public and private entities, the first step is to enumerate and verify all of the market costs of the designation, after which one calculates an annualized project cost. The annualized cost should reflect the discount rate for each type of entity (more detail on discounting appears in the next section). The appropriate interest rate for public organizations should be determined by the interest rate on the type of public financing that

¹³ For additional EPA documents on economic analysis see EPA 2000.

will be used by the community. The average annualized cost per household is calculated as the total annualized cost divided by the number of households in the community. The annualized cost should then be compared to the community's median household income. If annualized costs exceed 2% of median household income, then the community's burden is considered to be quite high. If costs are less than 1%, then the burden is considered to be low. Additional measures of economic cost include impacts on a community's median household income, unemployment rate, property tax revenues, bond rating, and debt burden.

The appropriate interest rate for private entities should be that at which private households or firm can borrow. EPA suggests using a 10 year planning horizon. Annualized costs are calculated in a manner similar to that done by public entities. Various financial measures can also be used to assess the economic hardship of firms: the change in profit after complying with restrictions associated with Wild and Scenic River designation, firm liquidity, solvency, and debt/equity ratio.

Opportunity costs are more difficult to measure. Theoretically, the cost of foregone development should be measured by how much a community is willing to receive as compensation for giving up the development option. This cost can be elicited by using the contingent valuation method. A contingent valuation survey of the community can clearly outline all benefits and costs of Wild and Scenic River designation, and then measure a net value to community residents. Such an approach would involve using dollar denominated measures of "willingness to accept" (how much a person or community would require in compensation to accede to Wild and Scenic River designation). Unfortunately, empirical measures of willingness to accept are fraught with difficulty and have found little acceptance amongst many in the academic community (Arrow et al. 1993). One may avoid an explicit "willingness to accept" question in favor of a multi-attribute approach such as conjoint analysis. In lieu of these approaches, a frequently used alternative is to estimate the jobs and income that would be foregone should economic development not occur as a result of Wild and Scenic River designation. These figures could be compared to benefits of Wild and Scenic River designation as measured in a similar way. Such a

comparison would rely upon economic impact analysis, but this is not directly comparable to measures of economic value.

THE ROLE OF TIME AND DISCOUNTING

Neither the benefits nor the costs of Wild and Scenic River designation occur instantaneously; rather, the benefits and costs are spread out over a time period that may be relatively long. With time frames of more than one year, it is important that dollar values be discounted so that benefits and costs occurring at different points in time can be compared. Discounting dollar values over time recognizes that a dollar received (or spent) “today” does not have the same value as a dollar received (or spent) “tomorrow”. This reflects a certain degree of impatience on the part of individuals and society. One difficulty with discounting concerns consideration of inflation. In general, the discount rate will reflect both the time value of money and inflation; conversely, “real” values (not including inflation effects) are discounted by the time value of money.

Discounting involves the calculation of “present values”, whereby a stream of benefits or costs over time have discount factor applied such that all dollar values can be compared in “today’s” dollars. Consider a stream of receipts of \$100 today, \$100 received one year from today, and \$100 received 2 years from today. The present value of this stream is less than \$300 (\$100+\$100+\$100) because waiting for the money has a cost. We would prefer \$300 today rather than the stream of money over 2 years because we have the opportunity to invest the money and receive income on this investment. Because waiting has a cost, we must apply a discount factor to determine the present value equivalent of the stream. Consider an interest rate of 8%, or 0.08. The present value of the stream is:

$$PV = \frac{\$100}{(1 + 0.08)^0} + \frac{\$100}{(1 + 0.08)^1} + \frac{\$100}{(1 + 0.08)^2} = \$278.33$$

$$PV = \sum_{t=0}^T \frac{B_t}{(1+r)^t}$$

In general, let r denote the per period interest rate, T denote the number of periods that a stream will be received, and let B_t denote the benefit received at time t . Then the general present value formula is

The present value of costs can be calculated in a similar manner, simply substituting the stream of costs over time, C_t , for B_t .

It is sometimes desirable to determine the annualized cost of a project. Many projects, such as placing additional fencing on a range, have high initial costs followed by relatively low operating and maintenance costs for the remainder of the project life. An “annualized cost” is one which distributes the capital costs of the project over the life of the project. An annuity factor is applied to the capital cost, converting the capital cost to annual cost. Let capital costs be the capital outlay for the project, which are assumed to occur entirely during the first period of the project,

$$\text{Annual Cost} = \text{Capital Cost} \left[r + \frac{r}{(1+r)^T - 1} \right]$$

where r is still the interest rate and T is the life of the project. Then, the annualized cost is calculated using the above formula.

