OUTDOOR RECREATION, COMMUNITY DEVELOPMENT, AND CHANGE THROUGH TIME:
A Replicated Study of Canoeing and Trout Angling in Southwestern Wisconsin

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DEDICATION
... to the memory of Gary Regal
(1954-1999)

Gary Regal was a resident of the Kickapoo Valley and had a passion for the land, the river, and its people. For two and a half years he assisted in numerous ways with the varied aspects of the Kickapoo Watershed Conservation Project. His knowledge about fisheries and rivers were an asset to the project and his thoughtfulness about watershed conservation was always appreciated. In July of 1999 Gary’s life tragically and prematurely ended. Among other things, at the time of his death he was conducting the field survey portion of the angling study reported in this document. His hard work contributed invaluably to the good outcomes of this and other projects ... he is sorely missed.

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Executive Summary

Rural development increasingly focuses attention on recreational use of natural assets and the tourism development brought about by visitor spending. In the Kickapoo Valley Region of Southwestern Wisconsin, two such recreational activities provide important opportunities for regional tourism and its associated business growth. Trout angling and canoeing use the region's river systems and attract an increasingly large number of outside visitors who spend money in local business establishments. Their characteristics and the manner in which they provide local impacts provide the focus for this report.

A two year study was initiated in late 1998 to replicate previous survey work on trout anglers and canoeists in the Kickapoo Valley Region. Specifically, both face-to-face and written mail surveys were administered to canoeists and trout anglers based on random selection criteria throughout the respective 1999 recreational seasons. To the extent possible, this replication relied on the same procedures used in the 1993/1994 studies. Results provide important information on both current recreational characteristics and trends that have been experienced over time.

Our results suggest that the effect on this rural economic region of both trout angling and canoeing has grown dramatically during the recent past. This region has experienced a growing number of non-local angler and canoeist visits; which, in turn, results in an increased level of total spending in local businesses. Specifically, we found the following results:
Tourism Development

- The 1999 season witnessed a doubling of the numbers of trout anglers who fished the region's streams as compared to the 1994 season.
- Canoeists increased their numbers by about 35 percent in 1999 when compared with the 1993 canoeing season.
- Total expenditures of canoeists and anglers increased from the previous studies due to increased visitation levels (especially non-locals) and changes in expenditure patterns.
- Expenditures of non-local anglers increased by over 360 percent while canoeist expenditures increased by almost 300 percent.
- In 1994 the ratio of local to non-local anglers was approximately one-to-one. In 1999 the ratio was approximately three non-local anglers to one local angler. The number of non-local anglers increased by almost 300 percent.
- While on average individual canoeists spent less than individual anglers, in the aggregate they have a greater direct economic impact than do anglers because of their greater numbers.

Fisheries Management

- People were generally very satisfied with fisheries and river management practices in southwestern Wisconsin.
- Although not yet critical, there is some perception that crowding is an important fisheries issue.
- If the trend of increasing visitation levels continues, crowding is likely to become a more serious issue.

Canoeing and River Management

- Both anglers and canoeists ranked scenic beauty and clean water as two of the most important factors in their recreational experience.
- Toilet facilities, availability of drinking water, crowding on weekends, and the ease of take out points were important issues to canoeists encountered in this study.
- Over 80 percent of all the canoe traffic exists on the river segment from Ontario to Wildcat Mountain State Park.
- Future remedies to weekend crowding might include expanding the canoeable reaches of the river.
- Improving the number and quality of boat access points, parking facilities, entrance and exit ease and safety, availability of water and toilet facilities, and logjam clearance appear to be real keys to the ability to expand canoeing while minimizing potential crowding problems.
Local Community Impacts

- Non-locals spend money on locally available goods and services. These non-locals impact the local economy by providing "new" dollars to communities in the area.
- Non-local anglers created just over $1,000,000 of new spending in the region during 1999. This led to a total economic impact of about $1,500,000 which supported about 40 local jobs.
- Non-local canoeists created about $1,200,000 of new spending in the local area during 1999 that led to a total economic impact of just over $1,750,000. Non-local canoeists contribute to a total of 45 local jobs.
- Key sectors affected by these visitors include the local lodging, restaurant, sporting goods, and recreational service industries.

As we move toward more integrative approaches to rural development that view tourism as one of many economic activities appropriate to amenity-rich regions, progressive policies that are holistic and systemic need to be crafted. These policies could realistically incorporate the linkages required to equalize benefits and costs of producing the stock resources upon which tourism is based. Indeed, there are costs associated with natural resource management for public goods that are rarely recovered by those who produce these goods. This is particularly acute for public goods that are produced on private lands and demanded by tourism interests.
Introduction

Public policies that address resource management and community development are increasingly focused on use of environmental resources as an attraction for recreational visitors. These policies, coupled with improved infrastructure and increasing leisure travel demand have placed the presence of natural amenities and the supply of outdoor recreational opportunities in an important spotlight.

Much of the current debate revolves around the role recreational sites play in the socioeconomic development of communities that surround these natural amenities. In the past, resource management professionals and community development practitioners have responded to these questions in an ad-hoc fashion, typically relying upon anecdotal evidence. Simply stated, the mechanisms that link natural amenities and outdoor recreational resources to socioeconomic measures are not well-understood. This report documents a recently completed replication study conducted in the Kickapoo River Valley of Southwestern Wisconsin that helps shed light on these important development linkages and policy debates.

Throughout Southwestern Wisconsin, there exists an abundance of natural amenities represented by pastoral landscapes of rolling hills, spring-fed streams, and winding scenic two-lane roads. These are increasingly being used by a wide variety of outdoor recreationists. Of particular importance are two user groups that include canoeists and trout anglers. These recreationists are attracted to this region because of the quality and extent of specific water-based environmental resources.
Two important water-based recreational activities

Trout Angling

Trout anglers appear to comprise a rather unique form of recreationist. Their activities make up a surprisingly large share of all fishing that takes place. The U.S. Fish and Wildlife Service has ongoing research that tracks fishing associated recreation. Statistics on trout angling nationally suggest that about one-third of all anglers fish for trout and about 20 percent of all angler days are spent fishing for trout (USDI FWS 1988; 1999). Furthermore, data also suggests that Wisconsin lags the nation in the percentage of anglers who fish for trout (1991). By region, states that comprise the North Central region (WI, MI, IL, IN, and OH) experienced relatively lower numbers of trout anglers. This is true even though the region has one of the highest proportions of freshwater anglers (17 percent of people in the region fish). Indeed, only about six (6) percent of all anglers in this region fish for trout. In light of these facts, we believe the Kickapoo River Valley represents an up-and-coming Midwestern “hot spot” for trout angling since the Midwestern and Southern United States have lower trout angling participation compared to the Northeast and West.

Regional characteristics that foster premier trout fisheries include the availability of cold water streams, clean water, and fisheries management activities that act to maintain, improve or otherwise control fish habitat, fish populations, and angling effort. The driftless area of Southwestern Wisconsin is blessed with a tremendous combination of these attributes. It has thousands of miles of cold water steams. These streams, although degraded in the early part of the century, have undergone a slow recovery. Stream temperature has declined, and water quantity, quality and clarity have increased. These changes are due, in large part, to a combination of changing land use patterns and improvements in agricultural practices. With improvements to water quality, water temperature, and habitat improvement trout have returned in abundance to area streams.
Canoeing

Canoeing remains a popular recreational activity throughout regions of the United States with water resources. In addition to trout angling the Kickapoo River has long been a popular location for canoeing. Like the streams that feed it, the Kickapoo has undergone a slow recovery of its water quality which has added to the appeal of canoeing the river. This is particularly true in the upper reaches of the river. Between Ontario and LaFarge, the river flows through large tracts of public land. These lands include roughly 8,700 acres of state-owned land called the Kickapoo Valley Reserve. In addition, there is the 3,500 acre Wildcat Mountain State Park adjacent to and north of the Kickapoo Valley Reserve. These holdings provide over 20 miles of riverway in public ownership which gives a wilderness feel to the canoeing experience. The banks of the river are frequently adjacent to sandstone outcroppings providing unusually beautiful scenery. In addition, the river is shallow enough to provide safe footing if a canoe capsizes. The canoe livery businesses along the river have consistently kept the river free of obstructions from downed trees, allowing canoeists to travel the length of this section of the river without having to portage.

Since 1993, when the first economic impact study was conducted on canoeing in this area, there has been an increase in both the total numbers of canoes available for rental as well as an increase in the number of businesses renting canoes. This includes a growing interest in canoeing sections of the river south of the traditional Ontario to LaFarge segment of the river. A business in Readstown now rents canoes for a float to Solders Grove. All these factors have made the river a very popular canoeing destination and one that is growing in popularity.

Amenity-based rural development in Southwestern Wisconsin

Scattered throughout Southwestern Wisconsin are many small rural communities that have, until recently, subsisted primarily on agricultural production and light manufacturing. This region is also one of the most economically distressed parts of the rural Upper Midwest with generally lower per-capita incomes and higher relative levels of poverty incidence. Nature-based tourism businesses that exist in the region are at relatively early stages of development.

Tourism as a development strategy has been discussed and debated by communities, businesses, and organizations throughout the region. This is particularly true in the Kickapoo River Valley, a watershed drained by the Kickapoo River that stretches approximately 60 miles in length with an average width of 10 to 15 miles (see Figure 1). Spread across four

Canoeists on the West Fork of the Kickapoo River,
counties, this watershed contains 16 incorporated cities and villages that are surrounded by a rolling landscape covered by forests and small-farms and interlaced with numerous small to medium-sized streams.

State agencies, local business groups, and public officials in the valley are involved in a myriad of regional and local planning processes. Many of the issues raised in these planning efforts involve use of the environmental resources present in the region for outdoor recreational activities such as canoeing and trout fishing.

Water-based recreation can be an important component of rural economic development. The economic benefits of water-based recreation begin with receipts from visitor spending. Total economic value also includes components of the resource valued by recreationists but not paid for outright. Economic impact accounts for the reaction of local businesses to the increase in sales due to recreation spending by people from outside the region. Specifically, economic impact uses spending by non-local visitors as the driving force behind regional economic change. In this way, economic impact represents the export-base portion of a regional economy. Typically measured in terms of income generated, economic impact includes the ripple effect (sometimes referred to as multiplier impacts) of increasing local business activity on the regional economy that result from “new” dollars flowing into the region.

Public and private policies that affect water-based recreation in the region

Overall, water-based recreation is affected by public programs, primarily offered by the various agencies of the State of Wisconsin. These include direct regulation of recreational use by the Wisconsin Department of Natural Resources to indirect management and marketing carried out by the Wisconsin Department of Tourism. Furthermore, several regional and local public entities also affect recreational uses of land that range from county or municipal administration of lands and access points to local community tourism promotion organizations.

Trout angling is regulated by the State of Wisconsin, Department of Natural Resources through licensing. Specifically, in addition to a fishing license, trout anglers must purchase a Trout Stamp. The Trout Stamp program in Wisconsin was begun in 1977 to generate a consistent source of funds for stream habitat improvement. The number of Trout Stamps sold each year since 1984 has varied between approximately 113,000 and 192,000, but has averaged about 130,000 in the 1990s. Over the years the fund has generated over $6,000,000. The funds are used to restore and improve stream habitat and for conducting stream habitat and fishery surveys on trout streams. Over 90 percent of the funds are directed towards habitat restoration projects across the state. The funds cannot be used to buy easements on trout streams or stock fish. The emphasis of the Trout Stamp program on stream

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1Assessing the benefits of fisheries often involves valuing less tangible non-market benefits (Fedler 1995). A broader description of total economic value and the specific complexities associated with valuing water resources can be found in a recent factsheet series published by the University of Wisconsin - Extension (Marcouiller and Coggins 1999a, 1999b, 1999c).
habitat restoration rather than stocking has made it possible for the WDNR to significantly expand their wild trout program. Wisconsin’s trout management program has been nationally recognized for its emphasis on habitat protection and restoration and wild trout management. The Trout Stamp program is in large part responsible for the significant improvements in trout fishery health over the last few decades. Special interest groups also affect resource quality and use. For example, local Trout Unlimited chapters and state councils promote policies and programs that protect and restore trout habitat to strengthen the level of wild trout population. These groups also frequently conduct stream restoration projects.

Policies that affect canoeing include the location, development and maintenance of public access points and their related infrastructure owned by both state and local units of government. Many access points are found along public road right-of-ways (at highway bridge crossings). Also, some regulations affecting canoes (for motorized use) are administered by the Wisconsin Department of Natural Resources. Like the trout resource, an array of private individuals and groups also affect canoeing and its associated resources. Recreational benefits include provision and maintenance of access points to the river system by private individuals and local canoe rental businesses. In addition, members of special interest groups conduct volunteer work duties on canoe rivers that assist in maintaining the canoeing resource. Examples of these groups include the Boy and Girl Scouts, other local civic groups, private individuals, and organizations such as the Minnesota and Wisconsin Canoe Associations.

Certainly, affecting change in resource management and recreational use is often a slow process. Within this public and private policy context lies the ability of well-intentioned and involved people to address the resource needs and management characteristics that shape the future of the Kickapoo River Valley and its resources. One important reason behind this applied research study was to develop information to assist these people in crafting future policies based on informed and objective analysis on the history and current status of recreational use of the resource.

**Study Objectives**

The research reported in this document involved a replication of two research projects conducted in Southwestern Wisconsin during 1993 and 1994 (Norman and Anderson 1995; Marcouiller, Anderson, and Norman 1996). Both studies established baseline data on user profiles, expenditure patterns, user preferences, and regional economic impacts of canoeists and trout anglers who recreating in the Kickapoo Valley watershed area. In addition, this work contributes to the growing literature that focuses attention on various attributes of rural economic development of the region. Previous rural economic development research that focused on the Kickapoo River Valley has been reported in several articles and reports during the past four years (Vandell and Connelly 1998;1999; Leatherman and Marcouiller 1996a; 1996b; 1999a; 1999b).

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2 Both reports can be obtained from the Center for Community Economic Development, 610 Langdon Street, Madison, WI 53703 (telephone: 608-265-8136).
These earlier studies precipitated some actions by local groups in tourism development and helped lay the groundwork for Trout Unlimited’s Kickapoo Valley Watershed Conservation Project. The studies also generated interest from local tourism organizations, communities and businesses to establish a new measure of economic impact and user profiles. Two new canoe rental businesses have started and the existing businesses have increased the numbers of canoes available for rental. Anecdotal evidence from local businesses and resource professionals indicate that both canoeing and trout angling activity have increased in the last five years. Decisions about the future direction and development of infrastructure continue to be a topic of debate but require more substantial evidence that increased use and resulting impacts have occurred. This research intends to provide an empirical look at change that has occurred during the six or so years since it was last studied.

The information obtained by replicating the 1993 and 1994 studies was enhanced with some additional questions to provide a better level of understanding to Kickapoo valley residents about the opportunities and problems of both growing and redirecting tourism in the Kickapoo River Valley. Key development questions remain. For instance, how much have angling and canoeing grown in Southwestern Wisconsin during the recent past? Is there a limit to this growth that is imposed by crowding in high use areas? What are the factors that draw visitors to the region? Are any of these factors threatened by changing land use patterns in the valley? These are some of the questions addressed in this report.

Our basic intent with the replication study was to provide better information to community development practitioners and resource planners on the impacts associated with change in recreational use of the region’s water resources by canoeists and trout anglers. Specifically, our basic intent is supported with three underlying research objectives. These include:

1. Describe the variation that exists among canoeists and trout anglers in the Kickapoo River Valley region with respect to demographic characteristics, travel habits, service preferences, and spending patterns.

2. Estimate the local economic impacts of these recreationists on local communities.

3. Determine basic trends in recreational use that have occurred during the past five years and address the issues involved with the tourism destination life cycle with respect to community impacts.

The report is organized into three additional sections. First, methods used in the replication study are outlined. Second, descriptive results of the surveys are presented. These include identification of trends that have occurred during the recent past in canoeing and trout angling using comparable results from the earlier studies. Finally, we conclude with a brief discussion of policy implications and further research needs that are generated from this work.
Research Methods

Our approach to this research was to replicate the two research studies conducted during 1993 and 1994 using similar sampling and research design methods. Specifically, this research was conducted in two stages. First, pre-selection was done on these two distinct groups. On randomly selected days, times, and locations a brief face-to-face interview was conducted with canoeists as they exited specific boat landings and a post card was used to tag vehicles belonging to trout anglers parked on regional streams. Second, a mail survey procedure was administered to those canoeists and anglers who were randomly selected in the first stage. Minor adaptations to the previous methods allowed us, in a more comprehensive fashion, to address broader regional issues of recreational resource use. This section describes specific data collection procedures used in both the canoeing and trout angling surveys.

