



**THE
ECONOMIC IMPACT
OF
RECREATIONAL
TROUT ANGLING
IN THE
DRIFTLESS AREA**



February 2008

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The steering committee for this project consisted of Jeff Hastings and Laura Hewitt, both of the Wisconsin chapter of Trout Unlimited. Alan J. Hart, Vice President and Director of Operations at NorthStar Economics, Inc. is the principal investigator and author of this study. NorthStar President David J. Ward and former NorthStar Vice President and Director of Research Dennis K. Winters also provided valuable insight and oversight of the project, including providing research and editing sections of the report. NorthStar Research Associate Theresa L. Field also assisted with editing and handled a majority of the data entry associated with compiling survey results.



EXECUTIVE SUMMARY

Recreational trout angling is a significant economic driver in the Driftless Area, a geographic region covering parts of southwest Wisconsin, southeast Minnesota, northeast Iowa, and northwest Illinois. Stream restoration efforts have played a significant role in restoring the region to a popular fishing destination for trout anglers, who contribute more than \$1 billion per year to the regional economy.

NorthStar Economics was retained by Trout Unlimited (TU) to calculate the economic impact resulting from the restoration of trout streams in the Driftless Area. The bulk of the restoration has occurred in the last 25 years. In that time, more than 450 miles of stream have been restored. As a result of that restoration and other factors including improved land management practices, the Driftless Area has become a popular destination for recreational trout anglers. In this study, we set out to calculate the economic contribution made by those anglers.

In conjunction with a steering committee of Trout Unlimited staff, and building on a similar study conducted in the Kickapoo Valley Region (located within the Driftless Area), a survey instrument was designed to gather data from anglers who fish in the region. The survey was sent to a representative sampling of trout stamp holders in the Driftless Area states, and was also made available online. Over 1,500 surveys were sent out by mail, and numerous anglers completed the online survey. Between surveys completed by mail and those completed online, more than 300 responses were received. Data was then sorted on the basis of whether or not survey respondents reside within the Driftless Area or outside it, as both fishing and spending habits differ significantly for the two groups.

The Average Angler

Several demographic trends emerged from the study. We received responses from anglers of both genders, all ages, and a broad range of income and educational attainment. A significant number of respondents don't fish the Driftless Area at all. Others fish the region quite frequently, and a majority fall somewhere between the two extremes. Factoring in the wide range of responses we received, we have enough information to paint a clear picture of the typical Driftless Area trout angler. The typical trout angler is a college-educated married man in his mid- to late forties, with household income between \$60,000 and \$80,000 per year. He is likely to be aware of the stream restoration efforts which have occurred, and he is most likely to fish in May and June. If he resides in the Driftless Area, he fishes the region about 23 times per year, and spends about \$200 on various expenses on each outing. If he travels from the outside the region to fish the Driftless Area, our average angler spends nearly twice as much per trip, but makes the trip less than half as often.

Spending

We asked anglers to estimate the amount of money they spend on each fishing outing in a variety of categories (groceries, restaurants, lodging, etc.) as well as the amount that they spend on equipment and supplies, and the amount of that spending that occurred in the Driftless Area. The table below summarizes our findings.

	Spent Per Trip	Annual Trips	Spent in DA Annually on Equipment	Annual Spending
Driftless Area Anglers	\$209.50	22.5	\$113.43	\$4827.18
Non-Driftless Area Anglers	\$391.88	9.27	\$117.22	\$3749.95

As noted above, angling habits among survey respondents varies considerably. The above figures represent the mean averages, including the significant number of anglers who don't fish the Driftless Area at all (and therefore spend no money in the region), as well as those who fish the region on a more frequent basis and therefore spend money in the region (with spending habits varying depending on a variety of factors, including distance traveled, lodging and dining habits, etc.). As approximately 61% of respondents reside outside the Driftless Area and 39% reside within the region, their spending data was weighed proportionally. The average angler therefore spends \$4171.15 each year on trout fishing in the Driftless Area (a weighted average representing 39% of the Driftless Area average and 61% of the Non-Driftless Area average). As there are more than 155,000 trout stamp holders in the Driftless Area states, we conclude that direct spending in the region totals nearly \$647 million.

$$155,070 \text{ trout stamp holders} \times \$4171.15 \text{ spent per angler} = \$646,819,673^1$$

For purposes of this calculation, we make the assumption that angling and spending habits of trout stamp holders throughout the Driftless Area states are consistent with those of our survey respondents, which is to say that some never fish the Driftless Area and spend no money in the region at all, while others fish the region frequently and spend significant amounts of money. As noted above, a majority of respondents fell somewhere in between the two extremes, and anglers across the spectrum are represented in the averages used to make the appropriate calculations. Given the wide range of responses we received, including quite a few from anglers who spend no money in the region, we are confident that we have captured reliable data and that the above figure represents a conservative estimate. It should also be noted that the calculation is also conservative inasmuch as it includes only anglers in Iowa, Minnesota and Wisconsin. Incorporating Illinois data would no doubt result in a higher economic contribution figure.

¹ 155,070 multiplied by \$4171.15 does not actually equal \$646,819,673. Nevertheless, the figure is correct. The calculation is based upon the precise mean spending figure, which has been rounded to \$4171.15 in the text above. The actual figure which was multiplied by 155,070 is not \$4171.15 but \$4171.146406.

Indirect Effects

Spending produces not only a direct economic effect, but indirect and induced effects as well as those dollars continue to flow through the economy. Economic multipliers were applied to the spending data to determine the indirect and induced (or "ripple effect") of the direct spending.

Indirect and Induced Spending by Trout Anglers

	Annual Spending per Angler - Outings	Annual Spending per Angler - Equipment	Total Indirect/Induced Effect per Angler
Anglers Within Driftless Area	\$4713.75 (Weighted economic output multiplier = .71)	\$113.43 (Weighted economic output multiplier = .71)	\$3445.94
Anglers Outside Driftless Area	\$3632.73 (Weighted economic output multiplier = .72)	\$117.22 (Weighted economic output multiplier = .72)	\$2708.20
Weighted Average = (.391 x \$3445.94) + (.609 x \$2708.20) = \$2996.66			

By multiplying the total number of trout stamp holders by the average annual indirect and induced effects per angler, we conclude that the indirect economic contribution to the region totals nearly \$465 million.

$$155,070 \text{ trout stamp holders} \times \$2996.66 \text{ per angler} = \$464,691,659 \text{ "Ripple Effect"}^2$$

Adding the direct spending total to the indirect and induced spending total reveals that trout anglers produce an economic benefit to the Driftless Area in excess of \$1.1 billion every year.

$$\begin{aligned} &\textbf{TOTAL ECONOMIC CONTRIBUTION:} \\ &\$646,819,673 \text{ Direct Effect} + \$464,691,659 \text{ Indirect/Induced Effects} = \\ &\quad \quad \quad \mathbf{\$1,111,511,332} \end{aligned}$$

² As with the direct spending calculation, this figure was derived by multiplying the 155,070 trout stamp holders by the actual average spending figure, which is not the rounded figure of \$2996.66 stated above, but \$2996.657375.

CHAPTER I: BACKGROUND

NorthStar Economics was retained by Trout Unlimited (TU) to calculate the economic impact resulting from the restoration of trout streams in the Driftless Area. Over the course of several decades, streambank erosion and loss of habitat rendered trout streams in the Driftless Area all but unfishable. Organizations including Trout Unlimited, through systematic stream restoration efforts, have improved Trout habitat across the Driftless Area, helping to make the region popular among recreational anglers. In this study, we set out to calculate the economic contribution to the region made by those anglers.

The Driftless Area

The Driftless Area is a geographic region covering parts of southwest Wisconsin, southeast Minnesota, northeast Iowa, and a small part of northwest Illinois. A map of the region appears in Appendix 1. The distinctive landscape of the Driftless Area is characterized by craggy limestone, sandstone valleys, and steep hillsides. This ancient terrain, which was bypassed by the glaciers, is blessed with one of the highest concentrations of limestone spring creeks in the world. This extremely rare resource is comparable to the chalk stream region of England and the limestone country of Pennsylvania. The spring water emerging from limestone bedrock provides a near constant flow of cold water. The limestone enriches the water with essential minerals for aquatic insects and other creatures, which contributes to prime conditions for healthy populations of trout and other coldwater dependent species. More than 600 spring creeks (exceeding 4,000 river miles) cross this 24,000 square-mile landscape.

The Driftless Area Restoration Effort (DARE), is an endeavor to advance restoration and protection of streams and watersheds in the Driftless Area located in the heart of the Upper Mississippi River basin. The primary aim of this partnership is to articulate a regional strategy for linking upland conservation with stream corridor and headwaters restoration to improve upland health, water quality, and fish habitat and populations and other coldwater reliant species.