Without turning this section into an exhaustive account, it is necessary to note that the choice of a discount rate has been a controversial subject for decades. One may use interest rates determined in the marketplace, say the 30 year loan rate, but these rates reflect privately determined time preferences. Higher interest rates tend to drive benefits and costs received in the future closer to zero than do lower interest rates. For example, \$100 worth of benefits received 30 years from now is worth only \$9.94 in today’s dollars. This feature of discounting is important for many public projects such as dams that may have high initial costs, but whose benefits will occur far into the future. In extreme cases such as environmental preservation, the costs of preservation may be borne by the current generation while the benefits accrue to future

generations. A traditional discounting method does not handle such problems in a particularly satisfactory manner because it weights the interests of the current generation far greater than future generations. For this and other reasons, it has been advocated that investment projects involving public funds be analyzed using an interest rate that is less than the equivalent market rate. For example, one Nobel Prize winner has stated that an interest rate of 3% be used for public projects (Arrow 1993). With respect to Wild and Scenic River designation, there may be few, if any, immediate public expenditures as a result of the designation. Private benefits and costs may occur almost immediately and should be discounted at the appropriate private rate.

Economic Impact Analysis

When a new firm enters a community or existing firms increase their level of economic activity, its expenditures on land, labor, capital equipment, materials, and supplies enhance both the local economy and the local tax base. These benefits begin to accrue during the construction phase of the project and continue during its ongoing operations. One way the extent of economic benefits garnered by the community can be measured is in terms of the number of jobs created and the amount of personal income accruing to local residents, as well as the additional tax revenue generated as a result of the increase in economic activity.¹⁴

These impact measures can be further broken down into *direct*, *indirect*, and *multiplier* (or *ripple*) effects. *Direct* effects are those attributable specifically to the new firm itself or the expansion of existing firms. For example, the workers employed by a motel represent the direct employment impact of these facilities. Similarly, the firm's expenditures on wages and salaries account for its direct income effect. The ability of a business to export its goods or services outside the Wild and Scenic River region will be a key factor in determining the magnitude of its direct effect. For the firms serving economic activity generated by the Wild and Scenic River designation, the more visitors they can draw from outside the region, the larger their direct

¹⁴ See Schaffer (1999) for an overview of regional impact analysis.

impact. Direct fiscal effects also arise through property and sales taxes from the firm's investment in real and personal property and spending on sales taxable items. In addition, there are other taxes and fees paid by the firm which also contribute to the facility's direct fiscal benefit.

Indirect effects arise from businesses' expenditures on raw materials, services, supplies, and other operating expenses which help to support jobs in other local businesses as well as expenditures by visitors to the WSR. For example, a restaurant benefitting from the Wild and Scenic River designation may purchase accounting and legal services from local firms. The effects increase as the quantity of raw materials and other inputs necessary for the production process that can be purchased locally increases. Note that only the *value added* via the local production process, not the total *retail sale*, gives rise to additional economic benefits for the community. Only the portion of the expenditure actually retained by the local vendor can be used in the calculation of the firm's indirect income impact on the *local* economy. It is for this reason that retail sales, in isolation, represent a poor measure of economic impact. Hence, when local businesses purchase merchandise for resale, most of the proceeds accrue to the community where the goods were manufactured. Of course, local governments reap the benefits of sales tax on these sales. Thus, the size of a firm's indirect impact on local incomes depends primarily on the dollar value of locally purchased goods and services *and* whether or not these same goods and services are locally produced or imported into the community. In addition, the amount of indirect employment generated by the business firm will vary with the amount of under-utilization of workers and capacity existing in local businesses. Although the firm's payments to local vendors increase the amount of local business activity, they will not translate to significant increases in employment if local firms are currently experiencing excess capacity. Instead of hiring new workers, managers will utilize the excess capacity first, thereby resulting in a smaller indirect impact than if local supply firms were operating at full capacity. The indirect effects arising from visitors to the Wild and Scenic River are going to be primarily in the retail trade sector of the economy.

Finally, *multiplier*, or *ripple* effects are created as the new income generated by the direct and indirect effects is spent and re-spent within the local economy. Note that it is the new purchasing power from *outside* the community—the ability to export—that gives rise to the direct and indirect effects, and hence, the ripple or multiplier effects as well. For example, part of the wages received by a firm’s employees will be spent on housing. If the employee rents an apartment within the region of the Wild and Scenic River, a portion of the rent payment will be used to pay local employees of the apartment complex. These employees will in turn spend a portion of their income in the local community on groceries, housing, etc., thus adding to the amount of local personal income attributable to the firm’s activities. However, during each of these subsequent rounds of spending, a large portion of the income generated leaks out of the local economy through taxes, savings, and spending outside the community, thereby diminishing the increment to local income attributable to these firms.