Survey design and administration

Angler Sampling and Survey Design. The method of sampling trout anglers began by placing research announcements and post cards on the windshields of angler vehicles at randomly selected dates, times, and starting points throughout the 1999 angling season. On a selected date, two identification runs were made; one in the morning and one in the evening. A surveyor began these runs at randomized starting times (between 6:00 am and 10:00 am for a morning run and between 4:00 pm and 7:00 pm for an evening run). Two starting points associated with one-way travel routes were used. The first route began in Coon Valley, WI and traveled along County Road P (following the Timber Coulee stream complex) and continued down County Road S (traversing the West Fork of the Kickapoo River) to Readstown. The second route was the reverse of the first route. The secondary runs were made on either Billings Creek or along Bishops Branch and Camp Creek. The former runs were done by following County Highway V and Z, the latter followed State Highway 56. Route decisions were pre-selected through a random process. The process allowed one out of four runs to occur along either Billings or Bishops Branch and the other 3 runs randomized with different times and routes along Timber Coulee and West Fork stream systems.

Depending on angling pressure, each route took between 2.5 and 4 hours to complete. In these identification runs, the primary responsibility of the surveyor was to place an envelope containing a survey introduction and a self-addressed postage paid post-card under the windshield wiper of all vehicles parked along the route. Exhibits of these items can be found in Appendix A. Care was taken to identify and serve vehicles parked both along the primary route and along small service roads that extend into fishing locations off the primary route. In the event of rain, these items were first placed in a zip-lock bag. In addition to placing items on vehicle windshields, the surveyor also documented the total number of vehicles parked at fishing locations, their license plate numbers (to identify repeat visitations), and a general description of unique characteristics of the trip (weather, odd situations,

3As an incentive for returning the post-card, the research project offered to give away a complete fly fishing set — rod, reel, and line. This package was donated to the project by Trout Unlimited and given away in early 1999 following data collection.
etc.). If a car was identified as a repeat which had already received the postcard, notice was made and nothing was placed on the windshield.

The second stage of the sampling design included mailing of the survey instrument to respondents of the first stage. Once a post card was returned, the respondent was included in the final survey population with the subsequent method of survey administration following a modified Dillman (1978) approach. Respondents were mailed a package containing a cover letter, a full survey instrument and a postage paid return envelope. After three weeks, non-respondents were sent a post-card reminder. After 6 full weeks following initial mailing, non-respondents were re-sent a full packet with a new survey instrument.

A four-page survey instrument was developed based on a review of related literature and policy needs. These policy needs included topics dealing with land use, fisheries management, general recreation planning and economic development planning. The instrument filled out by respondents included both closed and open-ended questions and took an average of 15 minutes to complete. The final instrument used in the research was the product of numerous earlier versions revised through an informal pre-testing procedure. An exhibit of the final survey instrument can be found in Appendix B.

From the beginning of April to the end of September, a total of 1,242 survey request postcards were placed on cars parked along the above-mentioned streams. Of these, a total of 660 postcards were returned which translates into a 53 percent response rate. These people were then sent complete surveys. Of the 660 surveys mailed to anglers, 619 completed surveys were returned, a 94 percent response rate to this sub-sample. Thus, the total sample response rate was roughly 50 percent. Field staff for the study also noted cars that were seen more than once. This was done to avoid placing survey request postcards on the same car more than once and to get an estimate of how many anglers made repeat visits. A total of 856 duplicate car sightings were noted during the course of the season. Based on the responses from the returned surveys and the total number of cars seen parked along the streams, and the pressure of our sampling regime, we estimated that 8,764 angler parties fished on the Timber-Coulee system, the West Fork, Billings Creek, Bishops Branch, and Camp Creek.

**Canoeist research design.** During the summer of 1999, canoeists using the upper Kickapoo River were surveyed to measure impacts, attitudes, and characteristics following a similar research design to the 1993 study. Specifically, seven commonly used canoe landings were selected as sampling sites. Site selection and extent of sampling was randomly allocated throughout the canoeing season. This sampling was done by field staff who spent pre-determined periods of time at the landings. Canoeists were approached upon disembarking their canoes and asked to participate in the survey. If accepted, the surveyor would perform a brief face-to-face exit interview, the primary purposes of which were to obtain the lead canoeist's address and to answer key questions on the canoeists' immediate impressions of crowding (exit face-to-face survey form found in Appendix B).
From Memorial Day weekend to the end of Labor Day weekend, a total of 611 canoeists were approached as they exited their canoes at these seven commonly used canoe landings. Of these encounters, 520 responded to the exit interview. Of those who were not administered an exit interview, 26 were misses due to congestion or their early departure from the landing. 64 refused to participate in the exit interview and 1 was a repeat. This provided an eighty-five (85) percent response to the exit interview. Of the 520 responses, 94 contained unusable addresses to which a follow-up survey could be mailed. For the mail survey, a modified Dillman (1978) approach was again used. Respondents were mailed a package containing a cover letter, a full survey instrument and a postage paid return envelope. After three weeks, non-respondents were sent a post-card reminder. After 6 full weeks following initial mailing, non-respondents were re-sent a full packet with a new survey instrument.

A four-page survey instrument was developed based on a review of related literature and past and current community interests. The Kickapoo Reserve Board was preparing their master plan at the time of the 1999 research. They reviewed the survey and commented on questions that were of particular interest to them. Their comments were used to shape some of the questions in the final survey. The survey included items that measured issues of local interest such as crowding, expenditures, general recreation planning and economic development planning. The instrument included both closed and open-ended questions and took an average of 15 minutes to complete. The final instrument used in the research was the product of numerous earlier versions revised through an informal pre-testing procedure. An exhibit of the final survey instrument can be found in Appendix B.

A total of 426 canoeists were sent the full mail survey. Of these, a total of 279 returned a completed survey for analysis. This translated into a sixty-five (65) percent response to the mail survey. Thus, the overall response rate to the sample was about forty-six (46) percent of the canoeists originally approached at canoe landings on the river. Based on the number of canoeists and the randomization of times and landings (our sampling pressure), we estimated that approximately 16,000 canoeists used the Kickapoo River between Memorial Day and Labor Day weekends during the 1999 season.

**Analysis of survey results**

Both survey instruments were coded. Valid and complete surveys were entered into a database. Data in this database was cleaned for use with statistical analysis software. The statistical analysis was performed using SPSS software.

**Distinguishing place-of-residence.** Our intent was to look at results that showed differences between local and non-local recreationists. Indeed, many of the interesting survey results show significant differences based on whether a respondent was a local or non-local canoeist or angler. This separation of all respondents into local and non-local categories was done using zip codes of mailing addresses. The distance used in specifying these two groups was 50 miles of straight line distance.
using Westby, Wisconsin as the center of the circle. This region was delineated on a map and zip codes were manually coded into the database. Locals were coded differently than non-locals based on zip code location identified geographically using a Wisconsin zip code manual. Even though portions of one county in Minnesota (Houston) and one county in Iowa (Allamakee) fell within this 50 mile radius, out-of-state respondents were considered non-locals due to their non-Wisconsin resident status. Where appropriate, results are reported for response differences between locals and non-locals. Categorical differences between these two groups were tested for significance using a chi squared procedure. The means of true summary statistics were tested for significance using an independent samples t-test procedure.

Expansion of survey data to total angler and canoeist visits for the 1999 angling season was done using an expansion factor based on the proportion of the season surveyed with respect to the total length of season. The basis used in this expansion for angling was the postcard sampling structure of parties accounting for repeat visitor parties. The total number of seasonal parties was then multiplied by the mean party size to determine the total number of individual anglers visiting the West Fork, Timber Coulee and neighboring stream complex during the 1999 trout angling season.

The basis used in this expansion for canoeing was to account for the number of boat landings, the percent of days surveyed, and the randomization of times to create a multiplier to use against the mean party size to determine the total number of individual canoeists visiting the Kickapoo River to canoe during the 1999 season. Both totals were then used to calculate total expenditures using the respective mean individual expenditure.

- **Importance-performance analysis.** At its core, IPA identifies salient qualitative features and asks respondents to rate product attributes in terms of importance and performance (Fletcher, Kaiser, and Groger 1992; Hammitt, Bixler, and Noe 1996). This analysis allows us to array, in a relative fashion, the importance of various recreational attributes while simultaneously assessing the relative performance, or effectiveness, with which each attribute is provided on the Kickapoo River.

A set of importance/performance criteria were posed and generated information on recreational characteristics as perceived by trout anglers and canoeists. Importance measures the level of importance attached to an attribute by a respondent on a Likert-type scale. Performance measures the level of satisfaction of a respondent with the provision of that same attribute on the same scale. Using a combined importance and performance measure is valuable because of the need for an indication of satisfaction that stems from a person's expectations and from his or her judgment of performance (Propst and Lime 1982; Mengak, et al. 1986).

The IPA results were based on standard procedures developed by marketing researchers (Uysal and Howard 1991.) These basic procedures included (1) development of attributes, (2) administration of a
survey to measure the product or service, (3) estimation of perceived importance and performance of each attribute through the calculation of the mean importance value and the mean performance value, (4) plotting of intersect of mean importance and performance values for each attribute on a two-dimensional grid, and (5) assessment of attributes based on grid location.

Aggregate mean scores for each of fourteen attributes were plotted into one of four quadrants, with conclusions derived by noting where attributes scores were found on the two-dimensional IPA grid. This procedure was repeated for both trout anglers and canoeists. A two-dimensional IPA grid was created for both of these user groups.

Economic impact and valuation

The economic impact assessment was conducted with the use of a regional economic model of Southwestern Wisconsin. The model, developed for this project using Micro-IMPLAN, is a standard input-output accounting structure of the region. By applying regional angler expenditures of non-locals by category (identified using responses to a series of questions from the survey instrument) to the input-output model, impacts of new dollars flowing into the region (as spent by non-local recreational visitors) can be assessed. Specifically, we were interested in the impact that this spending had on change in the regional economic structure. This regional input-output model was constructed for the same basic region used to separate locals from non-locals. Specifically, the data files included Vernon, Crawford, Richland, Monroe, LaCrosse, and Juneau Counties in Wisconsin. This roughly approximated a 50-mile radius from Westby, Wisconsin. The base year for data on this regional economy was 1997 adjusted to 1999 prices. The assumption applied here is that the economy had not fundamentally changed over the two-year period.

The value of a trout stamp was assessed using a dichotomous choice contingent valuation technique, which estimated demand for trout stamp program benefits over a limited range of prices. Total value reported in this study was estimated using the area under the estimated demand curve truncated at the highest price used. Results represent aggregate willingness-to-pay for selected attributes.
General Recreational Characteristics

Baseline information on recreationists is important in understanding markets, use patterns, attitudes & perceptions of the resource, types of amenities needed, and other key issues associated with recreational site developments. Furthermore, it provides context for how these visitors impact local communities through both their physical presence and their spending habits. These general characteristics of recreationists provide the focus for this section. For ease of reading, we’ve separated a description of user characteristics by type of recreationist encountered in the research. In each section, we begin with descriptive survey results about trout anglers and finish with descriptions of the canoeists we encountered. This section outlines the descriptive details from our 1999 survey work and makes relevant comparisons to the previous studies.

To begin, overall usage of this area by canoeists and trout anglers has appeared to grow in the five or so years since the last studies were conducted. Our estimates of total and non-local visits by canoeists and trout anglers are outlined in Figure 2. Our estimates are in agreement with anecdotal evidence that points to an overall trend in increasing visits over time.4 In assessing change over time, it is particularly interesting to note the increase in visitors who originated from outside the area (non-local visits). This is most apparent in trout angler visits with non-local use increasing from around 2,000 in 1994 to over 6,000 in 1999.

**Trout angler characteristics**

Based on the responses from the returned surveys, the total number of cars seen parked along the streams, and the pressure of our sampling regime, we estimated that approximately 8,800 angler parties fished on the Timber-Coulee system, the West Fork, Billings Creek, Bishops Branch, and Camp Creek during 1999. Approximately two-thirds of these anglers (about 6,300) traveled from outside the area to fish in the region. This increase is highlighted in Figure 2.

![Graph](image)

**Figure 2.** Change in number of visits between the two study periods (1993 - Canoeists; 1994 - Trout Anglers).

---

4 We realize that these visitation estimates represent only two points in time and thus make conclusive statements about recreational trends somewhat suspect. However, in comparing weather and travel conditions among the two time periods studied, we could not identify significant differences that would lead to aberrant estimates. Suffice it is to say that these estimates agree with the anecdotal evidence pointing to an overall trend of increasing visits to the region.
Angler demographics. During 1999 the average age of anglers fishing in the area was about 44 years old (see Figure 3). Roughly 95 percent of the respondents were male. This is probably close to the gender breakdown of individual anglers, although we cannot be certain given our party-level data collection procedures. Roughly two-thirds of our respondents (68 percent) were married, one-quarter (23 percent) were single, and a small portion (8.6 percent) were widowed, divorced or separated. The anglers who responded to the survey were generally well-educated and primarily worked in professional and managerial occupations (see Figures 4 and 5). It is interesting to note that a much higher portion of anglers who responded to the survey (79 percent) had attended or completed college or graduate school as compared to the population as-a-whole. Roughly 18 percent had completed high school or have technical, vocational, or trade school training. These following three figures outline basic demographic characteristics of trout anglers encountered in the survey effort.

The general demographic characteristics of anglers appear to have changed little since 1994. At that time, the mean age was slightly over 42 years, and over 50 percent of the respondents had an advanced degree.

With respect to occupations of respondents to the angler survey, our results suggest that almost half (45 percent) worked in some professional or managerial capacity. Roughly 12 percent reported their occupation as technical, sales, or administrative support positions while about 12 percent were retired (see Figure 5). In 1994, 38 percent of respondents reported working in managerial or professional capacities. Again, this is a distinctly different group of people when compared to the population as-a-whole. For comparative purposes, roughly 38 percent of respondents to the 1994 study reported working in managerial or professional capacities.

This occupational structure plays itself out when we look at the income distribution of trout anglers. For those who responded to the survey, it is safe to say that this is a group with generally high average household incomes. Roughly one-fourth (23 percent) of those encountered reported household

![Figure 3. Age of regional anglers encountered in the two studies.](chart)
incomes of greater than $100,000. Another 13 percent reported incomes of between $80,000 and 100,000, 16 percent reported incomes between $60,000 and 80,000, and 20 percent between $40,000 and 60,000. Combining these, our results suggest that almost three-fourths (72 percent) of the survey respondents earned average incomes that are higher than the median per-capita incomes for Wisconsin residents. Finally, roughly 17 percent reported their incomes were between $20,000 and 40,000 while about 7 percent reporting incomes less than $20,000 (see Figure 6). Although not shown, this distribution becomes even more skewed when we separate locals from non-locals.
These results are not surprising given that trout angling is a rather specialized type of recreation. Trout anglers visiting Kickapoo area streams had a similar demographic profile to trout anglers throughout the rest of the United States. Other research conducted by the U.S. Department of Interior, Fish and Wildlife Service (1988; 1993; 1999) suggests similar demographic profiles. For instance, across the U.S. roughly two-thirds (68 percent) of anglers were between the ages of 25 and 54 years while anglers aged 35 - 44 constitute the single largest age cohort at 27 percent of all U.S. trout anglers. From our sample, it could be inferred that fewer women fish in Kickapoo area streams than the average national percentage of female trout anglers. Only 5 percent of the respondents to our survey were female, compared to 22 percent of trout anglers nationally. Although, as mentioned earlier, this could be an anomaly of our sampling regime. Just as the trout anglers in Kickapoo area streams tended to be well educated and fairly well to do, the same holds true for trout anglers nationally. For instance, approximately 25 percent of the U.S. population has four years or more of college education. 26 percent of all freshwater anglers have four or more years of college, while 31 percent of trout anglers have four or more years of post-secondary education. Likewise, the average U.S. household annual income is about $35,000. Approximately 55 percent of all freshwater anglers had an annual household income of $35,000 or more, and 59 percent of all trout anglers had a household income higher than the national average. Furthermore, of all the freshwater anglers with household incomes greater than $100,000, 38 percent fish for trout, the highest percentage of all types of freshwater fishing for that cohort.

Angler behavior. In Southwestern Wisconsin, the three primary trout types include Brown Trout (Salmo trutta), Brook Trout (Salvelinus fontinalis), and Rainbow Trout (Oncorhynchus mykiss). In our survey effort, respondents indicated that they tended to fish for all types rather equally although
brown and brook trout are most commonly found in the region. While about one-third (33 percent) of the respondents indicated they were fishing for all types, roughly one-quarter (25 percent) indicated that they were seeking just brown trout while about 30 percent said they were fishing for brook or brown trout (see Figure 7). Overall, anglers were able to catch what they had set out to catch. Results of the survey suggest that about nine-tenths (89 percent) of the anglers reported that they caught the type of fish they hoped to. Overall, anglers caught an average of 16 fish during their trip. There was a difference between the average number of fish caught by local anglers, who caught about eight (7.5) on average, and non-local anglers, who report catching 19. Likewise, local anglers report releasing 7.4 of the 7.6 caught fish on average, and non-local anglers report releasing 18.8 fish of their catch. (see Figure 8).