Spring creeks are extremely vulnerable to degradation. Early European settlement and agricultural practices in the 1800s and early 1900s led to wide scale erosion, flooding, and the altering of the region's streams and valleys. As a result, hundreds of miles of clean coldwater spring creeks were inundated with tons of fine sediment. As much as 12 to 15 feet was deposited in the valley floors. Although land-use practices, erosion control, and stream health have improved tremendously since the 1930s, the legacy of the past continues to haunt the Driftless Area. Many of the streams today still have steep eroding banks, incised channels, and poor in-stream habitat. In some cases, streambank erosion is responsible for as much as 85% of the total sediment load.

The Driftless Area has a potentially bright future, though. Many public and private partners are working together to restore the diversity, health, and productivity of the region. The rivers and fishery have responded strongly and quickly to straightforward techniques to control erosion, reconnect the floodplain, and improve instream habitat. The focus on restoring conditions across the watersheds will not only benefit trout, but

improve the environment for other plant and animal species native to the region. The local communities also stand to gain from these efforts through additional recreational opportunities, improved land use and conservation practices, increased revenue from tourism, and enhanced quality of life.

Organizations

Trout Unlimited is only one of many organizations that has taken an active role in restoring the trout streams in the Driftless Area. To date, TU has partnered on the restoration of 69.8 stream miles, approximately 15% of the 453.6 miles that have been restored to date. The U.S. Fish & Wildlife Service (USFWS) through its Private Lands program has taken an active role. There are also a number of TU chapters working with state Departments of Natural Resources (DNR), Natural Resources Conservation Service (NRCS), and Land Water Conservation Departments (LCDs) to assist with manual labor and/or funding for stream restoration. Stream restoration work is being handled by a variety of organizations and initiatives throughout the region, including Soil and Water Conservation Districts, DNR fishery habitat crews, conservation field offices with staff from the LCD, NRCS, County, and Resource Conservation and Development. Habitat work may also be conducted by private contractors who are overseen by the DNR or NRCS. There is also involvement by state Departments of Agriculture (DOA), which have employees in NRCS field offices. It is often these DOA employees who conduct the "hands on" habitat restoration work.

A recent survey conducted by a consultant by Trout Unlimited showed that in the past 25 years over 453 miles of stream restoration has occurred in the Driftless Area. From the mid-1960s all the way up until the mid-1980s most of this work involved installing rock rip-rap to stabilize the banks. DNR Fishery crews were the first to incorporate habitat for trout and stabilize stream banks at the same time. It wasn't until the mid to late 1980s that the United States Department of Agriculture, Natural Resources Conservation Service allowed habitat structures ("LUNKERS") to be installed in conjunction with rock rip-rap. Since the 1960s the amount of stream bank stabilization has increased yearly. Early projects typically were short segments, with only a bank or two stabilized. In the past ten years stream restoration projects have increased in cost and size, it is not unusual for half a mile to over a mile long segments being completed in one summer. Today average costs to improve a mile of stream segment ranges from \$80,000 to \$120,000. Variability in costs are a reflection in - height of banks to stabilize, length of eroding banks, size of stream, accessibility of site, brush removal and number of sites that are improved/stabilized per mile. On average it takes a conservationist about 80 to 120 man hours to survey, design, obtain permits, bid, and over see construction of one mile of stream, at \$27 per hour (salary & benefits) that's \$2,160 to \$3,240 in addition to the above costs for contractor machinery, rock, labor and lumber.

Context

Recreational angling produces a significant economic impact in the United States and the states in which the Driftless Area is located. According to a recent study by the Congressional Sportsmen's Foundation³, hunting and fishing in the United States is a \$76 billion economic force. The report examined hunting and fishing activity in every state, and included separate analyses of hunting and fishing. Key results from the study with respect to fishing are summarized in Figure I-1 below.

Figure I-1: Summary of Angling Activity in the U.S. and Driftless Area States

REGION	In-State Angling Participation (Rank)	Out-of-State Angling Participation (Rank)	Spending by Anglers (Rank)	Ripple Effect
United States	30 million (n/a)	n/a	(still waiting for #)	\$42 billion
Illinois	795,000 (13 th)	78,000 (42 nd)	\$816 million (23 rd)	\$2.1 billion
Iowa	397,000 (30 th)	40,000 (47 th)	\$362 million (34 th)	\$983 million
Minnesota	1.1 million (5 th)	319,000 (4 th)	\$2.8 billion (3 rd)	\$5.8 billion
Wisconsin	1 million (7 th)	381,000 (3 rd)	\$1.7 billion (7 th)	\$5.0 billion

This information provides an important context for our study. Anglers in Driftless Area states spend in excess of \$5 billion on an annual basis, with a "ripple effect" of more than twice that amount. Our study provides an analysis of the portion of that economic contribution attributable to a more specific subset of that Midwest angling population - trout anglers in the Driftless Area.

³ *Hunting and Fishing: Bright Stars of the American Economy*, Congressional Sportsmen's Foundation, in partnership with the National Shooting Sports Foundation, SCI First for Hunters, National Marine Manufacturers Association (NNMA) and the Alliance of Automobile Manufacturers (2007).

CHAPTER II: METHODOLOGY

Stream Restoration

Data on stream restoration efforts and expenditures were provided by Trout Unlimited. TU's records include total spending on Driftless Area stream restoration from a variety of sources, including state Departments of Natural Resources (DNR), Natural Resources Conservation Service (NRCS), Land Water Conservation Departments (LCDs), Soil and Water Conservation Districts, state Departments of Agriculture, private contractors, and TU itself.

Anglers' Habits and Expenditures

Data on fishing habits and expenditures of trout anglers were obtained through a survey of fishing license and trout stamp holders in the region. In Wisconsin and Iowa, the DNR provided a spreadsheet of everyone who had applied for a trout stamp in 2006, including their name and mailing address. Minnesota does not make its list available, citing privacy concerns. However, the Minnesota DNR was willing to indicate the number of trout stamp holders who resided in each zip code in 2006 and forward surveys to them on our behalf. Illinois also does not make its list available. However, inasmuch as Illinois comprises only a very small portion of the Driftless Area, and that we were able to survey a sampling of Illinois residents who had applied for trout stamps in the other states surveyed, it was determined that it was not necessary to access the Illinois list to complete a thorough survey.

The survey instrument (see Appendix 1) was designed by NorthStar in conjunction with a steering committee of TU staff. Once the survey questionnaire had been approved in early summer of 2007, circulation began. The Driftless Area is a popular fishing destination among anglers both within and outside the region. We were interested in capturing input from both local anglers, as well as those traveling from outside the region, particularly from the major metropolitan areas such as the Twin Cities, Chicago and Milwaukee. Rather than simply "cherry picking" anglers in the large cities, a formula was devised to ensure a representative sampling of anglers throughout the multi-state region.

Trout stamp holder lists were sorted by zip code, and the number of anglers who reside in each zip code was tallied. Any zip code which was located in a county located in (or overlapping the border of) the Driftless Area was included in the survey if it contained ten or more trout stamp holders. Any zip code located anywhere outside Driftless Area counties was included if it included 40 or more trout stamp holders. This formula was designed to capture the input of anglers in densely populated areas including the major metropolitan areas, as well as additional input from anglers who are neither Driftless Area locals nor large city inhabitants, but who nevertheless fish the region in significant numbers.

For each zip code included in the survey according to the above formula, survey recipients were selected at random, in direct proportion to the number of anglers who held trout stamps. An online random number generator⁴ was used to select recipients according to the number corresponding to the line in the spreadsheet containing their information. For every 100 trout stamp holders in each zip code (rounded to the nearest hundred), at least one survey was sent. However, every zip code which met the thresholds identified above (10 or more anglers in the Driftless Area, 40 or more outside the Driftless Area) received at least survey even if the number of anglers totaled less than 100. For example, if a zip code contained anywhere from 10 to 149 trout stamp holders, 1 of them was randomly selected to receive surveys. If the region contained 150 to 249, 2 were selected and so on. Some zip codes were so densely populated with trout anglers that they received as many as 18 surveys. This resulted in survey distribution to over 1,500 anglers, representing approximately 1% to 2% of the total trout angling population in the multi-state region. Additional responses were gathered by posting the survey online⁵, with links to the survey posted on the NorthStar Economics, Inc. and Trout Unlimited websites. The cover letter included with the mailed survey (see Appendix 2) also encouraged anglers to spread the word about the online survey. As an incentive to complete the questionnaire, survey recipients were offered a free one-year trial membership in Trout Unlimited, and entry into a drawing for one of three \$50.00 gift certificates to Gander Mountain. This incentive was important, as it resulted in a more representative sample of respondents (including numerous respondents who don't fish the Driftless Area at all, as opposed to those with a vested interest in participating in the study). Survey distribution continued until December of 2007.