Total local economic impacts attributable to increased business activity are computed as the sum of the direct, indirect, and multiplier effects. However, because of the many factors that must be considered in determining the size of the multiplier, gaining an accurate measure of total new personal income (or jobs) accruing to county residents can be difficult.

ECONOMIC IMPACTS OF WILD AND SCENIC RIVERS

As indicated above, economic impact analysis traces the flow of expenditures through the economy. Once again we clarify concepts by measuring the impacts of expenditures for recreation following Wild and Scenic River designation. On the benefits side, as the number of recreational trips increases, expenditures for recreation increase. Expenditures for recreation may include outlays for transportation, food, lodging, and equipment. The expenditures appear as increases in the revenues of businesses providing recreational services. Revenues are then disbursed as payments for inputs, wages to employees and profits to business owners. The payments, wages and profits are then spent by the people receiving them, resulting in a cascade of expenditures through the economy. It is in this way that increased expenditures, in response

to the policy change, ripple through the economy: the same dollar is spent more than one time. Economic impact analysis measures the *direct, indirect, and induced effects* as the additional expenditures flow through different sectors of the economy.

On the costs side a similar set of analysis could be conducted. Consider recruitment of a firm to the region. The firm's expenditures for labor, equipment, and other inputs of production will stimulate economic activity in the region. The expenditures appear as increases in the revenues of businesses providing services to the firm and its employees. These revenues are then disbursed as payments for inputs, wages to employees and profits to business owners, again resulting in a cascade of expenditures through the economy. It is in this way that the economic impacts of foregone economic activity can be measured. Rather than comparing dollar denominated benefits and costs (as in cost benefit analysis), economic impact analysis allows comparison of different measures, namely jobs and income.

The change in net economic value (or equivalently the change in net consumer surplus) has been determined by the U.S. Water Resources Council (1983) to be the most appropriate measure to value welfare effects of changes in water quality. Economic impact analysis is useful in estimating changes in the flow of income and distribution of jobs in a regional economy. Both the change in net economic value and economic impact analysis are advocated by EPA (EPA 1995). Stoll, Loomis and Bergstrom (1987) provide a summary of each method and the appropriate application of each.

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APPENDIX 3

KEY INFORMANT INTERVIEW FORMAT

Key informant interview outline for Wild and Scenic River Development Impacts study (under the Baseline Socioeconomic Study funded by the Governor's Office of Public Land Policy Coordination, USU Proposal number 061601).

Expected contacts: Identified individuals who have been associated with the establishment of Wild and Scenic Rivers involving impacts on water or other developments.

Format:

Hello. My name is _____. I am a graduate student (professor) at Utah State University involved in a study of public lands linkages to local communities in Utah. In particular, I am trying to find information about the impacts of Wild and Scenic River designation. You were identified by _____ as having been involved in the designation of _____ as a Wild and Scenic River. Would you mind answering a few questions for me? It shouldn't take more than 10 minutes of your time. Your responses will be strictly confidential.

If no:

Is there a time when you might be free to answer these questions?

If no, thank you for your time. hang up.

If yes, get time.

1. First, can you tell me a little about your involvement in the designation?

- a. Were you affiliated with a group or organization? Which one? _____
- b. Were you or your group supporting or opposing the designation?
- c. Can you give me two or three reasons for your support or opposition?
 - a.
 - b.
 - c.
 - d.
- d. Can you tell me how you were involved?
 - a. Meetings with public input
 - b. Media campaigns
 - c. Discussions with political representatives
 - d. Discussions with public agency personnel

2. We are trying to identify cases in which the designation of Wild and Scenic Rivers had an impact on proposed water or other development on, along, or above the designated river segment. Are you aware of any such impacts in the _____ case?

If no, go to 4

If yes,

3. Could you give me some of the specific development activities that were impacted by the designation and how these activities were impacted?

List and get details

4. Were there any other impacts that you can think of?

List and get details

5. Are you aware of any proposals or activities that may have come up since the designation that the designation may have affected?

List and get details

6. Could you identify other persons who also might be willing to provide information to us on this case? May we use your name as the source of identification when we contact these people?

Get names, organizations, telephone numbers, addresses.

Thank you for your help and your time. If you are interested in the results from this study, please contact Dr. John Keith, Department of Economics, Utah State University,

3530 Old Main Hill, Logan, Utah or call him at 435-797-2303.