There were some modest differences between earlier surveys and the 1999 effort. Our results suggest that anglers were catching fewer fish per trip in 1999 when compared to the earlier study that reflected the 1994 fishing season. The average length of a fishing trip for local anglers increased slightly between 1994 and 1999, from 1.5 days to 1.8 days. The length of the average fishing trip increased slightly but significantly for non-local anglers, from an average of 2.2 days in 1994 to 2.6 days in 1999. We found then that locals anglers were catching many fewer fish per trip in 1999, 7.6 fish on a 1.8 day trip or 4.2 fish/day, than in 1994, 14 fish over 1.5 days catching 9.3 fish/day. Likewise, non-local anglers reported catching 23.4 fish on an
average 2.2 day trip in 1994, or 10.63 fish/day, compared to 1999 where anglers caught an average of 19.5 fish over 2.6 days, or 7.5 fish/day. Despite the apparent drop in catch for anglers, another look at the numbers reveals a different perspective. Based on the estimated number of anglers and fish caught during each trip, anglers caught a total of approximately 75,600 fish in 1994. Because of the increase in angler visits in 1999, the total number of fish caught during 1999 is estimated at 142,000 fish, about twice the number estimated five years before.

Both fly fishers and spin casters were encountered in the survey effort. Approximately, 82 percent of anglers report fly fishing on this trip compared to 18 percent who identified themselves as spin casters. Results suggest there was a difference between local and non-local anglers. Local anglers are almost evenly split between spin casting and fly fishing — reporting 42 percent and 47 percent respectively. Non-local anglers, on the other hand, were predominately fly fishers with 92 percent reporting this type of fishing as their rod-of-choice (see Figure 9). Only 13 percent of anglers reported using live bait, but there was a marked difference between locals, who tended to fish with live bait almost one-third of the time (29 percent), and nonlocals, who rarely fish with live bait (6 percent). For comparison, in 1994, local anglers were similarly evenly split between fly fishing and spin casting, but 40 percent reported using live bait. Non-local anglers reported spin casting slightly more in 1994 (16 percent) with 83 percent identifying themselves as fly fishers. In 1994, results suggest that non-local anglers fished with live bait twice as much as that found during 1999.

Figure 9. Type of equipment used by anglers encountered in this study.

Figure 10. Fishing companions of anglers encountered in this study.
The group composition of anglers is summarized in Figure 10. Anglers generally reported that they fished alone, 36 percent, with family, 29 percent, or friends, 28 percent. The average party size was two (see Figure 8). Only 6 percent of the anglers reported using a guide. There was an interesting difference between male anglers and female anglers. Male anglers generally reported fishing alone or with friends or family. Female anglers were most likely to fish with family, and equally likely to fish in an organized group, with friends, or alone.

This Kickapoo Valley and surrounding region have several streams that are popular with trout anglers. We asked anglers which other streams they fished during their trip to Southwestern Wisconsin. By a

Figure 11. Frequency and extent of fishing pressure on nearby streams fished on this trip as reported by anglers encountered in this study.

<table>
<thead>
<tr>
<th>Stream</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coulee System</td>
<td>66%</td>
</tr>
<tr>
<td>West Fork/West Branch</td>
<td>42%</td>
</tr>
<tr>
<td>Kickapoo</td>
<td>10%</td>
</tr>
<tr>
<td>Coon</td>
<td>5%</td>
</tr>
<tr>
<td>Seas Branch</td>
<td>5%</td>
</tr>
<tr>
<td>Camp</td>
<td>4%</td>
</tr>
<tr>
<td>Bishop Creek/Bishop Branch</td>
<td>3%</td>
</tr>
<tr>
<td>Castle/Castle Rock</td>
<td>3%</td>
</tr>
<tr>
<td>Big Green</td>
<td>3%</td>
</tr>
<tr>
<td>Willow</td>
<td>2%</td>
</tr>
<tr>
<td>Billings</td>
<td>2%</td>
</tr>
<tr>
<td>Black Bottom/Reads</td>
<td>2%</td>
</tr>
<tr>
<td>North Fork of the Bad Ax</td>
<td>1%</td>
</tr>
<tr>
<td>Black Earth</td>
<td>1%</td>
</tr>
<tr>
<td>Elk Creek</td>
<td>1%</td>
</tr>
<tr>
<td>Mill Creek</td>
<td>1%</td>
</tr>
<tr>
<td>Mills</td>
<td>1%</td>
</tr>
<tr>
<td>Fancy</td>
<td>1%</td>
</tr>
<tr>
<td>Knapp</td>
<td>1%</td>
</tr>
<tr>
<td>Pine Creek</td>
<td>1%</td>
</tr>
<tr>
<td>Bear</td>
<td>1%</td>
</tr>
<tr>
<td>Blue</td>
<td>1%</td>
</tr>
</tbody>
</table>

n = 597

Figure 12. Frequency and extent of fishing pressure on Southern Wisconsin streams during the past year as reported by anglers encountered in this study.

<table>
<thead>
<tr>
<th>Stream</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coulee System</td>
<td>77%</td>
</tr>
<tr>
<td>West Fork/West Branch</td>
<td>53%</td>
</tr>
<tr>
<td>Big Green</td>
<td>19%</td>
</tr>
<tr>
<td>Castle/Castle Rock</td>
<td>18%</td>
</tr>
<tr>
<td>Kickapoo</td>
<td>15%</td>
</tr>
<tr>
<td>Black Earth</td>
<td>14%</td>
</tr>
<tr>
<td>Coon</td>
<td>14%</td>
</tr>
<tr>
<td>Bishop Creek/Bishop Branch</td>
<td>14%</td>
</tr>
<tr>
<td>Blue</td>
<td>13%</td>
</tr>
<tr>
<td>Camp</td>
<td>10%</td>
</tr>
<tr>
<td>Seas Branch</td>
<td>9%</td>
</tr>
<tr>
<td>Willow</td>
<td>9%</td>
</tr>
<tr>
<td>North Fork of the Bad Ax</td>
<td>8%</td>
</tr>
<tr>
<td>Mt. Vernon</td>
<td>7%</td>
</tr>
<tr>
<td>Otter Creek</td>
<td>7%</td>
</tr>
<tr>
<td>Black Bottom/Reads</td>
<td>6%</td>
</tr>
<tr>
<td>Elk Creek</td>
<td>6%</td>
</tr>
</tbody>
</table>

n = 475
considerable margin, the Timber Coulee stream system and the West Fork of the Kickapoo were the most popular fishing destination. Roughly 66 percent of responding anglers said they fished the Timber Coulee system and 42 percent said they fished along the West Fork. Other commonly noted streams were the Kickapoo, Coon Creek, Seas Branch, Camp Creek, Bishop Branch, Castle Rock, Big Green, Willow Creek, Billings Creek, and Reads or Black Bottom Creek. With the exception of the Kickapoo, which was noted by 10 percent of the respondents, the above named creeks were reported by only 2 to 5 percent of the respondents. The 11 remaining streams noted as a fishing destination during their trip were noted by less than 1 percent of the respondents (see Figure 11).

More broadly, the regional trout angling spills over into more distant streams. We also asked anglers which southern Wisconsin streams they have fished in the last year. The Timber Coulee system and the West Fork of the Kickapoo remained the most important, indicated by 77 percent and 53 percent respectively of those who filled out the survey. A few other streams emerged as regionally important destinations for anglers. The remaining top choices among anglers were similar to the ones listed above, but in a slightly different order. There was also the notable addition of Black Earth Creek, Blue Creek, the North Fork of the Bad Axe, Mt. Vernon Creek, Otter Creek and Elk Creek. Five percent or fewer of the respondents named the remaining 100 or so streams that we could identify that support trout angling (see Figure 12).

![Figure 13. Seasonal fishing pressure as reported by anglers encountered in this study (by place of residence).](image)

Our results suggest that the anglers who fish in the region have been coming here for an average of about 11 years. There is a large difference between the number of years locals and non-locals have been fishing in the region. Local anglers reported that they have been fishing in the region on average for 18 years, as compared to an average of just 9 years for non-local anglers. During the course of the year anglers reported that they were likely to fish in the region various amounts of time during each month of the trout season. The most popular months were May and June, where anglers reported
they fished on average 3.7 days/month. September, August, and July were the next most popular
where anglers report they will likely fish 3.1, 3.1, and 2.9 days/month respectively (see Figure 13).
As might be expected, local anglers fished in the area more often, approximately twice as often as
non-local anglers.

Only 8 percent of anglers reported owning recreational property in the region, but close to half
(42 percent) said that they have considered purchasing recreational property. The relative interest and
ownership of recreational property has decreased slightly since 1994 when about 9 percent indicated
they owned property and almost 50 percent expressed interest in purchasing recreational property.

Figure 14. Gender of regional canoeists
encountered in this study by place of origin.

Figure 15. Educational attainment level of
regional canoeists encountered in this study.
Characteristics of canoeists

Based on the number of canoeists and the randomization of times and landings (our sampling pressure), we estimated that approximately 16,000 canoeists used the Kickapoo River between Memorial Day and Labor Day weekends during the 1999 season. As with fishing, the numbers of canoeists has increased markedly since 1993 when this study was first conducted. At that time we estimated that almost 12,000 canoeists used the Kickapoo River (refer to Figure 2). Again, like angling, this roughly 35 percent increase in canoeing usage agrees with the anecdotal evidence from well-informed locals that canoeing visits have been on the rise during the past few years.

- **Canoeist demographics.** The demographic differences between trout anglers and canoeists were significant. Unlike anglers, canoeist respondents were more evenly distributed between men and women with about 44 percent male and 56 percent female (see Figure 14). Roughly 55 percent were married, (a smaller percentage when compared to anglers) 35 percent were single, and about 10 percent were widowed, divorced or separated. The canoeists who responded to the survey generally had similar education and occupations as anglers and primarily worked within professional and managerial positions (see Figures 15 and 16). Roughly 66 percent of survey respondents had attended or completed college, or attended graduate school. About 26 percent had completed high school or have technical, vocational, or trade school training. Most of the survey respondents worked in professional positions. About 38 percent of survey respondents reported that they worked in a professional or managerial capacity; 11 percent reported they worked in technical, sales, or administrative support positions, and only 4 percent were retired.
Canoeists who responded to the survey generally had lower household incomes when compared to anglers. Roughly 7 percent had household incomes of greater than $100,000 compared to 23 percent for anglers. About 10 percent had incomes of between $80,000 and $100,000, 18 percent had incomes between $60,000 and $80,000, and 26 percent had incomes between $40,000 and $60,000. Roughly 26 percent of canoeists had incomes between $20,000 and $40,000 compared to 17 percent of anglers. Finally, about 12 percent of canoeists reported incomes of less than $20,000 (See Figure 17).

Canoeist behavior. Since some of the money spent by canoeists support local canoe liveries (businesses that rent canoes), we were interested in travel behavior that spoke to canoe equipment. Our survey results suggest that about 80 percent of the 1999 canoeists rented their canoes from one of the local liveries. This is a change from 1993 when a higher percentage of canoeist rented their canoes for their trip. In 1993 about 90 percent of the canoeists rented their canoes from local liveries. (See Figure 18)
Figure 18. Origin of canoes used by canoeists encountered in this study.

Figure 19. Entry points of canoeists encountered in this study.
Figure 20. Take-out points of canoeists encountered in this study.

Figure 21. Length of breaks from boating as reported by canoeists encountered in this study.
Also of interest were canoe trip characteristics. In particular, we were interested in capturing entry and take-out points to assess relative trip lengths. Our results suggest that canoeists in the Kickapoo, in general, took short trips. An outline of entry and take-out points is found in Figures 19 and 20. About 45 percent of the canoeists we encountered took a trip from the community of Ontario to Wildcat Mountain State Park (a short 3 mile trip). Roughly 11 percent used Bridge 5 as a take-out point while about 12 percent took out at bridge 8, 13 percent at bridge 10, and only 6 percent in the community of LaFarge. Both the State Park and Bridge 5 boat landings are relatively short trips (under 3 hours). Most all canoeists (84 percent) put in at Ontario and help support the many livers that are located there.

Planning for recreational site developments necessarily rests on an understanding of recreational behaviors. For this reason, we were interested in canoeing breaks and the types of activities that canoeists did while stopped (see Figure 21). Our survey results suggest that about 85 percent of all canoeists stopped for a break on their trip. The breaks varied from short 5 to 10 minute breaks to much longer stops. Roughly 43 percent of the canoeists we encountered stopped for 5-10 minutes while about half (50 percent) stopped for 10 to 30 minutes. Another 20 percent stopped for 30 to 60 minutes and only 7 percent spent more than an hour on their break.

Break activities help explain people's break length. These various activities are summarized in Figure 22. Accounting for multiple activities, we found that about half of the canoeists encountered stopped for a bathroom break and/or a rest (52 and 49 percent respectively). About 13 percent stopped for a drink of water, 51 percent picnicked, and about 46 percent took a swim. Smaller proportions stopped to hike or birdwatch.

![Figure 22. Activities of people while on boat breaks as reported by canoeists encountered in this study.](image-url)
Recreational Attitudes, Perceptions, and Preferences

In large part, characteristics of recreational use are the result of individual attitudes, perceptions, and preferences with respect to both the leisure pursuit itself and the surrounding recreational resource available at the time of leisure. Thus, we have interests in focusing attention on the differences among trout anglers and canoeists with respect to attitudes, perceptions and preferences. This provides the focus for the following discussion.

Importance of recreational use to lifestyle

Anglers. The responses to the surveys suggested that the people who came to fish in the region were serious anglers (see Figure 23). In response to a self-assessed skill level question, roughly 16 percent of the respondents consider themselves to be expert anglers, 42 percent were advanced, 33 percent were intermediates, and only about 8 percent consider themselves beginners. It is interesting to note that anglers surveyed during 1994 reported very similar levels of expertise. In terms of angling persona, we questioned regional trout fishers to rank the perceived level of importance of angling to their lifestyle (see Figure 24). In response, we found that over 70 percent considered trout angling extremely or very important to their lifestyle. About 26 percent said it was somewhat important, and only 2 percent said that it was not at all important to their personal lifestyle.

Not surprisingly, these people match their perception of importance with the amount of time they spend fishing. Overall, respondents reported an average of 34 days each year spent fishing. This is down a small amount from our previous survey in 1994 which found an average of 35 days per year.

Figure 23. Self-perceived skill level of anglers encountered in this study.

![Bar chart showing the percentage of anglers at different skill levels](chart.png)

Type of Angler

<table>
<thead>
<tr>
<th>Novice</th>
<th>Intermediate</th>
<th>Advanced</th>
<th>Expert</th>
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<tr>
<td>5%</td>
<td>25%</td>
<td>45%</td>
<td>15%</td>
</tr>
</tbody>
</table>

n = 614
Anglers who fished in the Kickapoo area fished streams more than three times as frequently than the national average for all trout anglers, who fished an average of about 10 days per year (USDI 1988, 1993, 1999). Roughly 50 percent of anglers encountered reported that they were members of a trout fishing organization. There was a rather dramatic difference, however, between locals and non-locals; almost 59 percent of the non-local anglers report that they were members of trout organizations compared to only about 27 percent of local anglers. The percentage of local anglers that were members of an organization has dropped a bit from 1994 when 32 percent indicated membership.

The Kickapoo region is one of several regions where trout angling occurs. Given our broader interests in characterizing trout anglers, we queried respondents for other regions where they fish for trout. Not surprisingly, most reported that they fish in a variety of other regions. More than 80 percent fished elsewhere in Wisconsin, 25 percent fished elsewhere in the Midwest, 55 percent fished in the Western U.S., and 11 percent of regional anglers fished outside of the United States. These results are outlined in Figure 25. It is interesting to note that these results have changed little since 1994.
Finally, the catch and release ethic appears strong within the trout angling community. This was confirmed by the survey respondents. Fully 60 percent reported that they practiced catch and release angling all of the time while 34 percent said they practice most of the time. There was a significant difference between local and non-local anglers on this point. While 70 percent of non-local anglers said that they practice catch and release all of the time, only 32 percent of local anglers responded in this manner. Furthermore, roughly 14 percent of the local anglers said they only practice catch and release fishing when it is required. The vast majority of the non-local anglers (98 percent) practice catch and release most or all of the time. A smaller proportion (76 percent) of the local anglers practice catch and release fishing most or all of the time. Responses to this series of questions from the 1999 survey are outlined in Figure 26. Interestingly, the proportion of non-local anglers practicing catch and release most or all of the time has increased slightly (from 95 percent) and the
Figure 26. Extent of the "catch and release" ethic of anglers encountered in this study by place of residence.

The proportion of local anglers has decreased a bit (from 82 percent) in 1994.