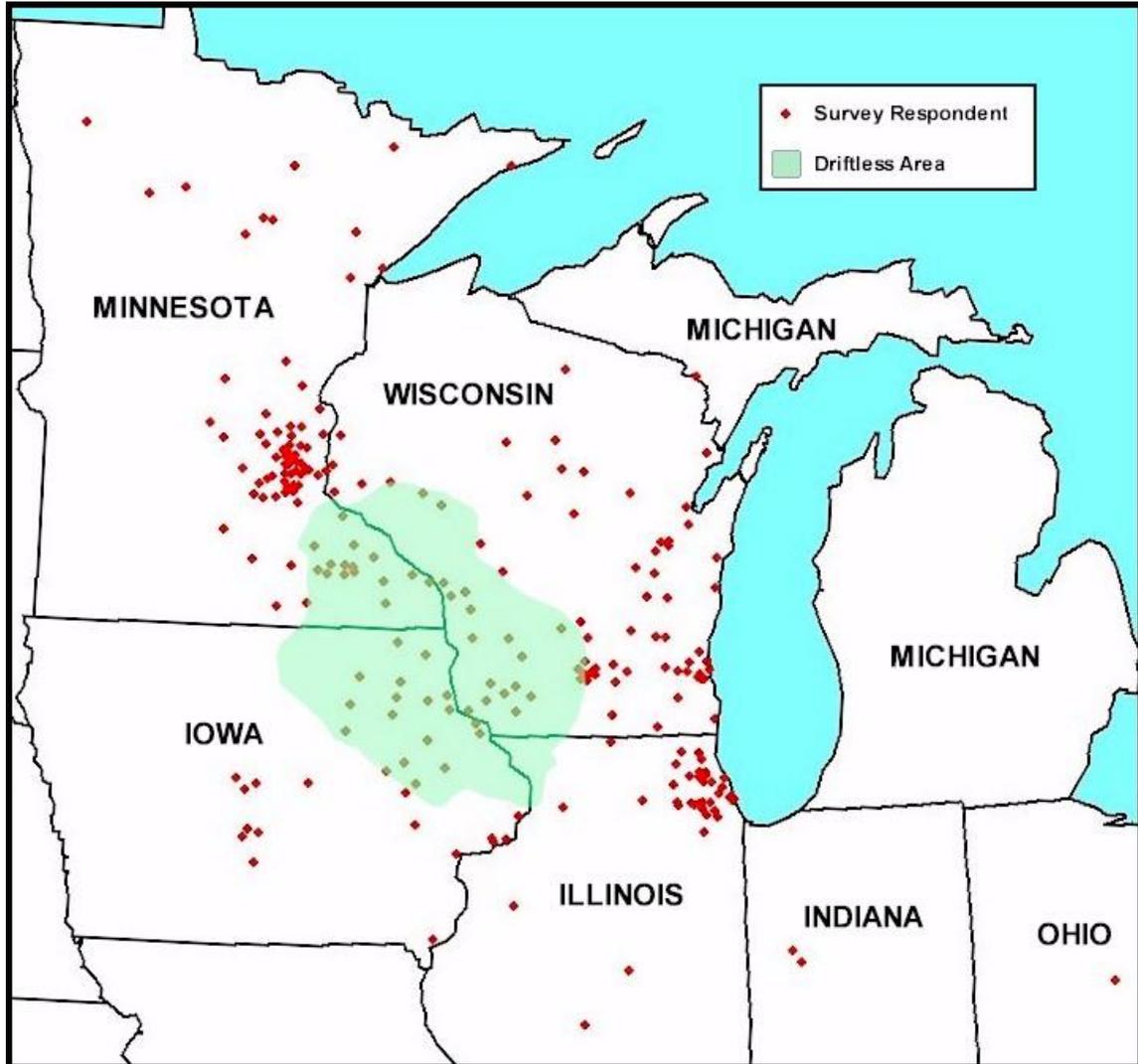
Survey Responses

The cover letter accompanying the mailed survey encouraged survey recipients to complete the survey online, and a number of recipients elected to do so. By January 2008, we received 115 mailed survey responses, and 198 responses to the online survey, for a grand total of 313 responses. Figure II-1 below indicates the residential location of all survey respondents. As anticipated, we received numerous responses both from within the Driftless Area and outside it, including the major metropolitan areas of Chicago, Milwaukee, Dubuque, and the Twin Cities. Note that the map represents all zip code points from which at least one response was received. In many instances, more than one resident of a particular zip code responded, hence there are fewer points on the map than there were survey respondents.

⁴ <http://www.mdani.demon.co.uk/para/random.htm>,

⁵ <http://www.surveymonkey.com/s.asp?u=278823822052>

Figure II-1: TU Survey Respondent Map



Economic Impact Analysis

When calculating the economic impact of any initiative, organization, event, or activity, the basic logic assumes that direct expenditures have a direct effect, as well as an indirect or multiplied effect on the regional economy. In this particular instance, stream restoration occurred over such an extended period of time that we do not have "before" and "after" data in the conventional sense. We cannot ask most of today's anglers what they spent before restoration 25 years ago, and how much more they spend now that restoration has occurred. Also, as noted earlier, improved land management practices and environmental policies have played a role in the improvement in the water quality and fish habitat in Driftless Area streams. Accordingly, the results of this study are more accurately characterized as the economic impact of trout angling in the region, rather than the impact of stream restoration exclusively. Nevertheless, the role of stream restoration

cannot be overstated. No doubt some local anglers would still try their luck in unrestored streams given the convenient location, but it is safe to say that the region would not be nearly as popular a destination for anglers traveling from large cities and other areas outside the region if the streams had not been restored to a thriving trout habitat. We make the assumption that anglers outside the Driftless Area would spend their money elsewhere, likely on fishing trips to other regions outside the Driftless Area if stream restoration and other improvements had not occurred. Additionally, in the absence of the restoration and improvements, it is likely that Driftless Area residents who currently fish the region on a regular basis would instead travel outside the region to destinations where the angling opportunities are better.

All completed surveys that we received were divided into two categories - those that came from Driftless Area residents⁶, and those that came from respondents who live outside the Driftless Area. In anticipation of results showing that Driftless Area residents fish the region more frequently, and that anglers outside the region spend more on each outing (as a result of the need to incur additional travel expenses), surveys were divided so that the results could be reported separately and then aggregated proportionally in the final calculations.

For purposes of our calculations, we make the assumption that angling and spending habits of trout stamp holders throughout the Driftless Area states are consistent with those of our survey respondents, which is to say that some never fish the Driftless Area and spend no money in the region at all, while others fish the region frequently and spend significant amounts of money. A majority of respondents fell somewhere in between the two extremes, and a wide variety of anglers are represented in the averages used to make the appropriate calculations. Given the range of responses we received, including numerous responses from anglers who spend no money in the region, we are confident that we have captured reliable data that encapsulates the habits of anglers across the spectrum.

Anglers' expenditures were weighted proportionally according to their location (either inside or outside the Driftless Area), averaged and multiplied by the number of trout stamp holders in the entire region, resulting in an extrapolated figure for direct expenditures that assumes that all trout anglers located outside the Driftless Area spend roughly the same amount on their fishing trips to the Driftless Area, and that all Driftless Area residents spend roughly the same on each outing. Multiplier coefficients were applied to determine the indirect or induced economic effects of the expenditures. Direct and indirect expenditures were then summed to calculate the grand total economic contribution of the restoration of trout streams in the Driftless Area. Economic multipliers were obtained from the Minnesota IMPLAN Group, Inc., based on all 55 counties included in or overlapping the Driftless Area (see Appendix 3 for complete list of counties). Methodology is discussed in more detail in the analysis contained in Chapter VI.

⁶ "Driftless Area resident" is defined for purposes of this study as any respondent who lives in a zip code which is contained in one of the 55 counties located in or overlapping the border of the Driftless Area. See Appendix for complete list of zip codes and counties.

CHAPTER III: DEMOGRAPHIC INFORMATION

Demographic data was gathered through a survey of a representative sample of trout anglers in the region. Although perhaps not directly related to the issue of economic impact, an understanding of regional demographics provides an important context for the discussion of economic activity that appears in subsequent chapters of this report. In order for Trout Unlimited and their partners to best serve their clientele, it is essential to understand the potential marketplace for their services. What is their target market? Who is the average recreational trout angler in the region? Survey recipients were asked to provide identifying information in a number of different categories, including age, gender, marital status, educational attainment, and household income.

Geography

Survey respondents were asked to identify their place of residence by zip code. In order to increase the anticipated response rate and gather spending data from anglers who are most likely to make regular fishing trips to the Driftless Area, anglers in or near the Driftless Area represented a disproportionately high percentage of the survey sample. However, the Driftless Area is a popular fishing destination for trout anglers throughout the region, including numerous people in major metropolitan areas outside the Driftless Area, so they were included in the sample as well. Sampling methodology is discussed in more detail in Chapter II. More than 1,500 surveys were mailed to inland trout stamp holders in the region. Approximately 60% of survey respondents live in counties outside the Driftless Area, and 40% of responses came from survey recipients who reside in Driftless Area counties.

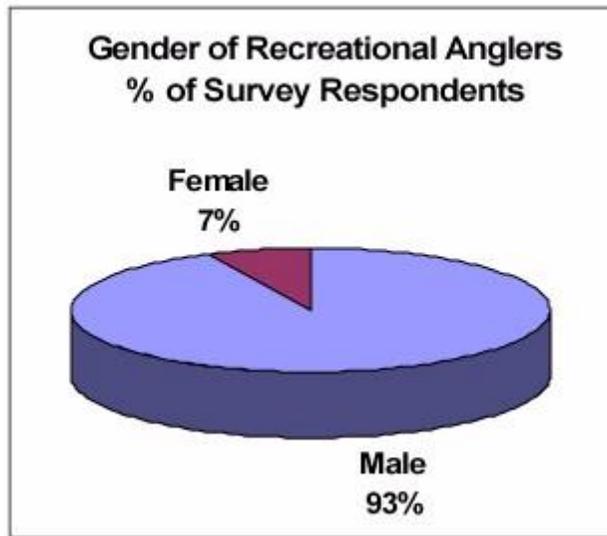
Gender

People of both genders and all ages enjoy fishing. However, the results of our survey reveal that trout angling in the region appears to be an activity dominated by married men aged 40 and older. Although women represent a slight statistical majority of the national population⁷, the overwhelming majority of survey respondents were men, as illustrated in Figure III-1 below. These findings are consistent with a similar study, the Kickapoo Valley Region study⁸ released in 2001, in which 95% of survey respondents were male. We will be using the Kickapoo Valley Region study for a number of comparative purposes, though it should be noted that it is not a strict correlation, as the Kickapoo Valley Region represents only a subset of the Driftless Area. Nevertheless the region represents a typical trout angling destination in the Driftless Area and is the best historical data available for comparison.

⁷ 51% of people in the United States aged fifteen or older are female. Source: U.S. Census Bureau, 2006 Current Population Survey.

⁸ *Outdoor Recreation, Community Development, And Change Through Time: A Replicated Study of Canoeing and Trout Angling in Southwestern Wisconsin*, University of Wisconsin-Extension - Center for Economic Development; Trout Unlimited; and the University of Wisconsin-Madison Department of Urban and Regional Planning (referred to elsewhere in this document as "the Kickapoo Valley Region study"). Although the Driftless Area comprises a larger geographic region, the Kickapoo Valley Region is located within the Driftless Area and provides a reasonable historical basis for comparison.

Figure III-1: Gender Breakdown of Recreational Trout Anglers in the Region



Age

Figure III-2 below illustrates the age of survey respondents. As noted above, a substantial majority of anglers (64%) are 40 years of age or older (46 was the average age of survey respondents), with 50-59 representing the largest single age cohort (25%). A mere 3% are elderly (70 years of age or older), while only 15% are in their 20s or younger. 20% of anglers are in their 30s. This is consistent with the 2001 Kickapoo Valley Region Study, in which the average age of survey respondents was 44. The 2001 study featured a comparison of 1999 data to 1994 data. A comparison of all three years appears in Figure III-3 below.

Figure III-2: Age Breakdown of Recreational Trout Anglers in the Region

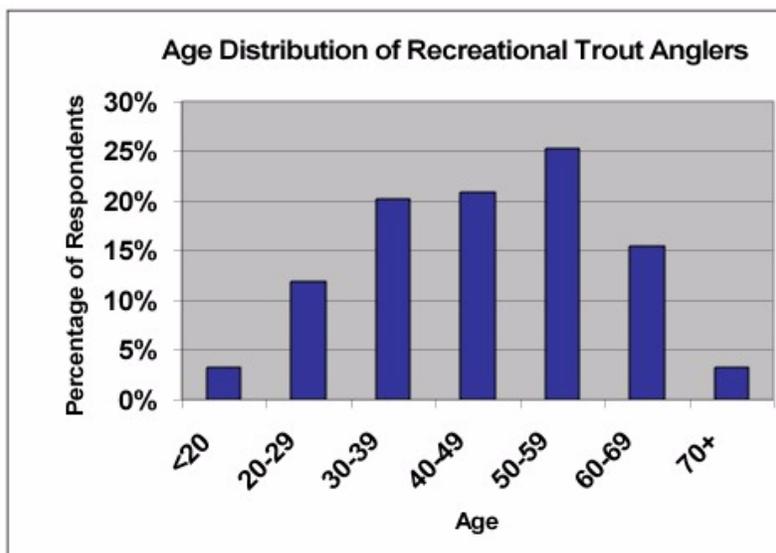
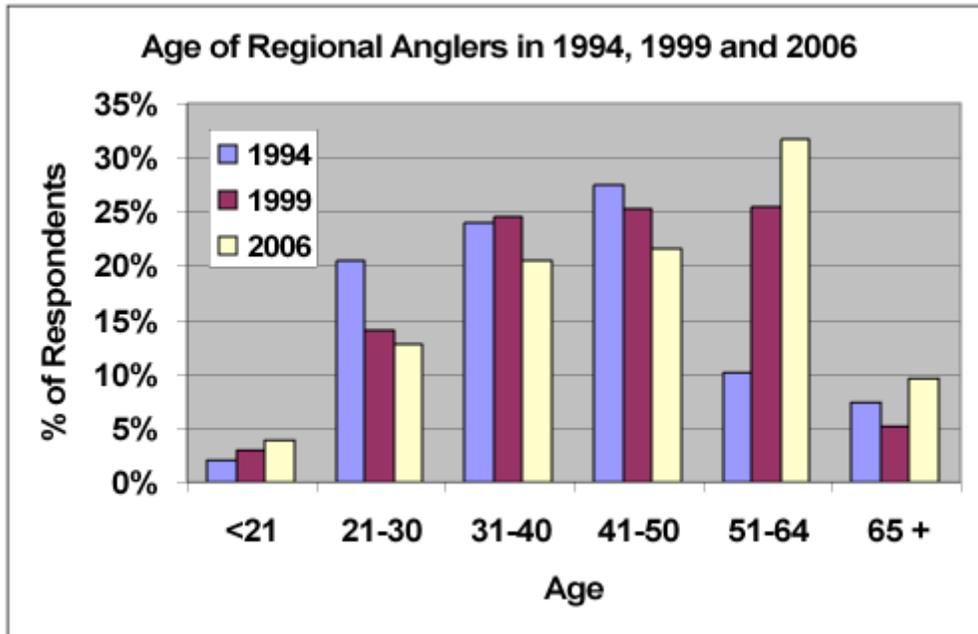


Figure III-3: Age of Recreational Anglers in the Region in 1994, 1999 and 2006⁹



There is some disparity in the age distribution in each of the years surveyed, particularly with respect to the 51-64 age cohort. There are a few possible explanations for the disparity. Whereas the earlier studies surveyed all recreational anglers in the Kickapoo Valley Region, this study surveyed a more specific subset of anglers (trout anglers) in a larger geographic region (the Driftless Area). It may be that the population of anglers who fish in the region has continued to age, while fewer young anglers are drawn to the region. There is support for this theory, as the average age of respondents to our survey was two years higher than the average age in the 1999 study, which in turn was two years higher than the average age in the 1994 study. This is consistent with statewide trends as baby boomers consider to age and fewer young people settle in rural areas. It may also be that the demographics of trout anglers who fish the entire Driftless Area are simply a bit different from the Kickapoo Valley Region anglers surveyed previously.

The marital status of survey respondents is displayed in figure II-4 below. As noted above, trout angling appears to be an activity most popular among married men. More than $\frac{3}{4}$ of survey respondents are married. The remaining $\frac{1}{4}$ is split among respondents who have never been married, and those who are widowed, separated, or divorced, with the single respondents outnumbering formerly married respondents by nearly 2 to 1. This represents a much higher marriage rate than that of the U.S. population as a whole. Compared against the more comparable population of men aged 30 to 74, there is a higher rate of marriage among trout anglers who responded to our survey, though the difference is more modest than that between anglers and the general population. Results of the Kickapoo Valley Region study in 1999 revealed a similar rate of divorce,

⁹ 2006 data represents the Driftless Area in its entirety, whereas the 1994 and 1999 data represents only the Kickapoo Valley Region.

separation or widowhood, but more single people and fewer married people (by about 10% in each category). A comparison of all four groups appears in Figure III-5 below.