**Canoeists.** Compared to anglers, canoeists who enjoyed this region appeared to a bit more middle-of-the-road. The self-defined skill levels for canoeists were much more highly centered around the intermediate level (see Figure 27). Almost 50 percent of canoeists encountered during 1999 on the Kickapoo River considered themselves to be intermediate-level canoeists. About 30 percent considered themselves to be advanced or expert while about 20 percent considered themselves to be canoeing novices. Also unlike angling, less than 20 percent of canoeists considered canoeing extremely or very important to their lifestyles. About 58 percent considered canoeing somewhat important while almost 24 percent considered it not at all important. This perceived level of canoeing importance to lifestyle is outlined in Figure 28.
Figure 27. Self-perceived skill level of canoeists encountered in this study.

Figure 28. The role of canoeing in the lifestyle perception of canoeists encountered in this study.
The importance of crowding as a recreational attribute

Anglers. Anecdotal evidence points to a growing concern with recreational over-crowding on area streams. These concerns have been voiced by both local residents and recreationists (as evidenced by various letters to the editor of local papers). Given the solitary nature of fishing, it’s not unreasonable to think that crowding would be an important recreational issue for trout anglers. For this reason, we spend some time here outlining the results to a very specific set of questions that identify crowding as a recreational attribute. Even though visitation levels of trout anglers appears to have increased dramatically in this region, the affected streams do not appear to elicit overwhelmingly strong reactions to overcrowding (see Figure 29). Our specific queries about crowding generated results that suggest that only about 4 percent of the anglers encountered in this study reported feeling extremely crowded while about 22 percent felt moderately crowded on the streams. About 72 percent of the anglers reported feeling lightly crowded or not at all crowded. Somewhat surprisingly, given the increase in angler traffic on the streams, the perception of crowding has changed only slightly since 1994; as a matter of fact, the slight change has been in the direction of improvement over time! During 1994, 74 percent reported either slight or no crowding while 26 percent reported extreme or moderate crowding. Somewhat surprisingly, we did not find significant differences in angler response to crowding by day-of-the-week.

\*Indeed, this does appear to be the case. In the importance-performance analysis (see later discussion), respondents indicated that crowding was one of the most important elements of the fishing experience, and the one that they were least satisfied with.
Figure 30. Level of crowding by day-of-the-week as perceived by canoeists encountered in this study.

- **Canoeists.** Concerns about overcrowding on local streams have also been raised by canoeists. Because of these concerns the canoeing survey also examined the crowding issue. In the canoeing survey, participants were questioned about crowding in the exit interview immediately following the end of the canoeist experience on the river. Our results suggest that although crowding has been raised as a concern by a number of people, its placement as a critical issue is mixed (see Figure 30). The combined results of local and non-local canoeist indicate that when asked “how crowded they felt on the river today?” about 68 percent of the canoeists responded that the river was not at all crowded or only lightly crowded. The remaining 32 percent felt that the river was moderately or extremely crowded.

Reactions to crowding by canoeists did vary significantly by day of the week. Not surprisingly, weekend results for Saturdays and Sundays showed more concern for crowding than weekdays (Monday through Fridays). On weekends the combined results of local and non-local canoeist show that 63 percent felt that the river was not at all crowded or only slightly crowded. About 37 percent felt that the river was moderately or extremely crowded. Reactions to this question by canoeists are also included in Figure 30.

To be sure, the previous assessments of crowding point to a more complex set of recreation planning issues. These involve two distinct areas of concern. First, the recreation experience is made up of a broad array of attributes that require assessment. Second, it is not sufficient to only assess the importance of an attribute to recreationists. An equally important component that allows for management input is an assessment of the attribute’s performance within the current environment. Addressing these dual complexities of recreational assessment provides the basis for the next section.
Weighing the performance of regional recreation activity with importance

It is often the case that water resource and recreation managers lack information on how user groups perceive their management activities. Furthermore, baseline data on user perceptions of recreational attributes and characteristics is often lacking. Importance-performance analysis (IPA) is a marketing technique that attempts to provide managers with this type of information. 6 This section summarizes the IPA data and analysis for our study of trout anglers and canoeists on the Kickapoo River in Southwestern Wisconsin.

- Importance-performance analysis. Aggregate mean scores for each of fourteen attributes were plotted into one of four quadrants, with conclusions derived by noting where attributes scores were found on the two-dimensional IPA grid. This procedure was repeated for both trout anglers and canoeists. A two-dimensional IPA grid was created for both of these user groups.

Prior to presenting the disaggregated IPA results, it is important to make a statement about the overall ranges of IPA responses for each of these user groups. The final numerical scales of responses for both importance and performance began at 1 (very important/satisfied) and progressed to 10 (very unimportant/very unsatisfied) with 5 indicating a neutral/unsure response. As a guide to locating the overall range of IPA responses, Figure 31 provides a general locator map that is placed within the scale range of original responses.

Figure 31. Locator map for the overall IPA averages reported in Figures 32 and 33.

6 Ritchie (1987) indicates that IPA is an evaluative tool to complement policy decisions at the decision level. Evans and Chon (1989) used IPA to interpret two different tourism destinations to solve problems and resolve tourism issues. Specific to forest-based recreation, Hollenhorst and Olson (1992) and Hollenhorst, Olson and Fortney (1992) employed an importance performance analysis of the recreation features of an Eastern National Forest. They believe recreation planners can use these IPA results in formulation of a new information program as part of natural resource management.
As shown in the locator map, the means reported in Figures 32 and 33 generally fall within the "more" important and "more" satisfied range. These two dimensional IPA grids are created based on the grand mean for importance and performance responses. The grand importance mean was obtained by dividing the total number of importance responses into the sum of the importance responses. The grand satisfaction mean was obtained by dividing the total number of satisfaction responses into the sum of the satisfaction responses. These importance-performance grids are now summarized in Figures 32 and 33 for trout anglers and canoeists respectively.

Of primary interest to recreation and fisheries management are attributes that are deemed important while also exhibiting responses that are relatively lower in their level of satisfaction. These are attributes that will require, for improvement, a concerted effort by resource managers. Attributes that fell into this high importance, low performance (issues needing management attention) quadrant differed by user group. Trout anglers felt that crowding and etiquette of others needed improved management attention. For canoeists, convenient toilets, availability of drinking water, take-out points, litter, and crowding were of primary concern.
It is interesting to note that both user groups placed crowding as an attribute with which generally lower measures of satisfaction were experienced. Thus, management effort to alleviate crowding remains as a key regional need. However, responses to other crowding related queries indicates even though they are relatively less satisfied with crowding overall, it is not yet at a critical stage. As visitation levels increase, continued monitoring is advised with management interaction as a future inevitability. Possible solutions to crowding could include improved access to private lands, expanding public land/easement holdings, better information on available recreational alternatives, limiting recreational uses during peak periods, and segregation of alternative recreational uses.

Resource managers, recreation planners, and local residents should be complimented for several attributes that fell within the user group quadrants identified by high importance measures and high levels of satisfaction. Clean water and scenic beauty were attributes that are characterized as high importance, high satisfaction (successful accomplishments) for each user group, signaling that each group placed these attributes as relatively more important and that management and current land uses were providing these in a relatively more satisfactory manner.
One of the primary conclusions we can draw from the IPA results is the need for more study of the attributes falling into the Issues Needing Management Attention quadrant. The nature of this ongoing research is to determine the causal relationships behind attributes that require further attention by fisheries and recreational managers. Through this ongoing research, we are trying to develop results that will more clearly specify the determinants of these attributes. Doing so, we should be able to draw more accurate conclusions about these attributes by differentiating them by demographic characteristics and other control variables.

While IPA pioneers Martilla and James (1977) wanted IPA to be easily understood, they clearly note that specific actions based on the results are often elusive. While results are displayed on a two dimensional action grid, the connection to specific policy objectives for management of natural resources may be unclear. Other limitations include the site specificity of attribute lists, even in seemingly similar areas. Whereas the procedure of IPA may be generalized, the attributes and results are not. Attributes within each of the quadrants will require additional study before corrective action should be introduced. Ongoing research will more clearly identify determinants of dissatisfaction with criteria deemed important to water-based recreational opportunities.
Economic Valuation of Recreational Use

One of the primary objectives of this study was to determine the current economic impact of canoeists and anglers to the region and to assess change since the last survey effort. This was done in two phases. First information was gathered on visitor expenditures and then expanded to total populations through the use of control procedures. These expenditures were then applied to a regional economic model to assess how this expenditure affects local business activity and economic structure. Change in expenditure patterns was done by comparison of the 1999 survey results with those obtained during 1994 after adjusting spending levels for inflation. In addition, we assessed the relative value trout anglers placed on trout stamps and the various characteristics that explain anglers' value of the trout stamp program. This was done using a set of survey questions to elicit respondents relative values and latent tests on their understanding of the trout stamp program. In this section, we address each of these issues in-turn.

An estimate of regional economic impact represents the impact on regional business activity of new dollars flowing into the region by non-local angler and canoeist spending. The analysis of economic impact is limited to dollars spent by those represented by this study. Namely, expenditure patterns estimated in this study were applied to the total number of anglers and canoeists only on the streams assessed. It is important to realize that the streams looked at in this study represent only a portion of the total fishing and canoeing resource in Southwestern Wisconsin. Hence, total impact of Southwestern Wisconsin's recreational resource is not reported here. To do so would require estimates of angler and canoeing visits on all streams in the region.

Expenditure data

Expansion of survey data to total angler and canoeist visits for the 1999 angling season was done using an expansion factor based on recreationists encountered in the survey effort given the proportion of the season surveyed with respect to the total length of season. The basis used in this expansion were initial elements of each survey effort. Namely, the random time allotments used in postcard sampling of anglers and the face-to-face interviews with canoeists (refer to the section on Survey Design and Administration.)

» Estimating regional expenditure patterns. Estimating regional economic impact begins with the use of expenditure patterns. Survey respondents were requested to approximate the dollar amount spent in Southwestern Wisconsin on their most recent trip by category of spending. Our expectations of expenditures would anticipate that trip spending for recreation (regardless of type) would largely be a function of place of residence. The farther people come from to recreate, the more money they spend.
To assess this and to provide usable values for the input-output analysis, we used the regional delineation described in the section on Research Methods. Namely, a 50 mile radius around Westby, Wisconsin provided the necessary distinction between locals and non-locals (e.g. if you traveled from outside of a 50 mile radius of Westby, you were considered a non-local). Using this distinction, our survey results bear the local/non-local spending phenomenon out clearly. A summary of the expenditure patterns of non-local anglers and non-local canoeists is found in Table 1. This is reported first for individuals (first column) and then for the expanded regional expenditures (second column). This expanded regional value represents total spending for the 1999 season through the use of the expansion procedure outlined above.

Table 1. Individual per-trip angler and canoeist expenditures of non-local recreationists and expansion to total spending during the 1999 recreational season in the region surrounding the Timber Coulee/West Fork Kickapoo stream complex.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Lodging</td>
<td>$45.61</td>
<td>$288,800</td>
<td>$20.65</td>
<td>$289,000</td>
</tr>
<tr>
<td>Groceries</td>
<td>15.16</td>
<td>96,000</td>
<td>12.05</td>
<td>168,700</td>
</tr>
<tr>
<td>Fishing Supplies</td>
<td>15.40</td>
<td>97,500</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Automobile-related</td>
<td>22.38</td>
<td>141,700</td>
<td>8.92</td>
<td>124,800</td>
</tr>
<tr>
<td>Eating/Drinking</td>
<td>40.25</td>
<td>254,900</td>
<td>17.37</td>
<td>243,100</td>
</tr>
<tr>
<td>Guide services</td>
<td>9.55</td>
<td>60,500</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Canoe rentals</td>
<td></td>
<td></td>
<td>18.97</td>
<td>265,500</td>
</tr>
<tr>
<td>Canoe shuttling</td>
<td></td>
<td></td>
<td>0.63</td>
<td>8,800</td>
</tr>
<tr>
<td>Licenses</td>
<td>9.46</td>
<td>59,900</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Souvenirs/Gifts</td>
<td>4.62</td>
<td>29,300</td>
<td>3.55</td>
<td>49,700</td>
</tr>
<tr>
<td>Entertainment</td>
<td>2.77</td>
<td>17,500</td>
<td>1.72</td>
<td>24,100</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>2.40</td>
<td>15,200</td>
<td>4.08</td>
<td>57,100</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>$167.60</strong></td>
<td><strong>$1,061,300</strong></td>
<td><strong>$87.94</strong></td>
<td><strong>$1,230,800</strong></td>
</tr>
</tbody>
</table>
As expected, there were important differences between expenditures made by non-local recreationists when compared to local residents. A breakdown of expenditures made by local residents can be found in Table 2. Our results suggest that non-locals had significantly higher expenditures in most categories. Individual per-trip expenditures for non-local anglers were $168 compared to $49 for locals. Non-local and local canoeist expenditures also differed significantly — $88 for non-local canoeists and $41 for local residents. As can be seen from the expenditure patterns, primary categories where non-locals spent more than locals included lodging and eating/drinking.

Non-local expenditures, in this analysis, were expanded to total seasonal spending using non-local expenditure patterns with the portion of total visits attributable to non-locals. These estimates are also found in Tables 1 and 2 for non-locals and locals respectively. This method generated a total non-local seasonal expenditure of roughly $1,060,000 for anglers and $1,231,000 for canoeists. The largest categories of spending included lodging, eating/drinking, and auto-related expenses.

Table 2. Individual per-trip angler and canoeist expenditures of local recreationists and expansion to total spending during the 1999 recreational season in the region surrounding the Timber Coulee/West Fork Kickapoo stream complex.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Lodging</td>
<td>$0.50</td>
<td>$1,200</td>
<td>$0.34</td>
<td>$1,500</td>
</tr>
<tr>
<td>Groceries</td>
<td>3.12</td>
<td>7,300</td>
<td>5.52</td>
<td>24,900</td>
</tr>
<tr>
<td>Fishing Supplies</td>
<td>20.40</td>
<td>47,800</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Automobile-related</td>
<td>7.65</td>
<td>17,900</td>
<td>3.67</td>
<td>16,600</td>
</tr>
<tr>
<td>Eating/Drinking</td>
<td>7.16</td>
<td>16,800</td>
<td>6.68</td>
<td>30,200</td>
</tr>
<tr>
<td>Guide services</td>
<td>1.26</td>
<td>3,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Canoe rentals</td>
<td></td>
<td></td>
<td>23.40</td>
<td>105,700</td>
</tr>
<tr>
<td>Canoe shuttling</td>
<td></td>
<td></td>
<td>0.18</td>
<td>800</td>
</tr>
<tr>
<td>Licenses</td>
<td>7.53</td>
<td>17,600</td>
<td>0.18</td>
<td>800</td>
</tr>
<tr>
<td>Souvenirs/Gifts</td>
<td>0.75</td>
<td>1,800</td>
<td>0.18</td>
<td>800</td>
</tr>
<tr>
<td>Entertainment</td>
<td>0.00</td>
<td>0</td>
<td>1.10</td>
<td>5,000</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>0.14</td>
<td>300</td>
<td>0.00</td>
<td>0</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>$48.51</strong></td>
<td><strong>$113,700</strong></td>
<td><strong>$41.07</strong></td>
<td><strong>$185,500</strong></td>
</tr>
</tbody>
</table>
Rural economic development impacts

Estimates of spending by non-locals provided an ability to generate economic impact measures that represent an export-base. These new dollars flowing into the regional economy can be thought of as export-based drivers of local business activity. We applied non-local regional spending patterns as an exogenous shock to the static input-output model constructed based on county-level data for the region that grossly represented a 50-mile radius surrounding the stream complex. These six counties delinate the economic impact region assessed here (see section on Research Methods).

The input-output analysis captured direct impacts plus indirect and induced impacts. Some refer to indirect and induced impact as the “multiplier” impact. Local firms who are impacted through visitor spending purchase goods and services to provide their product. These are often referred to as intermediate purchased inputs. Examples of these may include the purchase of furniture by a local motel, food purchases of a local restaurant, or wholesale purchases of fishing equipment by a local merchant for resale. These purchases are important in transmitting dollars to other local firms and feed into what is termed the indirect economic impact. Expenditures also filter into the economy through increased consumption by both new and existing residents of the region as a result of increases in aggregate household incomes. These increases occur due to the jobs created, both directly and indirectly, by trout angling in the region. This is referred to as the induced economic impact.

A key element involved in economic impact of trout anglers and canoeists identified in this study is the relatively small size (extent and scope) of the regional economy. Many of the indirect linkages demanded by businesses in the region are imported from outside of the region. The model used in identifying economic impacts was constrained to allow for local demand of goods and services to be equal to local supply.