Marital Status

Figure III-4: Marital Status of Recreational Trout Anglers in the Region

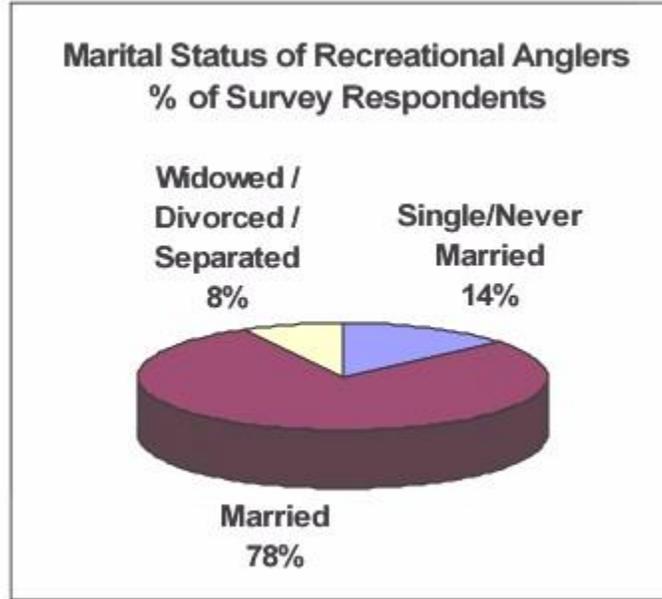


Figure III-5: Marital Status of Trout Anglers, Total Population, and Men Aged 30-74

	Married	Single / Never Married	Widowed / Divorced / Separated
Total U.S. Population¹⁰	52%	29%	18%
Men Age 30-74¹¹	69%	15%	16%
1999 Kickapoo Anglers	68%	23%	9%
Trout Anglers	78%	14%	8%

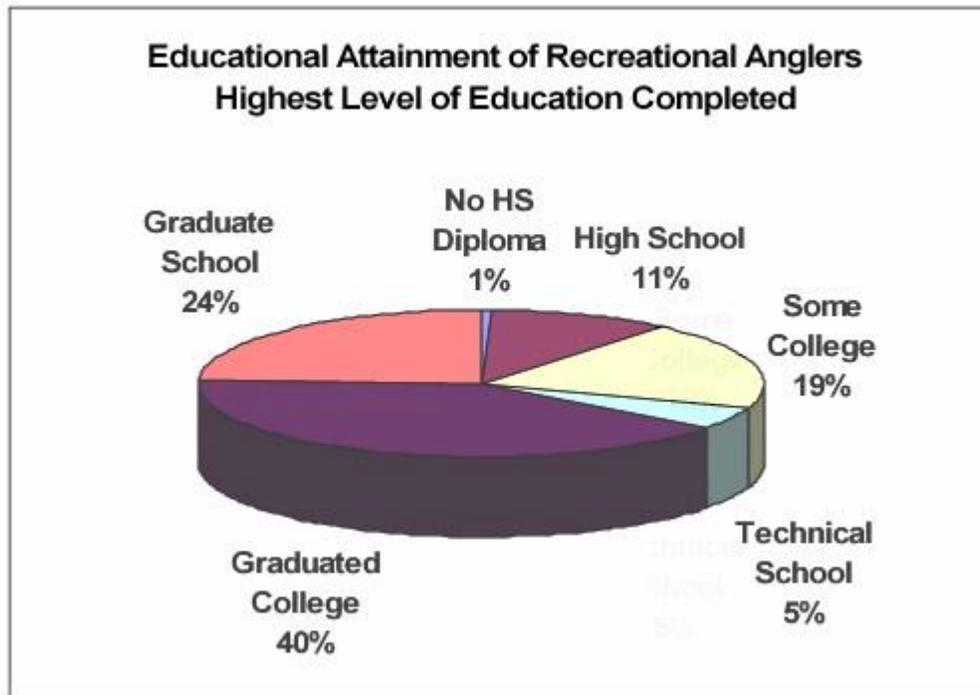
Educational Attainment

Following up on similar questions asked in the Kickapoo Valley Region study, survey respondents were asked to report the highest level of schooling that they had completed. As it turns out, the average angler is well educated, with 64% of respondents having graduated college or obtained a post-graduate degree, and an additional 5% having completed technical/vocational or trade school. Very few respondents had failed to complete high school, and indeed, a substantial minority had failed to complete college. The complete breakdown of educational attainment appears in Figure III-6 below.

¹⁰ Source: U.S. Census Bureau, 2006 Current Population Survey. Total population refers to all people 15 years of age and older, including both genders and all races.

¹¹ Source: U.S. Census Bureau, 2006 Current Population Survey

Figure III-6: Educational Attainment of Recreational Trout Anglers in the Region



A comparison of these data to data obtained in the Kickapoo Valley Region study appears below in Figure III-7.

Figure III-7: Educational Attainment Comparison: Kickapoo Valley Region 1999 vs. Driftless Area 2007¹²

	Grade School	High School	Some College	Technical School	Graduated College	Graduate School
Kickapoo Valley 1999	3%	9%	16%	9%	32%	31%
Driftless Area 2007	1%	11%	19%	5%	40%	24%

¹² Source for state and national averages: United States Census Bureau Current Population Survey (2006). Midwest States data represents a weighted average of the data for Illinois, Iowa, Minnesota and Wisconsin. It should be noted that the Census Bureau data refers to the educational attainment of the population aged 25 years or older. The trout anglers' data includes all survey respondents, some of whom are younger than 25 years of age. However, inasmuch as younger anglers may yet go on to achieve higher levels of education, the estimate of the educational attainment gap between anglers and the rest of the population is conservatively understated.

With respect to the key milestones of high school diploma and bachelor's degree attainment, educational attainment in the Midwest region comprised of the states in which the Driftless Area is above the national average. Moreover, the educational achievement of regional trout anglers significantly eclipses the slightly higher averages of the Midwest states as a whole. A full 99% of survey respondents have graduated from high school, as compared to 85% at the national level, and 90% at the regional level. At 64%, bachelor's degree attainment is more than double the regional level of 30% and the national level of 28%.

Figure III-8: Educational Attainment Comparison: Trout Anglers vs. Midwest States vs. the United States¹³

Educational Attainment	Trout Anglers	Midwest States	United States
High School Diploma / GED or Higher	99%	90%	85%
Bachelor's Degree or Higher	64%	30%	28%

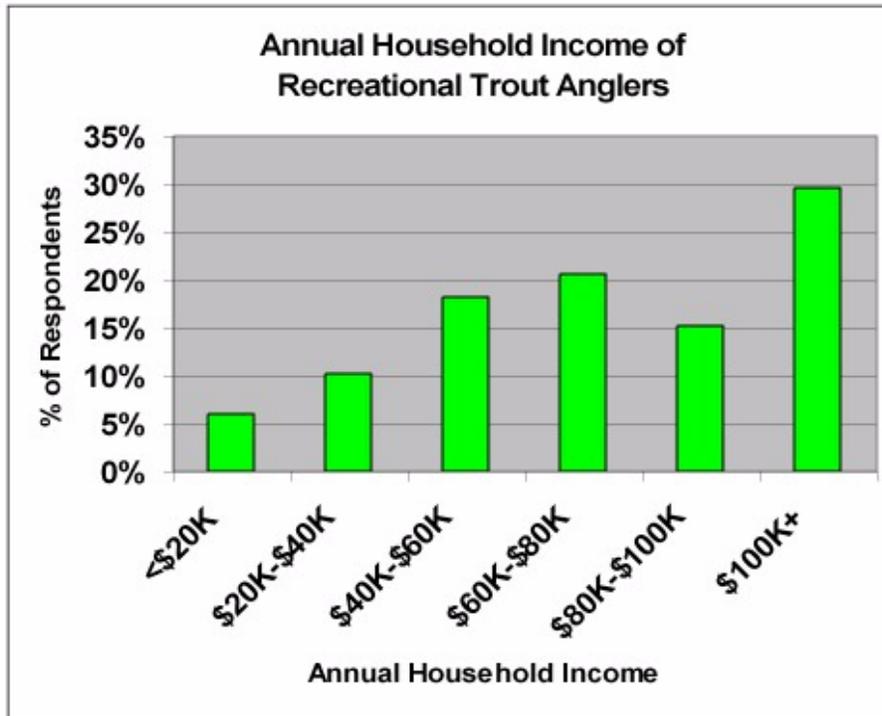
Household Income

Trout fishing is enjoyed by anglers across the income spectrum, though it appears to be more popular among the higher income brackets. Nearly 1/3 of survey respondents reported household income in excess of \$100,000, while a mere 6% reported household income of less than \$20,000 per year (which is approximately equal to the 2007 Federal Poverty Guidelines for a family of four¹⁴). The complete breakdown by income bracket appears in Figure III-9 below.

¹³ Source for state and national averages: United States Census Bureau Current Population Survey (2006). Midwest States data represents a weighted average of the data for Illinois, Iowa, Minnesota and Wisconsin. It should be noted that the Census Bureau data refers to the educational attainment of the population aged 25 years or older. The trout anglers' data includes all survey respondents, some of whom are younger than 25 years of age. However, inasmuch as younger anglers may yet go on to achieve higher levels of education, the estimate of the educational attainment gap between anglers and the rest of the population is conservatively understated.

¹⁴ Source: U.S. Department of Health and Human Services 2007 Poverty Guidelines, as reported in the Federal Register, Vol. 72, No. 15, January 24, 2007, pp. 3147-3158

Figure III-9: Annual Household Income of Recreational Trout Anglers in the Region



These results are noteworthy for a couple of reasons. Although spending by trout anglers is discussed in more detail in subsequent chapters, we can already begin to appreciate the economic impact of trout angling, as it is clearly an activity enjoyed by those in higher income brackets. Median household income in the United States was \$48,201 in 2006¹⁵. Median household income among our survey respondents was in the \$60,000 - \$79,999 range. We do not have a precise income figure for trout anglers, as respondents were only asked which category represented their approximate household income. However, it is apparent that the average survey respondent enjoys above-average household income - anywhere from 1/4 to 2/3 higher than the national average.

Individuals who earn higher wages tend to have a higher degree of formal education, contribute more to the tax base, and impact the overall economy more than those individuals of lower socioeconomic status. Consequently, the importance of stream restoration in the Driftless Area can not be overstated. Any activity which draws a substantial number of high-income families to reside in the region or visit the region regularly has the potential to contribute substantially to the regional economy. As noted above, the average trout angler in the Driftless Area is a married college-educated man in his mid- to late 40s with a household income of \$60,000 to \$80,000 per year. Improving the trout habitat has had a demonstrable effect of drawing these desirable consumers to the region. Driftless Area use is discussed in detail in Chapter IV.

¹⁵ Source: United States Census Bureau

CHAPTER IV: DRIFTLESS AREA USE

The same survey that was used to capture demographic information was used to acquire information regarding the use of the Driftless area for angling activity. Survey recipients were asked to estimate the number of times they go fishing throughout the year, whether they own or have considered purchasing real estate in the region for recreational purchases, and the extent to which the opportunity for trout angling was a factor in their decision. Surveyed anglers were also specifically asked about their awareness of the efforts which have been undertaken to restore the trout fishing streams in the region, and whether past or future restoration efforts influence their decision to fish for trout in the Driftless Area. This information provides the necessary foundation to begin an analysis of the economic impact of trout angling. In order to determine the amount of money that flows into the economy as a result of trout angling, we need to know not only how much money is spent on each outing, but the frequency with which these outings occur.

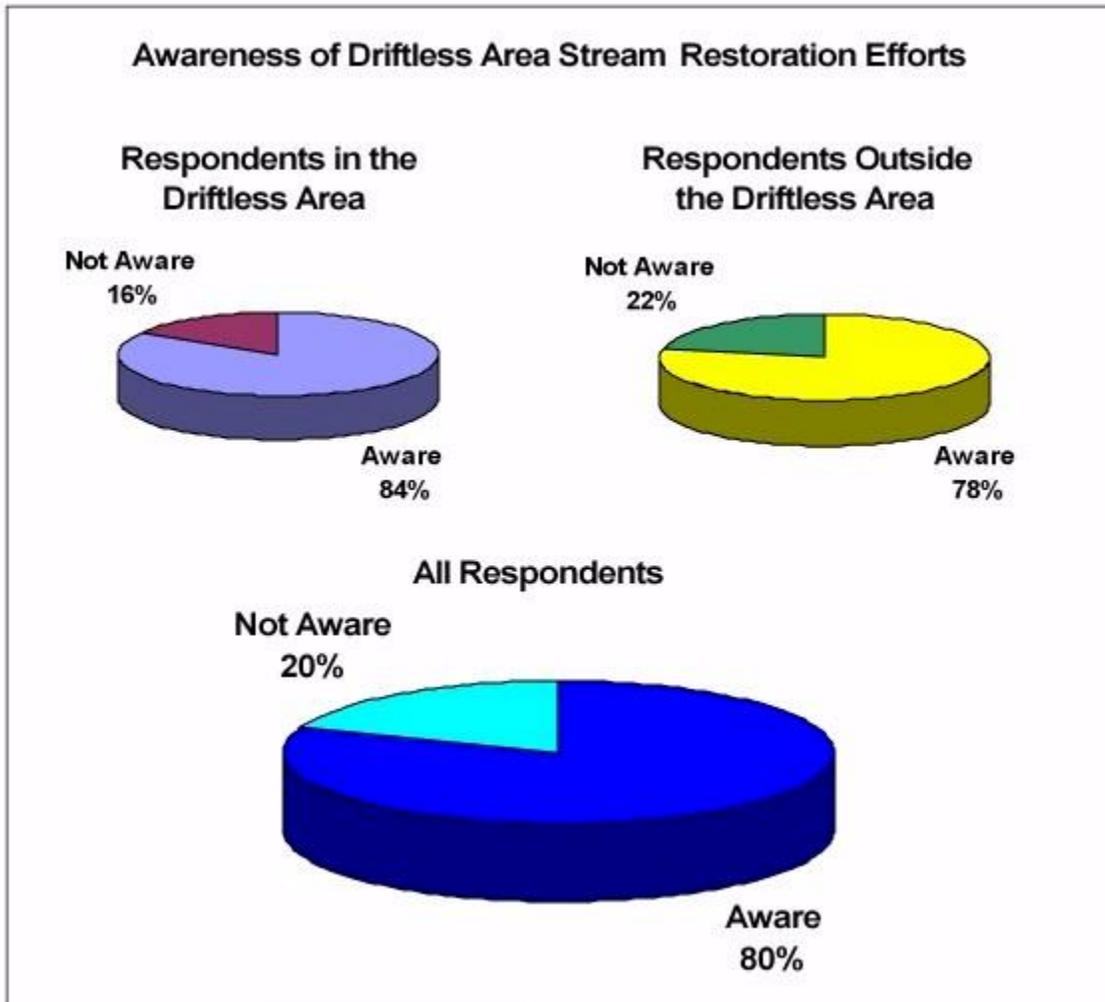
Trout Stream Restoration Efforts

As noted in Chapter 1, restoration of the trout streams throughout the Driftless Area has been occurring for more than 20 years. As there was quite a range in the age of survey respondents, it is likely that some anglers recall a time when streambank erosion rendered many streams in the region all but unusable as a viable angling destination, while others have only known the streams as the healthy trout environment they have become since restoration efforts have taken place. In order to gain an understanding of the extent to which the resource management agencies, Trout Unlimited, and their partners have succeeded in their efforts to promote issues important to them and the services they provide, we asked survey respondents whether they were aware of the stream restoration efforts that have been undertaken, whether past restoration efforts have influenced their angling activity, and whether or not additional efforts in the future had the potential to influence their angling activity.

A substantial majority of survey respondents was aware of the preservation and restoration efforts that have been undertaken. Not surprisingly, awareness was greater among survey respondents who reside in the region. As seen in Figure IV-1 below, four out of five respondents indicated an awareness of Driftless Area Stream restoration. The average trout angler has fished for trout in the region for more than 12 years¹⁶, so it is likely that many respondents are aware of the restoration efforts because they have seen them occur firsthand. However, it is also likely that some anglers learned of the restoration by word of mouth, through their membership in Trout Unlimited, or by reading about the restoration online or in magazines and other publications about angling and outdoor recreation.

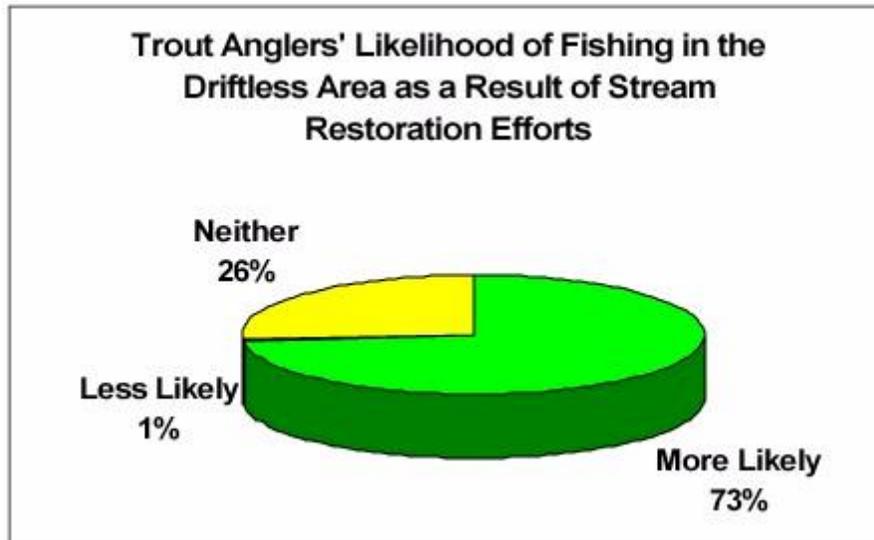
¹⁶ Survey respondents report having fished in the Driftless Area for an average of 12.4 years. However, it should be noted that this calculation represents the average of ALL respondents, including respondents who indicated that they never fish in the Driftless Area. The average among respondents who report having fished in the Driftless Area for 1 or more years is 15.7 years.