Applying non-local spending to the input-output model generated estimates of economic impact. These impacts are summarized in Table 3a for trout anglers and Table 3b for canoeists. As can be seen from Tables 3a and 3b, the direct impact was focused in the trade and services sectors. These were the sectors where non-local anglers spent money. Both indirect and induced impacts were more spread out through the economy. The indirect impact rippled through the economy as those sectors directly impacted purchased required goods and services. Induced impact followed general consumption patterns of local residents as aggregate income of the local population grew as a result of increased economic activity. Given 1999 expenditure levels, a total of 39 jobs were supported by non-local angler spending and 45 from non-local canoeist spending in the year of impact assessment.
### Table 3a. Annual economic impact of spending by non-local anglers as driven by visitor expenditures
(source: MicroMPLAN model — in 1997 dollars)

<table>
<thead>
<tr>
<th>Industrial Sector¹</th>
<th>Direct Effects Income² (dollars)</th>
<th>Jobs³</th>
<th>Indirect Effects Income² (dollars)</th>
<th>Jobs³</th>
<th>Induced Effects Income² (dollars)</th>
<th>Jobs³</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture/Forestry</td>
<td>$1,500</td>
<td>0</td>
<td>$2,100</td>
<td>0</td>
<td>$1,000</td>
<td>0</td>
</tr>
<tr>
<td>Mining</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Construction</td>
<td>0</td>
<td>0</td>
<td>20,600</td>
<td>1</td>
<td>2,900</td>
<td>0</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>0</td>
<td>0</td>
<td>11,100</td>
<td>0</td>
<td>4,100</td>
<td>0</td>
</tr>
<tr>
<td>Transportation/Utilities</td>
<td>0</td>
<td>0</td>
<td>26,000</td>
<td>0</td>
<td>11,700</td>
<td>0</td>
</tr>
<tr>
<td>Trade</td>
<td>381,600</td>
<td>20</td>
<td>17,700</td>
<td>1</td>
<td>47,000</td>
<td>2</td>
</tr>
<tr>
<td>F.I.R.E⁴</td>
<td>0</td>
<td>0</td>
<td>32,100</td>
<td>1</td>
<td>33,500</td>
<td>0</td>
</tr>
<tr>
<td>Services</td>
<td>171,800</td>
<td>10</td>
<td>34,100</td>
<td>2</td>
<td>45,400</td>
<td>2</td>
</tr>
<tr>
<td>Government</td>
<td>22,100</td>
<td>1</td>
<td>4,500</td>
<td>0</td>
<td>2,600</td>
<td>0</td>
</tr>
<tr>
<td><strong>TOTALS⁵</strong></td>
<td><strong>$ 577,000</strong></td>
<td>31</td>
<td><strong>$ 148,200</strong></td>
<td>4</td>
<td><strong>$ 148,700</strong></td>
<td>5</td>
</tr>
</tbody>
</table>

1. Aggregated to standard 1-digit SIC categories
2. Income represents total value added which includes employee compensation, proprietors income, other property type income and indirect business taxes
3. Total number of jobs, NOT full time equivalents
4. Finance, Insurance, and Real Estate
5. Columns may not sum to total due to rounding

### Table 3b. Annual economic impact of spending by non-local canoeists as driven by visitor expenditures
(source: MicroMPLAN model — in 1997 dollars)

<table>
<thead>
<tr>
<th>Industrial Sector¹</th>
<th>Direct Effects Income² (dollars)</th>
<th>Jobs³</th>
<th>Indirect Effects Income² (dollars)</th>
<th>Jobs³</th>
<th>Induced Effects Income² (dollars)</th>
<th>Jobs³</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture/Forestry</td>
<td>$ 6,600</td>
<td>1</td>
<td>$ 2,800</td>
<td>0</td>
<td>$ 1,100</td>
<td>0</td>
</tr>
<tr>
<td>Mining</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Construction</td>
<td>0</td>
<td>0</td>
<td>13,200</td>
<td>0</td>
<td>3,200</td>
<td>0</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>0</td>
<td>0</td>
<td>12,700</td>
<td>0</td>
<td>4,600</td>
<td>0</td>
</tr>
<tr>
<td>Transportation/Utilities</td>
<td>0</td>
<td>0</td>
<td>29,400</td>
<td>0</td>
<td>13,100</td>
<td>0</td>
</tr>
<tr>
<td>Trade</td>
<td>360,000</td>
<td>19</td>
<td>19,700</td>
<td>1</td>
<td>52,800</td>
<td>2</td>
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<tr>
<td>F.I.R.E⁴</td>
<td>0</td>
<td>0</td>
<td>37,000</td>
<td>1</td>
<td>37,600</td>
<td>0</td>
</tr>
<tr>
<td>Services</td>
<td>286,400</td>
<td>16</td>
<td>43,700</td>
<td>2</td>
<td>51,000</td>
<td>2</td>
</tr>
<tr>
<td>Government</td>
<td>4,300</td>
<td>0</td>
<td>4,500</td>
<td>0</td>
<td>2,900</td>
<td>0</td>
</tr>
<tr>
<td><strong>TOTALS⁵</strong></td>
<td><strong>$ 657,300</strong></td>
<td>36</td>
<td><strong>$ 163,100</strong></td>
<td>4</td>
<td><strong>$ 167,300</strong></td>
<td>5</td>
</tr>
</tbody>
</table>

1. Aggregated to standard 1-digit SIC categories
2. Income represents total value added which includes employee compensation, proprietors income, other property type income and indirect business taxes
3. Total number of jobs, NOT full time equivalents
4. Finance, Insurance, and Real Estate
5. Columns may not sum to total due to rounding
The economic impact resulting from new dollars flowing into the region can be further broken down into the types of income generated. This includes income accruing to using labor resources and capital/land assets within the region. This breakdown is the focus for Tables 4a and 4b for trout anglers and canoeists respectively.

**Table 4a.** Summary of annual economic effects: spending by non-local anglers (1997 dollars)

<table>
<thead>
<tr>
<th>Source of Effect</th>
<th>Total Gross Output (dollars)</th>
<th>Labor Income (dollars)</th>
<th>Property Income (dollars)</th>
<th>Indirect Business Taxes (dollars)</th>
<th>Total Value Added (dollars)</th>
<th>Employment (# jobs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct Effect</td>
<td>$ 1,021,800</td>
<td>$ 371,400</td>
<td>$ 117,300</td>
<td>$ 88,300</td>
<td>$ 577,000</td>
<td>31</td>
</tr>
<tr>
<td>Indirect Effect</td>
<td>266,500</td>
<td>93,000</td>
<td>43,400</td>
<td>11,800</td>
<td>148,200</td>
<td>4</td>
</tr>
<tr>
<td>Induced Effect</td>
<td>247,300</td>
<td>89,900</td>
<td>42,700</td>
<td>16,100</td>
<td>148,800</td>
<td>5</td>
</tr>
<tr>
<td>TOTAL Effect</td>
<td>$1,535,500</td>
<td>$554,300</td>
<td>$203,400</td>
<td>$116,200</td>
<td>$873,900</td>
<td>39</td>
</tr>
</tbody>
</table>

1. Labor income includes employee compensation and proprietors income.

**Table 4b.** Summary of annual economic effects: spending by non-local canoeists (1997 dollars)

<table>
<thead>
<tr>
<th>Source of Effect</th>
<th>Total Gross Output (dollars)</th>
<th>Labor Income (dollars)</th>
<th>Property Income (dollars)</th>
<th>Indirect Business Taxes (dollars)</th>
<th>Total Value Added (dollars)</th>
<th>Employment (# jobs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct Effect</td>
<td>$1,184,000</td>
<td>$421,700</td>
<td>$143,000</td>
<td>$92,600</td>
<td>$657,300</td>
<td>36</td>
</tr>
<tr>
<td>Indirect Effect</td>
<td>291,400</td>
<td>100,000</td>
<td>49,500</td>
<td>13,600</td>
<td>163,100</td>
<td>4</td>
</tr>
<tr>
<td>Induced Effect</td>
<td>278,000</td>
<td>101,100</td>
<td>48,000</td>
<td>18,100</td>
<td>167,300</td>
<td>5</td>
</tr>
<tr>
<td>TOTAL Effect</td>
<td>$1,753,500</td>
<td>$622,900</td>
<td>$240,500</td>
<td>$124,300</td>
<td>$987,700</td>
<td>45</td>
</tr>
</tbody>
</table>

1. Labor income includes employee compensation and proprietors income.
Total gross output change includes the total industry output of all sectors related to increased non-local angler expenditures. The income (and jobs) reported are embedded within total gross output figures. The total labor income reported (column 2) includes a combination of employee compensation and proprietors income (a mixture of returns to labor and capital assets). Total value added (column 5) is another measure of regional income and, in addition to column 2, includes property income (returns to land resources) and indirect business taxes. Employment is reported in total numbers of jobs by source of effect. As can be seen from Table 4a, over $1,500,000 of total gross output was attributed to non-local angler spending while Table 4b reports canoeist impacts on total gross output at about $1,750,000. About $550,000 in labor income and $200,000 in property income was generated from trout anglers while canoeists supported approximately $620,000 and $240,000 respectively.

**Caveats to the input-output analysis.** Limitations exist with this analysis and include assumptions regarding expenditure patterns, accuracy of projected non-local angler visits, ability of the current business structure to accommodate increased numbers of visitors, how soon impacts occur, and general assumptions of input-output analysis (Miller and Blair 1985). There is, however, ample reason to believe that positive economic impacts are witnessed in the local economy as a result of new dollars flowing into the region by non-local anglers.

**Table 5a.** Change in trout angler expenditure patterns between 1994 and 1999

<table>
<thead>
<tr>
<th>Spending Category</th>
<th>Individual Per-Trip Expenditures</th>
<th>Regional Expenditures</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Local</td>
<td>Non-local</td>
</tr>
<tr>
<td>Lodging</td>
<td>$ 3.01</td>
<td>$ 0.53</td>
</tr>
<tr>
<td>Groceries</td>
<td>6.72</td>
<td>3.19</td>
</tr>
<tr>
<td>Automobile-related</td>
<td>10.26</td>
<td>7.82</td>
</tr>
<tr>
<td>Eating/Drinking</td>
<td>5.86</td>
<td>7.41</td>
</tr>
<tr>
<td>Souvenirs/Gifts</td>
<td>1.67</td>
<td>0.77</td>
</tr>
<tr>
<td>Entertainment</td>
<td>0.45</td>
<td>0.00</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>0.39</td>
<td>0.14</td>
</tr>
<tr>
<td>Fishing Supplies</td>
<td>n.a.</td>
<td>20.85</td>
</tr>
<tr>
<td>Licenses</td>
<td>n.a.</td>
<td>7.85</td>
</tr>
<tr>
<td>Guide services</td>
<td>n.a.</td>
<td>1.32</td>
</tr>
<tr>
<td><strong>Total in like categories</strong></td>
<td>$ 28.35</td>
<td>$ 19.86</td>
</tr>
<tr>
<td><strong>- percent change</strong></td>
<td>[- 30.9%]</td>
<td>- 47.9%</td>
</tr>
<tr>
<td><strong>Total in all categories</strong></td>
<td>$ 28.35</td>
<td>$ 49.88</td>
</tr>
<tr>
<td><strong>- percent change</strong></td>
<td>76.9%</td>
<td>85.9%</td>
</tr>
</tbody>
</table>

n.a. Category was not included in 1994 survey. Although one might imply that spending for these items was included in miscellaneous category, this remains as an area of incomparability between surveys. Alternative figures for percentage change between like categories and all categories could represent lower and upper bounds respectively.
Comparing expenditure patterns with previous studies

Comparisons were made between expenditure pattern data collected during 1994 and that collected during 1999. An adjustment was made for sectoral inflation. The base year for comparative purposes was 1997, which corresponds to the most recent year in which the input-output model could be constructed. The expenditure patterns for both survey periods are outlined in Tables 5a (trout anglers) and 5b (canoeists). Both individual and regional patterns are presented and totals account for slight discrepancies in the survey instruments used. The range between total spending in like categories and total spending in all categories basically represents a means by which lower and upper bounds can be estimated.

We can point to two descriptive reasons that explain change between the two survey periods. First, trip length remained relatively constant for both locals and non-locals between survey periods. Secondly, dramatic increases in numbers of non-local anglers was found in the replicated sampling

**Table 5b.** Change in canoeist expenditure patterns between 1993 and 1999
(reporting in 1997 dollars using sector specific inflation index)

<table>
<thead>
<tr>
<th>Spending Category</th>
<th>Individual Per-Trip Expenditures</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Lodging</td>
<td>$0.18</td>
<td>$0.36</td>
<td>$5.62</td>
<td>$21.97</td>
<td>$49,100</td>
<td>$307,500</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Groceries</td>
<td>6.33</td>
<td>5.64</td>
<td>8.82</td>
<td>12.32</td>
<td>77,200</td>
<td>172,400</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Automobile-related</td>
<td>3.22</td>
<td>3.75</td>
<td>7.30</td>
<td>9.12</td>
<td>63,900</td>
<td>127,500</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eating/Drinking</td>
<td>5.36</td>
<td>6.91</td>
<td>10.91</td>
<td>17.98</td>
<td>95,500</td>
<td>251,600</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Souvenirs/Gifts</td>
<td>4.37</td>
<td>0.18</td>
<td>4.03</td>
<td>3.63</td>
<td>35,200</td>
<td>50,800</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Entertainment</td>
<td>0.36</td>
<td>1.13</td>
<td>1.10</td>
<td>1.77</td>
<td>9,600</td>
<td>24,800</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>0.44</td>
<td>0.00</td>
<td>1.37</td>
<td>4.17</td>
<td>12,000</td>
<td>58,400</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Canoe rental</td>
<td>n.a</td>
<td>24.55</td>
<td>n.a</td>
<td>19.90</td>
<td>n.a.</td>
<td>278,500</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Canoe shuttle</td>
<td>n.a</td>
<td>0.19</td>
<td>n.a</td>
<td>0.66</td>
<td>n.a.</td>
<td>9,200</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total in like categories</td>
<td>$20.26</td>
<td>$17.98</td>
<td>$39.15</td>
<td>$70.95</td>
<td>$342,400</td>
<td>$993,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- percent change</td>
<td>- 11%</td>
<td>81%</td>
<td>190%</td>
<td>190%</td>
<td>190%</td>
<td>190%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total in all categories</td>
<td>$20.26</td>
<td>$42.72</td>
<td>$39.15</td>
<td>$91.51</td>
<td>$342,400</td>
<td>$1,280,800</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- percent change</td>
<td>111%</td>
<td>134%</td>
<td>274%</td>
<td>274%</td>
<td>274%</td>
<td>274%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

n.a. Category was not included in 1993 survey. Although one might imply that spending for these items was included in miscellaneous category, this remains as an area of incomparability between surveys. Alternative figures for percentage change between like categories and all categories could represent lower and upper bounds respectively.
procedures during 1999. Roughly three times as many non-local anglers were encountered during 1999 when compared to 1994. On the other hand, local angler numbers remained relatively constant. The presence of non-locals in the region not only affects spending and economic impact, but affects other perceptual and attitudinal aspects of local - non-local interaction (reported in other publications).

Comparing expenditure patterns suggest that non-local anglers spent between 50 and 80 percent more per-trip during 1999 than they did during 1994. This could be attributed to both increases in disposable income and the availability of local goods and services. When expanded to regional levels, this translates into a very significant increase in total spending, particularly by non-locals. Our results suggest that regionally, non-local anglers have increased spending from 360 to 480 percent during the 1999 angling season as compared to the 1994 season. With regard to canoeists, our results suggest that increased visits have occurred but not to the extent witnessed by our results on trout anglers.

We can speculate that the increased numbers of visitors to the region is probably due to the increased awareness of Kickapoo River Valley as a quality trout region and canoeing destination among informed recreationists. This increase in visits has driven increases in overall spending. It is interesting to also note that individual spending has increased a bit between survey periods; probably due to increases in disposable incomes and a broadening of local retail and service business offerings.

The demand for trout stamps

Another objective of this study was to determine the perceptions of trout anglers with respect to how they value trout stamps and the benefits derived through use of these revenues. Developing estimates of user value to address this objective were challenging given the simple fact that people are currently required to pay for the experience at a price that is set in an ad-hoc fashion. This price, set by a governmental agency, hasn’t been discovered under the supply and demand conditions of operating markets. A user’s value, under market conditions, can be inferred from how much they use (or demand) a good or service given a specific price. Use patterns may not necessarily reflect trout angling’s true value. The method we used to address the development of value estimates was to elicit responses from participants that focused on their willingness to pay for this fundamentally non-market public good.

Participants were requested to provide information on their willingness to pay for a trout stamp under the current situation. These perceived values for peoples’ willingness provide indications for general trip motivations and the demand for trout angling in its current state. These valuation measures were estimated using a set of survey questions intended to elicit a respondent’s contingent valuation for the specific attributes of their recreational experience. It is important to note that this information is simply a useful tool to gauge the demand of a non-market good and is not intended to be used to make adjustments to the cost of a trout stamp.

The specific method used to elicit willingness to pay measures is commonly referred to as the dichotomous choice contingent valuation technique. A good reference for this and other non-market goods valuation techniques can be found in Peterson, G.L., B.L. Driver, and R. Gregory (eds.). 1988. Amenity Resource Valuation: Integrating Economics with Other Disciplines. State College, PA: Venture Publishing
To obtain estimates of trout stamp demand, anglers were first asked questions regarding their understanding of how trout stamp money was used. Later in the survey, they were then asked about their willingness to pay for a trout stamp. The intent of this section of the survey was to develop an empirical estimate of expenditure demand for the current situation. Total value of an attribute can be inferred through an assessment of the area under this expenditure demand curve. In the survey, a contingent situation was identified whereby respondents were able to answer “yes” or “no” regarding their willingness to pay a specific price for the trout stamp. A sufficient number of surveys, grouped by unique prices, thus allows estimation of the price/quantity relationship of expenditure demand. Further analysis on this data is forthcoming; for the purposes of this assessment, we analyzed the results descriptively and report gross levels of response to the contingent valuation question.

With respect to valuing the current situation in monetary terms, trout anglers were broken into 7 randomly identified groups with different prices placed on surveys among groups. The seven groups included inserted prices of 8 to 60 dollars. Due to the randomness of inserting price, each group was assumed representative of the total sample. Developing the contingent situation focused on providing

Figure 34. Aggregate demand for the current situation (affirmative responses to willingness to pay for attribute at seven separate prices using seven separate sub-samples)
a realistic and quantifiable good within survey instrument space constraints. Specifically, the contingent valuation question elicited from respondents whether they were, based on their current trip, willing-to-pay a specified price for the trout stamp.

Whereas further analysis can more closely identify valuation characteristics, the following provides a summary of the gross descriptive results of survey responses to these questions. In this description, it is perhaps most appropriate to look at how expenditure demand varied among local and non-local anglers. This provides a relative perspective with regard to valuing the current situation and their respective characteristics of price sensitivity.

Given an ability to make decisions about an item's value, there are some basic expectations that, under most situations, should hold. One important expectation is that, if allowed to choose, people will tend to demand more of a good or service given lower prices. Also, as the price of a typical good or service increases, it is fair to expect that people's demand for this good or service would decline. The data we collected on the value trout stamps provides a good example of these relationships.

Breaking the survey results into groups by price category and reporting only those responses that were affirmative (yes) provides a good way to report overall findings of this willingness to pay question. This manner of reporting can be found in Figure 34.

Results of the survey question on willingness to pay for the current situation allowed an aggregate (both locals and non-locals) expenditure demand to be estimated. This is reported, in the aggregate case, for a total of 810 usable responses. Each price group, in this case, was comprised of roughly 20 locals and 65 non-locals (range for locals: 17-26, range for non-locals: 52-73) samples. Note from Figure 34 that our expectations of price-quantity relationships generally hold true. At lower prices, we see that virtually all respondents indicated that they would be willing to pay 8 dollars to purchase the trout stamp under the current situation (the current price is $7.25). On the other hand, as the price increased, fewer and fewer people indicated they would be willing to pay the specified price for a trout stamp. This was particularly true for local anglers. Non-local anglers were much less price sensitive to trout stamps as the price increased.

Obviously, there are limitations to using this method to elicit people's dollar value for a good or service when that good or service is not currently traded in the marketplace. Certainly, there is bound to be some confusion over how people should respond to a question that asks them to identify willingness-to-pay when they are currently required to pay a price set by public policy makers, not discovered under the normal supply/demand based market structure. Furthermore, the question of whether or not people will actually behave as they indicate they would behave is valid. However, given the relative nature of comparisons and the generally realistic patterns of responses, this provides one way to develop estimates of the different values placed on trout stamps by different groups of people. Generalizations to the wider population are difficult.
Discussion, Policy Implications, and Further Research Needs

The research reported in the manuscript is part of a larger project that replicates two previous studies; the first on canoeing which was initially conducted in 1993 and the second on trout angling that was initially conducted during 1994. The focus of this manuscript remains at the level of descriptive recreational characteristics and regional economic impacts of these two activities on surrounding rural communities.

We have described some of the important differences that are suggested by our results; particularly those changes that have occurred in visitation and spending over time. We collected data on per-trip individual expenditure patterns of trout anglers canoeists and expanded this data to regional levels. This was done for both locals and non-locals in order to better understand the extent of new dollars flowing into the region. Given the notion that these new dollars provide the relevant economic stimulus, non-local expenditure patterns were applied to a regional input-output model to estimate direct, indirect, and induced effects; thus providing an export-based perspective of the effect trout angling and canoeing have on this rural economic region. Finally, we compared the patterns of trout angler and canoeist spending that we found in 1999 with that which we found in the 1993 and 1994 efforts to assess change through time.

Our results suggest that the effect on this rural economic region of both trout angling and canoeing has grown dramatically during the recent past. This region has experienced a growing number of non-local angler and canoeist visits; which, in turn, results in an increased level of total spending in local businesses. In this final section of the report, we summarize our findings along thematic lines that include (1) tourism development, (2) fisheries management, (3) canoeing & river management, and (4) local community impacts. We conclude with a discussion of the relevant policy implications and future research needs raised by our work.

Thematic summaries

Tourism development. Since the first economic impact studies conducted in 1993 and 1994, there have been significant increases in the number of anglers and canoeists taking advantage of the natural resources found in the Kickapoo Valley region. The increase for total number of anglers was more than 100 percent with a 1999 seasonal estimate of 8,800 anglers. The increase in canoeists was more modest with a 33 percent increase from the 1993 season. We estimated that a total of 16,000 canoeists used the river during the 1999 season. As one would expect the increase in numbers has led to a significant increase in expenditures in both areas.
Total expenditures of canoeists and anglers increased from the previous studies due to increased visitation levels (especially non-locals) and changes in expenditure patterns. For example, adjusted for inflation one would expect that a doubling in the total number of anglers would increase expenditures by a similar amount. Our results suggest that the expenditures of non-local anglers increased by over 360 percent. These expenditures are for comparable expenditure categories consistent with the 1994 survey. This can be partially explained by the fact that the average non-local angler spent more time on their 1999 trip than in 1994. We also estimated that the number of non-local anglers increased at a greater rate than the total number of anglers. In 1994 the ratio of local to non-local anglers was approximately one-to-one. In 1999 the ratio was approximately three non-local anglers to one local angler. Thus the number of non-local anglers increased by almost 300 percent. Combined with per-party expenditure increases, the total non-local angler expenditures increased by 360 percent. Relatively small per-party spending increases can be partially explained by the fact that the average stay of the non-local angler increased by 0.3 days since 1994. Thus food and lodging expenditures increased as well. Total expenditures of comparable categories to the 1994 study by non-local participants were estimated at $1,060,000 for anglers. In addition, 1999 the anglers were asked about additional expenditures such as guide services, licenses, and fishing supplies. These additional expenditures for non-locals added $225,000 to total non-local expenditures. When added to the comparable expenditures of 1994 it brought the total expenditures for 1999 to $1,103,100 which represents a 480 percent increase over the estimates from the 1994 study.

Canoeing expenditures had a different set of changes. Total expenditures of non-locals canoeists for comparable categories was estimated to be $933,000 for the 1999 season. It totaled $1,280,800 for the 1999 season when adding some non-comparable categories such as canoe rental and canoe shuttle services. When adjusted for inflation, this represented a significant increase (274 percent) from the 1993 season. This can be explained by two important facts. First, non-local canoeists increased by about 60 percent (up from 8,750 non locals in 1993 to 14,000 in 1999) compared to a 33 percent increase on total canoeists. Secondly, non-local spending on lodging from 1993 to 1999 increased dramatically. Expenditures for lodging rose by over 600 percent when adjusted for inflation. Unlike the anglers, the canoeists were not spending more time on their trip but where spending more time in motels. The implication to the lodging industry in the area is significant; more people are spending more time in motels in the area. There is also more money being spent in local restaurants. Obviously the increased spending by non-locals in the area is important to the local communities that directly benefit from the angler and canoeist spending. Some of the destination communities directly affected are quite small. For example, Ontario has a population of about 450 people, Westby has approximately 1900 people, and Coon Valley’s population is about 850. The expenditures, however, are a small amount compared to the local regional economy.
Because of increases in non-local visitation levels, there has been an overall increase in retail and service businesses specifically linked to the activities of angling and canoeing. For example, today, there are more fishing guides active in the area when compared to 1994. The number of canoe liveries operating on the Kickapoo River has also increased. Also, during the past few years, existing liveries have increased the number of canoes that they have available to rent.

Most of the reported expenditures were for food, lodging, and automobile services. The increase is particularly notable for lodging and eating/drinking establishments. Since the area has traditionally had a low number of motel rooms and a small number of restaurants, two questions must be asked. Has the increase in expenditures in this area helped the profitability of the existing firms. Second, has the amount of business increased enough to warrant an increase in the number of motel rooms or restaurant tables in the region? The answers to these questions are beyond the scope of this report but are significant to area businesses that have been looking to tourism as one way to build economic activity.

The results of the important-performance analysis indicated that lodging and restaurants rank relatively low in importance for most visitors, and that people are relatively satisfied with these services. The results for these services fell closely to the grand mean for satisfaction. In short, recreationists find food and lodging services adequate for their expectations. An important question for the future of regional tourism and its infrastructure is this: If visitation continues to rise at the current rate, will lodging or eating facilities become more of a limiting factor? The Kickapoo River Valley and the area immediately surrounding don’t have a large number of lodging rooms. A 1993 study on lodging done by the UWEX Tourism Resource and Research Center indicated only 77 motel rooms in the valley. At that time the feasibility of adding motel rooms to the area was marginal. Since then, over 100 new motel rooms have been added to the area with expansions of existing establishments and with new construction.

What are the implications of trip and demographic differences between anglers and canoeists? The average angler comes for longer periods of time, stays in smaller groups, and tends to spend more than the average canoeist. Anglers also tend to be well-educated, professional, older men. Canoeists tend to come in larger mixed groups of family and friends and stay for shorter periods of time. While on average canoeists spend less than anglers individually, in the aggregate they have a greater direct economic impact than do anglers.

The Kickapoo River Valley is a beautiful part of the state of Wisconsin that traditionally has not been viewed as a tourist destination. As the water quality of the area has improved and as related recreational activities – canoeing and angling – have increased, the southwestern part of the state and particularly the Kickapoo River Valley draws more recreationists and their dollars. The area is still not

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8Copies of the report can be obtained from the UWEX Center for Community Economic Development at (608) 263-4989.
a major destination by any stretch of the imagination. It lacks tourism infrastructure and recognition as a tourism destination. It does, however, have the potential for tourism growth that would make tourism a significant part of the local economy. Tourism currently comprises a small portion of the Kickapoo River Valley’s total economy. It is, however, significant to the economies of the small that have become destinations for the anglers and canoeists using the water resources of the area.

- **Fisheries management.** Our survey results suggest that people are generally very satisfied with fisheries management in southwest Wisconsin. People report being satisfied with public access, the presence of wild trout, and the state of stream habitat improvement work. The Wisconsin Department of Natural Resources deserves kudos for their management of the area’s stream resources.

Anglers place relatively less importance on catching lots of fish or native brook trout, and the least amount of importance on catching big fish. It appears that anglers have realistic expectations of the quality of fishing experience they will likely encounter in southwestern Wisconsin streams. These results reinforce the WDNR’s management emphasis on wild and native trout rather than on stocking and managing strictly for large trophy fish.

In the importance-performance analysis of the factors ranked most highly in importance, anglers expressed the least satisfaction with crowding and angler etiquette. The WDNR and partner agencies and organizations should consider a public education and information campaign that illustrates common fishing etiquette.

As discussed earlier, even though crowding ranked relatively low on the satisfaction scale, other crowding-related survey questions indicated that while there is some perceived crowding it is not critical, at this point. However, if this trend of increasing visitation levels continues, crowding is likely to become a more serious issue. The WDNR continues to expand areas for public fishing through direct acquisition and public access easement on private land. County Land Conservation Departments and some sports clubs also acquire public access easements that expand recreational access. This is a slow process of change. It is often the case that it takes several years for a newly accessible stream segment to receive the stream habitat restoration attention that it needs to improve fish habitat. Another expedient and less expensive approach might be to increase public knowledge of fishing areas accessible outside of the Timber-Coulee and West Fork Kickapoo systems. Local anglers may oppose this, however, since they currently enjoy relative isolation on lesser-known streams outside of these more popular areas.

- **Canoeing & river management.** Crowding for canoeists, as with anglers, ranks below the median for relative satisfaction. Crowding’s level of satisfaction is not as low as the level of satisfaction for access to toilet facilities, availability of drinking water or the ease of take out points. It is not an issue serious enough to affect the return of canoeists. It is an issue, however, that has sparked debate. Some
individuals find the current level of crowding unacceptable. Letters of complaint and at least one newspaper article have raised concern about the potential of crowding having a negative impact on the growth of canoeing related tourism. One major issue that the local communities and involved agencies need to consider is how to manage crowding in the future. It is apparent from the survey results that canoeing is not considered crowded at all on weekdays. Not a single canoeist that we encountered found the river to be anything more than slightly crowded. One major remedy might be to promote canoeing on weekdays to take some pressure off the river on weekends. It is also possible to promote trips that travel south of Wildcat Mountain State Park. Over 80 percent of all the canoe traffic exists on the river segment from Ontario to Wildcat Mountain State Park. Other possible future remedies might include expanding the canoeable reaches of the river. There are some sizable logjams in reaches of the Kickapoo south of LaFarge that would need to have lanes cut through the snags to open canoeability. There is some effort now with a new canoe livery out of Readstown to expand the canoeing in that area but logs and the quality of the boat accesses are still limiting factors.

As a broad strategy, improving the number and quality of boat access points, parking facilities, entrance and exit ease and safety, availability of water and toilet facilities, and logjam clearance are real keys to the ability to expand canoeing while minimizing potential crowding problems. The new boat landings that will be constructed with the repair of State Highway 131 coupled with the Village of LaFarge’s efforts to create a new boat landing at the Highway 82 bridge over the river at LaFarge are notable examples. The two focus group interviews we conducted confirmed interest and desire to see these things accomplished but there is still local uncertainty as to how to proceed to accomplish these goals. The USDI Park Service has given some assistance to the communities in the past few years and there is hope that the lower reaches of the river will be more accessible to canoeists in the future.

Canoeists report low general satisfaction with the availability of drinking water and toilets. The State Park, the Kickapoo Valley Reserve, and the interested liveries should discuss and take steps to address these issues. With boat landing development being discussed by the state, there is an important opportunity to incorporate some of these amenities into the landings in the next few years.

Canoeists also rank a litter-free area as the factor with highest importance, but that falls below the mean in satisfaction. As with landings, the State Park, the Kickapoo Valley Reserve, and interested liveries should discuss and take steps to address this issue. They should consider public education strategies and services to discourage littering. The livery businesses have been cooperating to trying to solve the problem and tried some new approaches for the 2000 season but we do not have any report on the success of their efforts.

› Local community impacts. Both anglers and canoes ranked scenic beauty and clean water as two of the most important factors in their recreational experience. Currently the Kickapoo River Valley and
Southwestern Wisconsin enjoy relatively healthy land use patterns that have helped the water quality of the area improve. These land use patterns also contribute to the rural and scenic appearance of the landscape. Continued good water quality provides favorable conditions for trout and makes canoeing more pleasant. However, 42 percent of the anglers have indicated a desire to acquire recreational land in the Kickapoo Valley area. This is not the case with canoeists. Recent real estate studies suggest the area is experiencing pressure for residential development. In general, there are increasing numbers of people buying recreational land in the area. As their numbers grow and land use patterns change there could be an impact on the scenic beauty and perhaps water quality. The area traditionally has had minimal land use planning or regulations. Local decision-makers may wish to consider ways to begin planning for changes in land ownership in the area and the impacts of residential development on the region.

**Policy implications**

This research causes several key policy questions to rise to the surface. How far can this expansion of trout angling and canoeing proceed before environmental, social, and economic carrying capacity constraints become evident? Results of our work suggest that crowding in stream environments is becoming an issue. What controls are appropriate to limit crowding? At what levels should controls be placed? From a community development perspective, how can local businesses and tourism interests respond to increased awareness of trout angling and canoeing in the Kickapoo River Valley? What policies can be instituted to maintain some sustainable level of economic impact? What conflicts arise in sustainable development approaches that integrate economic impacts with social and environmental concerns? These remain as important planning process activities in extension of results into the development practice arena. Future recreation management initiatives need to better address user conflicts; both inter-use and intra-use conflicts.