Figure IV-1: Survey Respondents Aware of Driftless Area Stream Restoration Efforts of the Past 20 Years



Not surprisingly, a substantial majority of anglers reported that the restoration of the trout streams in the Driftless Area has made them more likely to fish in the region. In fact, the number of respondents who reported that the restoration had a positive influence on their likelihood to fish in the region was nearly equal to the number who indicated they were aware of the restoration in the first place. More than 9 out of 10 survey respondents who indicated that they were aware of the stream restoration also reported that the restoration made them more likely to fish in the Driftless Area.

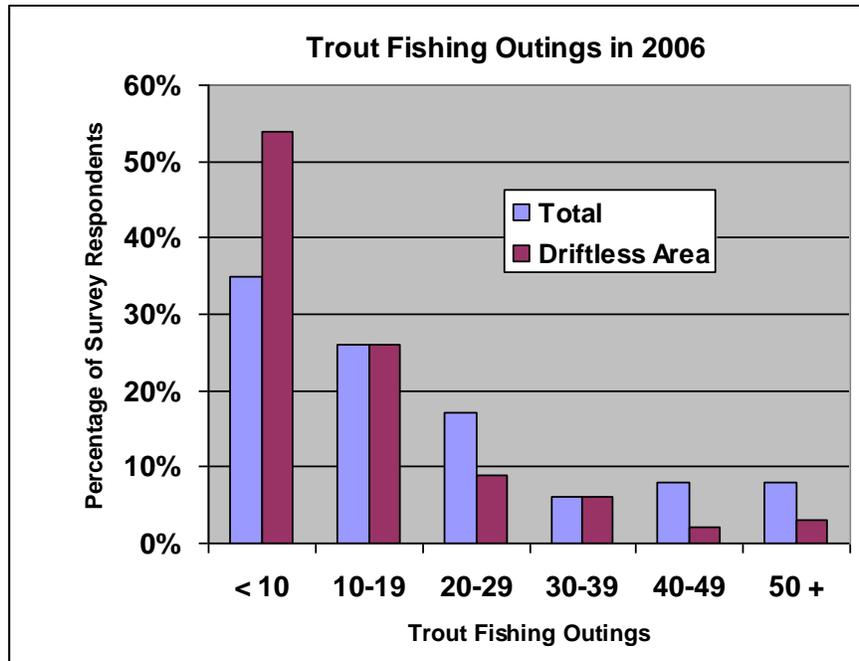
Figure IV-2: Influence of Stream Restoration Efforts on Anglers' Likelihood to Fish in the Region



Fishing Frequency

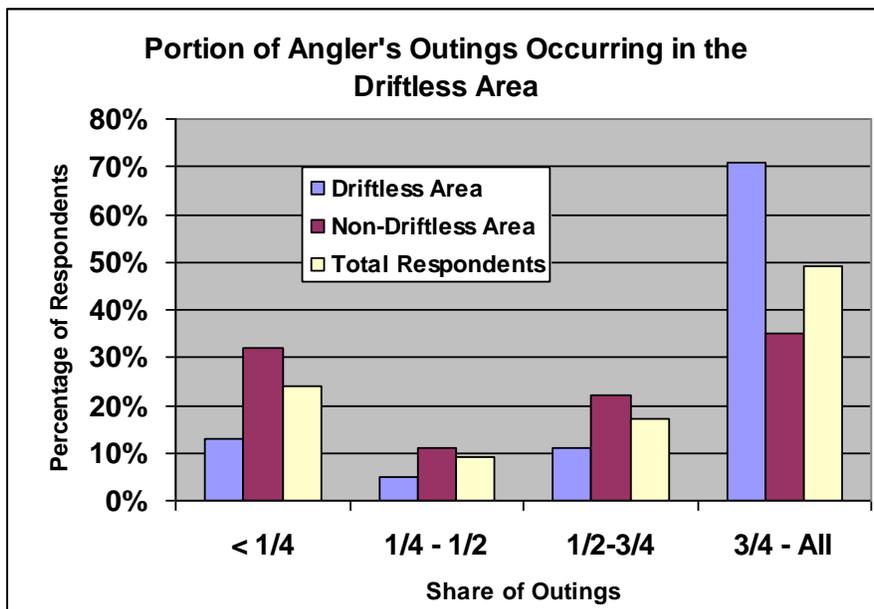
Survey respondents were asked to report the number of times they fished for trout in 2006, as well as the number of those outings that occurred in the Driftless Area. Responses ranged from anglers who - despite having obtained a fishing license and inland trout stamp - never went trout fishing, to those who went more than 100 times in a year. Survey respondents reported an average of 22.5 trout fishing outings in 2006, with an average of 15 (66.5%) occurring in the Driftless Area. Figure IV-3 below summarizes the number of outings reported by survey respondents, as well as the number of outings made inside the Driftless Area.

Figure IV-3: Number of Trout Fishing Outings by Surveyed Anglers in 2006



A majority of respondents do a majority of their trout fishing in the Driftless Area, which is not surprising given the geographic distribution of the survey recipients. Approximately half of all respondents reported selecting the Driftless Area as their fishing destination at least 75% of the time (with more than three-quarters of all respondents reporting doing at least some of their trout fishing in the Driftless Area). The complete breakdown is displayed in Figure IV-4 below.

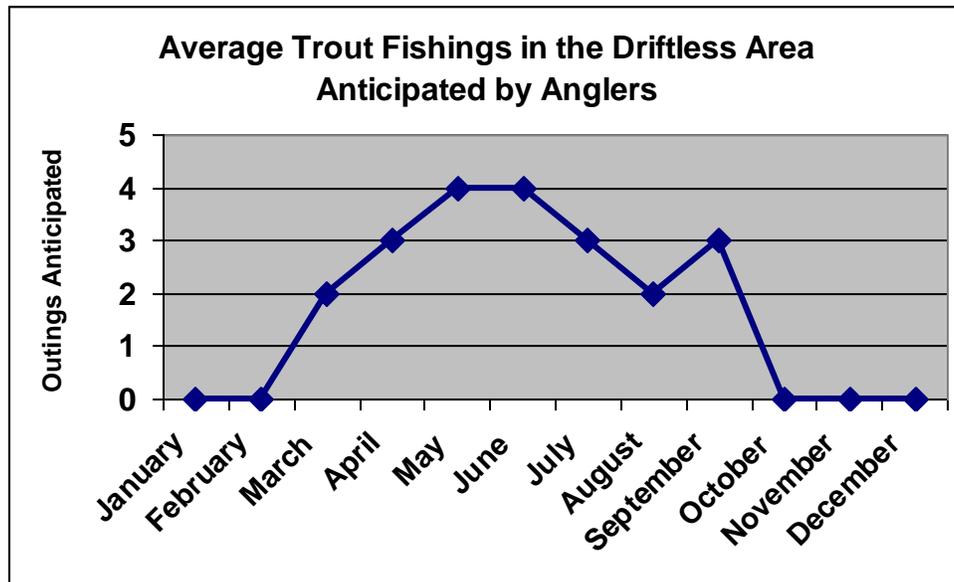
Figure IV-4: Number of Anglers' Outings that Occurred in the Driftless Area



Trout fishing in some Driftless Area states begins with an early catch and release season in March or April¹⁷, and numerous respondents reported that they begin angling at that time. As expected, anglers report fishing more often once the regular open season begins a month or two later. On average, the most popular months for trout angling in the region are May and June. Survey recipients were asked to estimate the number of times in each month they are likely to go trout fishing in the Driftless Area. The results appear in Figure IV-5 below.

At least a handful of respondents reported fishing for trout in the Driftless Area in every month of the year. However, it is clear that the number of anglers who fish for trout in the winter months represents a small minority of the fishing population. As seen in Figure IV-5, the average angler makes no outings from October through February.

Figure IV-5: Anticipated Driftless Area Fishing Outings by Month



Recreational Real Estate

Although not explored in depth in this study, the issue of ownership of recreational real estate is an important one with respect to the issue of economic impact. If, in addition to their primary residence, anglers purchase real estate in the region for the purposes of outdoor recreation, they will contribute substantially to the regional economy, not only through the payment of property taxes on their recreational property, but also through the

¹⁷ In Wisconsin, early catch and release season begins in March, and the regular season begins in May. In Minnesota, early catch and release season begins in early April, with the regular season opening later the same month. In Illinois, trout fishing season begins in April. In Iowa, trout are in season all year.