Implications of increased tourism to an area are substantial. It is important that individuals and organizations that are promoting tourism growth understand these changes and have an appreciation for local residents who do not wish to see development of the region for outsiders. It is hoped that this report highlights what is going on in these two recreational activities in the area and that they help to foster a local debate about the effort that the entire community should put into shaping the rate and direction of the changes.

As we move toward more integrative approaches to rural development that view tourism as one of many economic activities appropriate to amenity-rich regions, progressive policies that are holistic and systemic need to be crafted. These policies could realistically incorporate the linkages required to equalize benefits and costs of producing the stock resources upon which tourism is based. Indeed, there are costs associated with natural resource management for public goods that are rarely
recovered by those who produce these goods. This is particularly acute for public goods that are produced on private lands and demanded by tourism interests. If the tourism sector requires a particular type, or quality of environmental resource, how should the public respond? Do we have an opportunity or ability to shift resource conservation costs to consumers thereby internalizing relevant production costs? Doing so could have the benefit of generating more equitable and efficient outcomes. Further research needs abound. Continuing socioeconomic research needs include distributional (equity) implications, changing land use patterns, non-market goods valuation, and community development planning.

In rural amenity-rich regions, increased leisure-based visits place an increasing demand on environmental resources as a recreational “product.” In the case of canoeing and trout fishing in Southwestern Wisconsin, a critical factor involved in this product includes the environmental resource base and its aesthetic and recreational value. The status of this environmental resource base is controlled by public and private landowners, rarely themselves involved directly in the retail and service businesses that comprise the tourism sector. Integrating the needs and desires of nature-based tourism businesses with this environmental resource base, its management, and the owners of land comprise a critical set of stakeholder interactions that require creative public policies intent on maximizing benefits while ameliorating potential conflicts. The structure of tourism production and the importance of environmental resources to the tourism phenomena are key ingredients of public policy for land use, environmental conservation, community economic development, and tourism.
References


Marcouiller, Dave and Scott Coggins. 1999a. The economic value of water: An introduction. Publication G3698 - 1, University of Wisconsin - System Board of Regents, Madison, WI.

Marcouiller, Dave and Scott Coggins. 1999b. How does market value water resources? Publication G3698 - 2, University of Wisconsin - System Board of Regents, Madison, WI.

Marcouiller, Dave and Scott Coggins. 1999c. Water: Issues of property rights. Publication G3698 - 3, University of Wisconsin - System Board of Regents, Madison, WI.


Topel, B. 2000. Expenditures of inland waters trout stamp revenues. Administrative Report #46, Wisconsin Department of Natural Resources, Bureau of Fisheries Management and Habitat Protection, Madison, WI.


August, 1999

Dear Trout Angler,

The University of Wisconsin – Extension is conducting research on trout fishing in Southwestern Wisconsin. The purpose of this study is to learn about your fishing experience and how it can be improved.

To participate in this study, please put your name and address on the enclosed postage-paid, self-addressed card and drop it in the mail. Within one week, you will receive a questionnaire to complete and a self-addressed, postage-paid return envelope.

You can be assured of complete confidentiality in responding to this request. Your name and address will only be used to mail you a survey. As an incentive for returning the postcard, respondents will automatically be registered in a drawing for an Orvis 40th anniversary fly-fishing rod and 5wt Battenkill reel and line. We intend to contact about 500 people so your odds are quite good.

We would be most happy to answer any questions you have regarding this study. Thanks for your time.

Sincerely,

[Signature]

Alan Anderson
Project Director
Yes, please send me a survey.

Name ________________________________

Address ______________________________

City __________ State ________ Zip ______

Phone (___) _______ - _______

Thank you. You are now registered for a chance to win an Orvis Trout Unlimited 40th Anniversary Fly Rod.
June, 1999

Dear Kickapoo River Canoer,

Approximately three weeks ago we interviewed you briefly while canoeing Wisconsin’s Kickapoo River. In an effort to learn more about your visit to the Kickapoo River Valley, the University of Wisconsin-Extension’s Center for Community Economic Development is conducting a study of recreational use of the Kickapoo River. The results of the study will be used to insure that visitors to the Kickapoo River Valley will have a high quality recreational experience in the future.

Now that you have had time to reflect on your experience, we would like to ask you a few additional questions about your visit to the Kickapoo River Valley. Because you are one of a carefully selected sample of canoers on the Kickapoo River, your answers to our questions represent not only yourself but many others like you. For this reason, your answers are extremely important to insure the quality of the final results.

The Center for Community Economic Development assures you of complete confidentiality. The questionnaire has an identification number for mailing purpose only. This is so we may check your name off the mailing list when your questionnaire is returned. Your name will never be placed on the questionnaire. As an incentive for you taking time to respond to our questions, individuals who return their completed questionnaire will be eligible to win a two-day canoe rental on the Kickapoo River.

The results of this study will be made available to government officials, community leaders, and business owners in the Kickapoo River Valley.

I would be most happy to answer any questions that you might have about this study. Please write or call. The telephone number is (608) 263-4989.

Thank you for your assistance.

Sincerely,

[Signature]

Alan Anderson
Project Director
1999 Kickapoo River Study

1. Including yourself, how many people are in your party? _____ People

2. Did you rent a boat today? □ Yes □ No
   If yes, did you rent a canoe or a tube? □ Canoe □ Tube

3. Where did you first put into the River? ________________________________

4. Where did you take out? ________________________________

5. Aside from your own group, about how many canoes did you see on the river today? (Please check one box.)
   □ None □ 1 to 4 □ 5 to 10 □ 11 to 19 □ 20 to 30 □ 31 or more

6. How crowded did you feel on the river today? (Circle one number only.)

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not at all crowded</td>
<td>Slightly crowded</td>
<td>Moderately crowded</td>
<td>Extremely crowded</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

7. We would like to send you a more detailed survey for you to fill out at your leisure about canoeing and your experience in the Kickapoo. Please write your name and address below.

Name: ________________________________

Address: ________________________________

_________________________  ___________________________  ___________________________
City                   State                   Zip Code

Thank you for your help. Hope you had fun canoeing!

Office Use Only

Date: ________________________________

Location: ________________________________

Time: ________________________________

Appendix B
1999 Kickapoo River Canoeing Study

Section I: The following questions have to do with your most recent canoeing trip to the Kickapoo River

1. Including you, how many people in your travel party were in the following age categories?

<table>
<thead>
<tr>
<th>Age Category</th>
<th>Males</th>
<th>Females</th>
</tr>
</thead>
<tbody>
<tr>
<td>less than 10 years</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 to 17 years</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18 to 29 years</td>
<td></td>
<td></td>
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<tr>
<td>30 to 39 years</td>
<td></td>
<td></td>
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<tr>
<td>40 to 49 years</td>
<td></td>
<td></td>
</tr>
<tr>
<td>50 to 65 years</td>
<td></td>
<td></td>
</tr>
<tr>
<td>66 or older</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. Which of the following best describes with whom you were canoeing?

- [ ] by myself
- [ ] business associates
- [ ] family
- [ ] organized group
- [ ] friends
- [ ] friends and family

3. During your canoe trip did you stop anywhere along the river for a break? _______yes _______no

   If yes, about how long did you spend on shore and what did you do? (check all that apply)

   - [ ] 5-10 min
   - [ ] 10-30 min
   - [ ] 30-60 min
   - [ ] 1 hour or more
   - [ ] bathroom break
   - [ ] took a rest
   - [ ] got drinking water
   - [ ] picnicked
   - [ ] went for a hike
   - [ ] bird watching
   - [ ] swam
   - [ ] other: __________________________

4. How many days did you spend in this region on your trip? _______ days

   (If you consider yourself to be a local, i.e. live within ~25 miles of the Kickapoo, please skip to question 7.)

5. How many nights did you spend away from home? _______ nights

   5a. If an overnight trip, how many of these nights did you spend in the Kickapoo River area, i.e. within 50 miles of where you canoed? _______

   5b. If you spent the night in Kickapoo River area, what type of overnight accommodations did you use?

   - [ ] friends or relatives
   - [ ] hotel or motel
   - [ ] bed and breakfast
   - [ ] camping
   - [ ] rented a cabin
   - [ ] own a recreational home in region
   - [ ] other, please describe: __________________________

5c. If you camped where did you stay?

   - [ ] Wildcat Mountain State Park
   - [ ] Kickapoo Valley Reserve
   - [ ] privately-owned campground
   - [ ] county or village park
   - [ ] other: _______

   Did you have a problem finding a place to camp? _______yes _______no

   How satisfied were you with the camping accommodations? (Circle one)

   extremely dissatisfied somewhat satisfied very satisfied extremely satisfied

Appendix B
6. While canoeing in this region, where did you eat? (check all that apply)

- home
- local taverns
- local cafes
- fast food restaurants
- family restaurants
- picnic areas/campsites
- home of friend or relative

7. In order to gauge the economic impact of canoeing and related activities we would like to know about spending in local area businesses. Approximately, how much money did you personally spend in the Kickapoo area on your most recent trip in the following categories?

- $______ canoe rentals
- $______ shuttle service (for own canoe)
- $______ lodging
- $______ auto related expenses
- $______ restaurants/bars
- $______ groceries
- $______ souvenirs, gifts/apparel
- $______ amusements/entertainment
- $______ other, please specify: __________________________

8. Please check all the activities that YOU participated in while on this trip in the Kickapoo River Valley.

- shopping
- motorcycling
- attending a festival
- sightseeing
- horse/tractor pulls
- visiting a museum
- golfing
- driving for pleasure
- horseback riding
- dining out
- antique collecting
- bird watching
- viewing wildlife
- walking
- visiting friends/relatives
- hiking
- bicycling
- photography
- visiting a historical site
- swimming
- fishing
- other, please describe: ________________________________

Section II: The following questions have to do with your opinions and experiences canoeing the Kickapoo River and spending time in the Kickapoo Valley.

9. If the Kickapoo River downstream of LaFarge was cleared of debris making recreational canoeing possible, would you be interested in.....

A day trip on that stretch?   ___ yes   ___ no   ___ not sure
A multiday extended canoe trip on that stretch  ___ yes   ___ no   ___ not sure

10. Prior to this trip, have you taken a pleasure trip to the Kickapoo River Valley in the past three years?

___ yes   ___ no

11. Do you currently own real estate in the region for recreational purposes? ___ yes   ___ no

If not, have you considered purchasing recreational real estate in the region? ___ yes   ___ no

12. Please check the following recreational facilities or attractions that you would like to see available in the Kickapoo River Valley.

___ more public camping
___ horseback riding trails
___ local festivals
___ nature center
___ gravel or paved bike trails
___ mountain bike trails
___ tennis courts
___ improved boat landings
___ bike rentals
___ museums
___ guide services
___ other, please describe: ______________________________

Appendix B 62
13. We are interested in knowing what is important to you about your canoeing experience and how those things are being met. Please consider the following elements of your canoeing experience. Please mark along the line to indicate the LEVEL OF IMPORTANCE you place on each item. Then, assess your LEVEL OF SATISFACTION with each of these items as you currently experience them in Kickapoo. For instance, it might be really important to you to canoe in a litter-free place. If when you canoed you saw a lot of garbage your answer might look like the example on the first line.

<table>
<thead>
<tr>
<th>水平 of Importance</th>
<th>LEVEL OF SATISFACTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXAMPLE: litter free surroundings</td>
<td>X</td>
</tr>
<tr>
<td>stream crowding</td>
<td></td>
</tr>
<tr>
<td>scenic beauty of surroundings</td>
<td></td>
</tr>
<tr>
<td>clean river water</td>
<td></td>
</tr>
<tr>
<td>river water levels</td>
<td></td>
</tr>
<tr>
<td>having few obstacles (e.g. logs) in river</td>
<td></td>
</tr>
<tr>
<td>not being around noisy canoers</td>
<td></td>
</tr>
<tr>
<td>litter free surroundings</td>
<td></td>
</tr>
<tr>
<td>well designed access points</td>
<td></td>
</tr>
<tr>
<td>crowded access points</td>
<td></td>
</tr>
<tr>
<td>availability of safe drinking water</td>
<td></td>
</tr>
<tr>
<td>convenient toilet facilities</td>
<td></td>
</tr>
<tr>
<td>convenient parking facilities</td>
<td></td>
</tr>
<tr>
<td>available motel or B&amp;B accommodations</td>
<td></td>
</tr>
<tr>
<td>local restaurants</td>
<td></td>
</tr>
</tbody>
</table>

14. Which of the following factors would inhibit you from taking a summer vacation/recreational trip to the Kickapoo River Valley within the next two years? (check all that apply)

- [ ] not enough to do in the area
- [ ] no interest in visiting again
- [ ] want to canoe other rivers
- [ ] want to visit other locations
- [ ] costs too much
- [ ] unaware of things to do in area
- [ ] desired accommodations lacking
- [ ] looking for a more challenging river
- [ ] family wants to do something different
- [ ] no one to go with
- [ ] area is not conveniently located
- [ ] work commitments
- [ ] too many people during the summer
- [ ] other, please describe: ________________________________________________
Section III: The following questions have to do with your opinions and experiences canoeing

15. What type of canoer do you consider yourself? (check one)
   _____ novice _____ intermediate _____ advanced _____ expert

16. How important is canoeing to your personal lifestyle? (circle one)
   not at all important somewhat important very important extremely important

17. Approximately, how many days a year do you canoe? _________ days

18. Including this trip, how many times have you canoed Wisconsin rivers in the last three years?

18a. How many of these times were on the Kickapoo River? _________

18b. Please list the other Wisconsin rivers you have canoed in the last three years

____________________________________________________________________

Section IV: Questions about you

19. What is your age and gender? _____ age _____ male _____ female

20. What is your current marital status? (check one)
   _____ married _____ single _____ widowed/divorced/separated

21. What is the highest level of school that you have completed? (check one)
   _____ grade school or some high school _____ graduated college
   _____ high school diploma/GED _____ graduate school (Master’s or Ph.D.)
   _____ some college (includes junior college) _____ technical, vocational or trade school

22. What category best describes the work you do? (check one)
   _____ professional/managerial _____ self-employed
   _____ technical/sales/administrative support _____ armed forces
   _____ service occupation _____ homemaker
   _____ precision/production/craft/repair _____ student
   _____ operator/fabricator/laborer _____ retired
   _____ farming/forestry/fishing _____ unemployed

23. What is your before tax annual household income? (check one)
   _____ less than $20,000 _______ $60,000 to $79,999
   _____ $20,000 to $39,999 _______ $80,000 to $99,999
   _____ $40,000 to $59,999 _______ $100,000 or more

THANK YOU FOR YOUR COOPERATION
S.W. Wisconsin Trout Angler,

Thank you for returning the post card and agreeing to participate in the Southwestern Wisconsin Trout Fishing and Economic Impact Study being conducted by the University of Wisconsin-Cooperative Extension's Center for Economic Development, Trout Unlimited, The Wisconsin River Alliance, and the U W Extension, Lower Wisconsin Basin Education project. As an incentive for helping us out with this study, you are registered in a drawing to win an Orvis 40th anniversary fly rod and 5 wt Battenkill reeland line.

Only a small number of anglers are being asked to describe their experiences and opinions about trout fishing in Southwestern Wisconsin. In order that the results truly represent the thinking and actions of anglers in the region, it is important the enclosed questionnaire be completed and returned. Even if you do not trout fish often or do not intend on fishing again this season, please take a few minutes to fill out the questionnaire.

You can be assured of complete confidentiality. The questionnaire has an identification number on it for mailing purposes only. This is so we may check your name off the mailing list when it is returned. Your name will never be placed on the questionnaire. The results of this research will be made available to local, regional and state tourism and trout fishing organizations in Wisconsin to develop and improve the trout fishing opportunities and experiences in the area south of I-90. We have pretested the survey and find that individuals take 10-15 minutes to complete the survey.

Thank you very much for your participation and I would be most happy to answer any questions you might have. Please don't hesitate to write or call, my telephone number is (608) 265-8256.

Sincerely,

[Signature]

Alan Anderson
Project Director
1999 Southwestern Wisconsin
Trout Fishing Economic Impact Survey

Section I. The following questions have to do with your most recent trout fishing trip in Southwestern Wisconsin.

1. What type of trout were you fishing for on this trip? Brown (check all that apply) Brook Rainbow

2. Did you catch the type of fish that you hoped to? Yes No

3. Do you recall how much you paid for a Trout Stamp? Yes No
   If yes how much? $__________

4. The Wisconsin DNR has specific rules that dictate how Trout Stamp funds can be used. Do you know how the funds are used? Yes No
   If yes please check all of the following Trout Stamp fund uses that apply...
   Installation of lunker structures for habitat cover Streambank stabilization
   Buying easements on trout streams Fish population surveys
   Publishing fishing regulation manuals Stocking fish

5. How many fish did you catch on this trip? ______

6. How many did you release? ______

7. What method of trout fishing and baits did you use on this trip? (check all that apply)
   Spin casting Live bait
   Fly fishing Artificial bait

8. Did you use a guide on this trip? Yes No

9. Including yourself, how many people were in your immediate party? ______
   Including you, how many people were in the following age categories?

<table>
<thead>
<tr>
<th>Less than 17 years old</th>
<th>Males</th>
<th>Females</th>
</tr>
</thead>
<tbody>
<tr>
<td>18 to 39 years old</td>
<td></td>
<td></td>
</tr>
<tr>
<td>40 to 65 years old</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Over 65 years old</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

10. Which of the following best describes with whom you were fishing?
    ____ by myself    ____ family    ____ friends
    ____ business associates ____ organized group ____ friends and family

11. How many days of your trip did you spend in this region? _____ Days
    (If you consider yourself to be a local, i.e. live within ~25 miles of where you usually fish, please skip to question 14.)
12. How many nights did you spend away from home? _______ Nights

12a. If an overnight trip, how many nights did you spend in Southwestern Wisconsin? _______

12b. If you spent the night in Southwestern Wisconsin, what type of lodging did you use?

______ friends or relatives _______ hotel or motel _______ rented a cabin
______ bed and breakfast _______ camping _______ own a recreational home in region
______ other, please describe: ____________________________

13. While fishing in this region, where did you eat? (check all that apply)

______ home _______ local taverns _______ local cafes
______ fast food restaurants _______ family restaurants _______ picnic areas/campsites
______ home of friend or relative

14. In order to gauge the economic impact of angling activities we would like to know about spending in local area businesses. Approximately, how much money did you personally spend in Southwestern Wisconsin on this trip in the following categories? (Locals, please identify your fishing related expenses.)

$_______ Fishing supplies (bait, tackle, etc.) $_______ Fishing license
$_______ Guiding services $_______ Lodging
$_______ Restaurants/bars $_______ Groceries
$_______ Auto related expenses $_______ Souvenirs, gifts, apparel
$_______ Amusements/entertainment $_______ Other, please specify: ____________________________

15. The annual Trout Stamp provides funds to maintain and enhance habitat on inland trout streams and their immediate surroundings. The production of these benefits depends on generating funds from the Trout Stamp. We are interested in learning about how you value these benefits and whether additional funds can be generated through trout stamp sales.

The current price of a Trout Stamp is $7.25. In answering the following question, please realize that raising Trout Stamp prices is not currently being discussed. Our question to you is purely hypothetical. We will use this information to assess the value people place in the benefits derived from Trout Stamp funds.

Would you purchase an annual Trout Stamp if its price was $_______ Yes _______ No

16. How crowded did you feel while trout fishing? (circle one please)

not at all _______ lightly _______ moderately _______ extremely crowded

Approximately how many other people did you see on the streams? _______
Section II. The following questions have to do with your opinions and experience trout fishing in Southwestern Wisconsin.

17. What streams have you fished in southwest Wisconsin in the past year? (Please list them and then circle the streams you fished on this last trip.)

18. How many years have you fished for trout in Southwestern Wisconsin? _______ years

19. This season, how many times during the months listed below are you likely to trout fish in Southwestern Wisconsin?
   _____ March   _____ April   _____ May   _____ June
   _____ July   _____ August   _____ September

20. Do you currently own real estate in the region for recreational purposes? _______ Yes _______ No
    If not, have you considered purchasing recreational real estate in the region? _______ Yes _______ No

21. We are interested in knowing what is important to you about your fishing experience and how well those things are being met. Please consider the following elements of your trout fishing experience. Please mark along the line to indicate the LEVEL OF IMPORTANCE you place on each item. Then, assess your LEVEL OF SATISFACTION with each of these items as you currently experience them in Southwestern Wisconsin. For instance, if it is really important to you that you catch big trout of any species, but you only landed small wild trout your answer might look like the example on the first line.

<table>
<thead>
<tr>
<th>EXAMPLE:</th>
<th>LEVEL OF IMPORTANCE</th>
<th>LEVEL OF SATISFACTION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>not important</td>
<td>very important</td>
</tr>
<tr>
<td>Catching big fish</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Catching big fish</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Catching a lot of fish</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scenic beauty of the surroundings</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ability to catch wild trout (i.e. non-hatchery raised brown or brook trout)</td>
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<td></td>
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<tr>
<td>Clean water</td>
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<tr>
<td>Ability to catch native brook trout</td>
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<td></td>
</tr>
<tr>
<td>Fishing etiquette of others</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ease of Public access</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stream crowding</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fishing “catch-and-release only” areas</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fishing areas with stream improvements</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Available motel or B&amp;B accommodations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Local restaurants</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Local camping facilities</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Appendix B
Section III. The following questions have to do with your opinions and experiences trout fishing.

22. What type of trout angler do you consider yourself? (check one)
   _____ Novice   _____ Intermediate   _____ Advanced   _____ Expert

23. How important is trout fishing to your personal lifestyle? (circle one)
   not at all important   somewhat important   very important   extremely important

24. How many days a year do you go trout fishing? _______ days

25. Do you practice “catch and release” trout fishing…? (check one)
   _____ all of the time   _____ most of the time   _____ when required   _____ never

26. In addition to this region, where else have you fished for trout in the last 5 years (check all that apply)?
   _____ Elsewhere in Wisconsin   _____ Minnesota   _____ Iowa
   _____ Remainder of the Midwest   _____ Western U.S.   _____ Southern U.S.
   _____ Eastern U.S.   _____ Other U.S.   _____ Outside of U.S.

27. Are you a member of a trout fishing club or organization? _____ Yes   _____ No

If yes, please list: ____________________________________________

Section IV. Questions about you.

28. What is your age and gender? _______ Age   _____ Male   _____ Female

29. What is your current marital status? (check one)
   _____ Married   _____ Single   _____ Widowed/divorced/separated

30. What is the highest level of school you have completed? (check one)
   _____ Grade school or some high school   _____ Graduated college
   _____ High school diploma/GED   _____ Graduate school (Master’s or Ph.D.)
   _____ Some college (includes junior college)   _____ Technical, vocational or trade school

31. What category best describes the sort of work you do? (check one)
   _____ Professional/managerial   _____ Self-employed
   _____ Technical/sales/administrative support   _____ Armed forces
   _____ Service occupation   _____ Homemaker
   _____ Precision/production/craft/repair   _____ Student
   _____ Operator/fabricator/laborer   _____ Retired
   _____ Farming/forestry/fishing   _____ Unemployed

32. What is your approximate annual household income? (check one)
   _____ less than $20,000   _____ $60,000 to $79,999
   _____ $20,000 to $39,999   _____ $80,000 to $99,999
   _____ $40,000 to $59,999   _____ $100,000 or more

Thank you for your time and we wish you good fishing!
Dear Trout Angler,

Approximately three weeks ago I sent you a copy of a survey about trout fishing in Southwestern Wisconsin. As of today, we have not yet received your completed survey.

The Center For Community Economic Development has undertaken this study because of the belief that the attitudes and opinions of the trout fisherman should be taken into account in assessing the direction of restoration efforts in Southwestern Wisconsin. Once this information is collected, it can then be used by government officials, community leaders, and conservation groups as they think about improving water quality and trout fishing in the area and in providing high quality recreational opportunities which reflect the area.

I am writing to you again because of the significance your response has to the usefulness of the study. In order for the results of this to be truly representative of trout fisherman of Southwestern Wisconsin, it is essential that each person that was contacted return their survey.

In the event that your survey has been misplaced, a replacement is enclosed along with a postage-paid return envelope.

Finally, the Center for Community Economic Development assures you of complete confidentiality and anonymity. However, if you have any additional questions or concerns about the survey, please do not hesitate to call me immediately. My telephone number is (608) 265-8256.

Your cooperation is greatly appreciated.

Sincerely,

Alan Anderson
Project Director
Focus Groups on the Expansion of Boat Landings
And Access on the Kickapoo River

In September of 1999, Angie Tornes of the U.S. Park Service and Alan Anderson one of the investigators of this report, conducted two small focus groups with citizens from the Kickapoo Valley who were interested in canoeing on the Kickapoo River. The first focus group was held in Gays Mills, Wisconsin. Gays Mills is in the middle area of the Kickapoo River Valley. That focus group had three participants interested in canoeing the middle section of the Kickapoo River. Discussion at that session focused on the desire of local people to see the expansion of canoeing in the middle part of the river. There is a new canoe rental business located in Reedstown that has been operating for a number of years, sending canoeists down river from Reedstown to the village of Soldiers Grove. People identify the number of key issues to the future expansion of canoeing in the middle part of the Kickapoo River.

First, large logjams block the river and make canoeing difficult or nearly impossible—especially for novice canoeists. Portaging in this section of the river is difficult due to steep riverbanks. Portaging around logjams is not easy and can be unsafe.

Secondly, the scenery is different in the middle section compared to the north. There are no sandstone outcrops adjacent to the river itself. The river valley is wider in this section and the river tends to be located in the center of the valley. This makes the aesthetic appeal of the river a different experience and it inherently has that as a disadvantage for attracting an increased number of canoeists.

Finally, boat landings become a significant problem. Although there are boat landings in Reedstown, Soldiers Grove, and in the village limits of Gays Mills, boat landings that are easy to enter or exit the river are almost nonexistent on the rest of the river course. Unlike the northern stretch of the river where there tends to be an unimproved access at almost every bridge over the Kickapoo River, this does not exist in the middle section of the river. Canoeists are forced to put in at one village and exit at the next without the option of pulling out somewhere along the way for a shorter trip.

Our study found that the majority of canoeists preferred to take shorter trips (less than three hours) The long distances between easy take out points can cause a problem for the development of an increased canoeing experience in the middle part of the Kickapoo River. Local people did express a desire to see some of the log jams removed to provide safe and easy access of the river to any and all canoeists who are interested and hoped to see improved boat landings in both the villages and at strategic bridge crossings along the way. It was unclear however, who should take the leadership in the development of those boat landings and in clearing the river. Discussion centered on trying to find volunteers to handle the logjam situation, but past efforts had proved to be unsuccessful.
The second focus group was held in Ontario, Wisconsin at the north end of the river. The investigators met with three local citizens and talked about their concerns about canoeing in the northern stretch of the river.

The issue of logjams was less important than in the middle section of the river. Historically, logjams had been cleared by canoe livery businesses. Although there were occasionally problems of keeping the river clear, the log jams that did exist were smaller in nature because of thirty years of continuous maintenance.

Since the bulk of canoeing on the river centered in Ontario 980% of canoes put in the river at that location) the issue of crowding was of more importance to the northern focus group. The increase in canoeists over the past five years has raised some perception about the potential diminishing of the canoeing experience. There were fears of the potential a decline of canoeists or a capping of canoeists at the current level. The remedy was perceived to be the construction of improved and better located boat landings south of the State Park. The bulk of canoeists still travel from Ontario to the State Park. Both Ontario and the State Park have very good improved boat landings.

South of the state park, between the state park and the village of La Farge, landing were privately developed on public highway right of ways. They were unsafe because their immediate proximity to the highway and difficult to use due to the steep banks of the river that had never been improved for the ease of entry or removal of boats. It was felt that new landing developed south of the State Park would allow some dispersal of the canoeing traffic and pressure from the northern part of this stretch to the middle and southern part of the stretch from Ontario to La Farge.

The participants in this focus group were excited about the impending improvements to boat landings with the development of the new State Highway 131, that would ultimately lead to more and improved boat landings in the Kickapoo Valley Reserve and in park of the Wildcat Mountain State Park.

In addition there was favorable discussion around the efforts of the village of La Farge. The old hydrodam at La Farge, a fairly small structure, was removed during 1999, which allows a free-flowing river from Ontario to La Farge. The village of La Farge is currently exploring the development of a village-owned improved landing at the highway bridge for Highway 82, which was also a welcomed addition to the canoeing infrastructure in that section of the river.

The participants in the northern focus group, one of whom was an owner of a canoe delivery, did not feel threatened by the development of addition boat rental facilities in the middle section of the river or the potential improvements of boat landings in that area. Business was good in the north and was continuing to increase. The largest concerns for the northern focus group was the potential of overcrowding which could lead to a capping or ultimately a decline of canoeing in the northern section. Optimism still existed with the thoughts of improving canoeing infrastructure from the State Park south to La Farge over the next few years.

Appendix C
A party runs through it

Grab the cigs and some booze.

It's time to canoe the Kickapoo.

By ANDREW MOORE

The Kickapoo River in Vernon County is as bent as a square-root sign. It's said to be the only river in America to run north, south, east and west. On hot summer weekends, people come from all points to canoe down its steady rapids, which flow in and out of gorges and through pastures thick with wildflowers. The river travels about three miles per hour, which doesn't sound too speedy—until you come around a bend and discover a felled tree. Then you'd better think fast and be fairly handy with a paddle.

Both of those things are pretty hard to do when you have a cigarette in one hand and a bottle of Boone's Farm in the other. I didn't even know they made Boone's Farm anymore, but the bikini-clad party chick in the canoe drifting toward us has one end of the bottle in her mouth, and the bottom pointed toward the sky. She's sprawled out backwards, facing the rear of the canoe where her ship's captain, a sunburned, shirtless party dude sporting a wolfish grin, squints back at her through water, dime-slot eyes. They don't see the rapidly approaching tree.

But we've made the turn, and we're clutching the bank figuring out how we'll maneuver through the logs. The river seems to pick up speed here. Up ahead, two capsize canoes jam the passage, adding to the challenge. The former occupants splash in the shallow rapids and laugh and yell obscenities. One of them, a guy with cut-off Army pants, chases his runaway cooler a few steps down the shoreline before sinking into the mud up to his knees.

His friends think this is hilarious. The two buddies stagger up the bank and, as though they had worked hours with a choreographer, simultaneously unzip and aim huge, arcing, feces leaks into the river toward their pal.

SCENES

"You SUCK!" they yell.

Welcome to the Kickapoo. While members of the state Legislature spent the summer obsessing over how many clothes people wore at Mazo, an entire culture of thugs laid waste to vast stretches of waterways like the Apple and Kickapoo rivers. These are the kind of party-hard paddlers that put the mother in Mother Nature. A sunny Saturday on the Kickapoo is like Stato Street at bar time only with, you know, water and birds and stuff.

There are three families in our group, including seven kids. We're wearing life jackets, we own our own canoes, none of us have tattoos, we're not smoking cigarettes, and we're not falling down drunk. Other than that, we blend right in.

"Hey, have you seen a cell phone floating down this way?" asks a random drunk, who drifts past us as we eat our shore lunch. "What color is it?" asks one of the dads in our group. "Oh it was blue, man." But the guy can hardly get the words out over his blubbery gut. He and his pal are around the bend screaming with laughter before we realize we've been the target of yuppie harassment.

I should have seen it coming based on the sinking feeling I had when we pulled over to use the car lot at Titanic Canoe Rentals. Titanic is one of several operations that rule the waters around Ontario, Wis. The workers at Titanic have obviously been trained by their employers, no doubt in a strict classroom setting, to adhere to a special three-pronged approach to the environment: "Give me your Money, Give me my Money, and Give me your Money Now."

This morning there are roughly 100 people milling around in little party packs. They're drinking canned beer while members of the crack Titanic staff heave one battered canoe after another into the river like so many giant dead carp. "I told you we'd see a lot of wildlife up here," our friend Jim says to his son Logan as they set their canoe by the water.

We make the mistake of allowing one group, with the temperament of the entire infield at the Indianapolis 500, to go ahead of us. Wouldn't want them coming downriver on top of us, we reason. Nevertheless, the clan soon spreads out on the passage where the river gets tricky and we catch up to them.

We rush to make the turn just as the Boone's Farm couple round the corner. It's now or never. We angle our canoe into the middle of the stream and, in a matter of seconds, get hung up on a log, tilting dangerously downstream. Another canoe in our group slams into a different log with a loud crunch.

So much for sobriety. Now we've nearly jammed the passage, save for a narrow four-foot-wide gap. That's where the Boone's Farmers flow through easy as pie. The party dude in the back is deeply concentrating now, staring onto the floor of his boat. "Where's my lighter?" he asks as he glides by.

We wind up paddling a good 10 miles. All the while we amuse ourselves by making up names for the various points of interest along the way. We glare at amazement through the blue haze of "Cigarette Point." We survive the whitewater of "Bathroom Break." And we see many the souls go down at "Poker's Bend."

But we've had enough by Bridge 9, and that happens to be where we left the first comeback car. I climb up the steep bank through the empty cans, Doritos bags and thistles, and step a foot out onto the two-lane road, just as a Titanic truck pulling a two-story empty trailer rack comes careening around the bend. There's no better way to cap off this nature adventure, I think, and I leap back just in time to avoid getting creamed. But it's as though the smiling teenaged driver of the rig read my mind. He veers wide to miss me. Then, notably wheeling over the bridge, he drops his arm out of the open window, and fires me off a final, robust, middle-finger salute.
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