Sources: Minnesota Department of Natural Resources, Wisconsin Department of Natural Resources, Illinois Department of Natural Resources, and Iowa Department of Natural Resources.

various spending that they do on visits to the property. 11% of all survey respondents reported owning recreational real estate in the region. More importantly, 86% of recreational property owners indicated that the opportunity for trout angling in the region was a factor in their decision to purchase the property. Also, nearly half of all respondents who do not currently own recreational real estate in the region indicated that they have considered making such a purchase. These results are summarized in Figure IV-6 below.

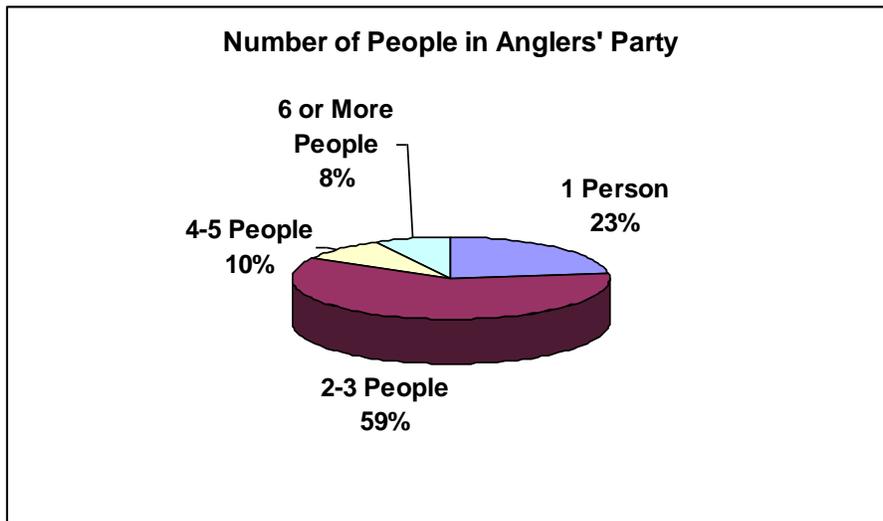
Figure IV-6: Recreational Real Estate Ownership in the Driftless Area

	YES	NO
Recreational Real Estate Owners	11%	89%
	Trout Angling Opportunity a Factor - 86%	Considered purchasing - 47%

Typical Fishing Trips

Survey recipients were asked a number of questions with respect to a typical fishing trip to the Driftless Area, including the duration of their trip, the number of people in their party, and their dining and lodging preferences. Based upon survey responses, fishing in the Driftless Area appears to be most popular as an activity for small groups. Several respondents(23%) reported that they typically fish alone, while others reported fishing with groups of various sizes. The average number of people in respondents' fishing parties was 2.5. Responses are summarized in Figure IV-7 below.

Figure IV-7: Number of People in Respondents' Party on a Typical Fishing Trip to the Driftless Area

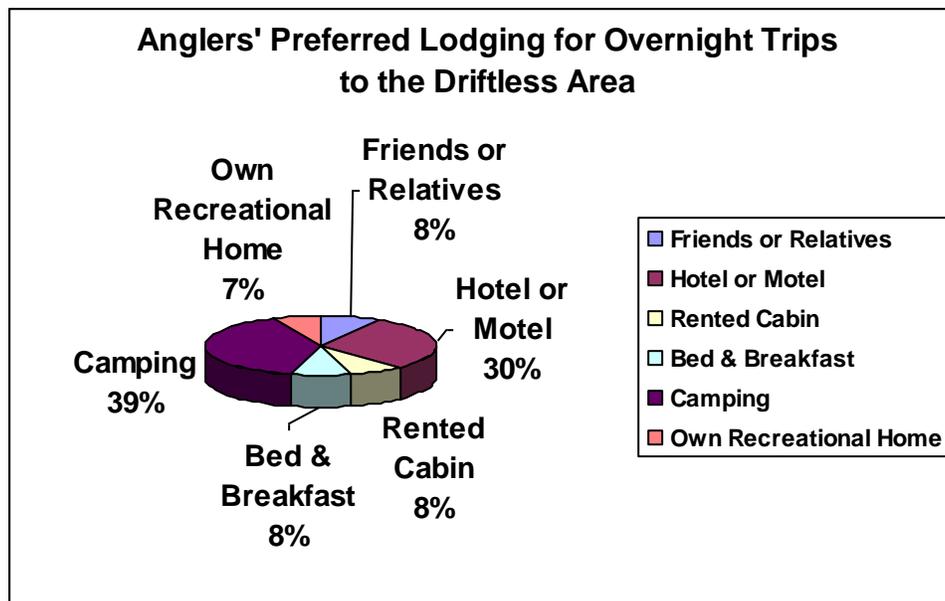


The average angler traveling to the Driftless Area from outside the region takes fishing trips of extended duration, with 12 days and nights representing a typical trip (and 8 of those nights spent in the region). More specifically, respondents reported an average of 12.3 days spent fishing in the region, with an average of 11.7 nights spent away from home, and 7.8 nights spent in the Driftless Area. There are a number of possible explanations for the gap between nights spent away from home and nights spent in the Driftless Area. It may be that anglers combine fishing in the region with other activities outside the region on a typical vacation. It may also be the case that anglers stay overnight in locations between their home and the Driftless Area at the beginning and/or end of their trip. It should be noted that local anglers (defined as those who live within 25 miles of their fishing destination) were asked to skip this question and subsequent survey questions regarding their travel habits, so data included with respect to duration of each trip, lodging, and dining represents results with respect to those anglers who travel more than 25 miles to their destination within the Driftless Area.

Lodging

Survey respondents were asked to report their tendencies with respect to where they stay on overnight fishing trips to the Driftless Area. Camping is the most popular lodging option among anglers who responded to our survey, followed by hotels and motels. Those two options represent more than 2/3 of all responses. The remainder of responses was divided relatively equally among renting a cabin, staying at a bed & breakfast, staying with friends and relatives, and staying in respondents' own recreational home. It should be noted that some respondents reported more than one preference, so the numbers in Figure IV-8 below represent the percentage of all responses, which is a higher number than the number of survey respondents.

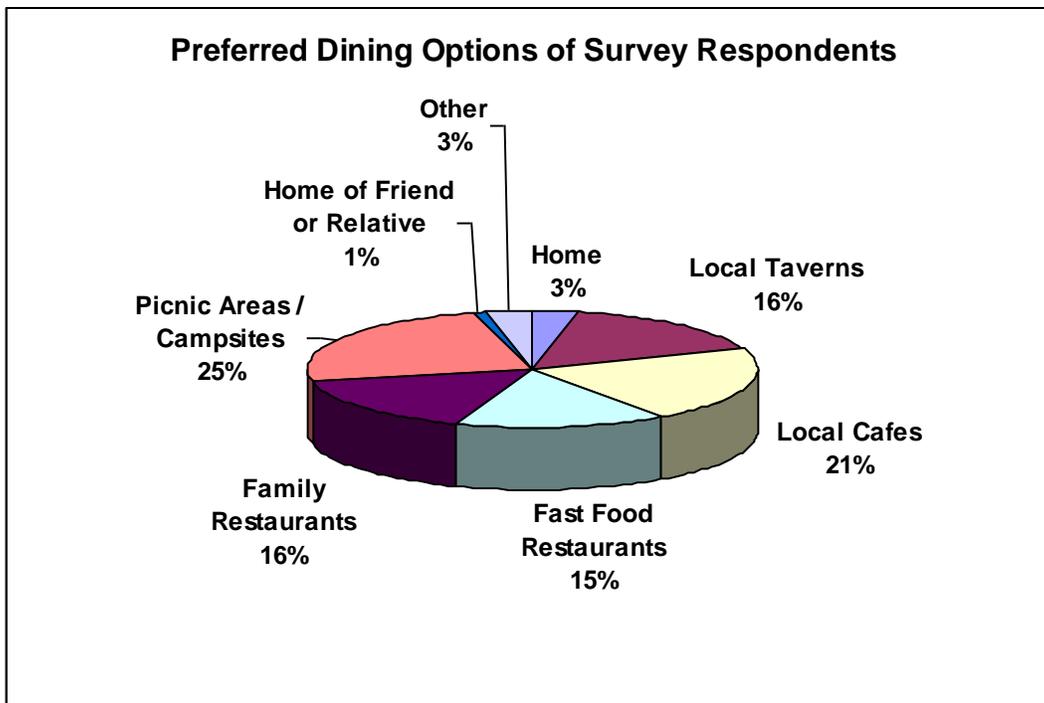
Figure IV-8: Lodging Preference on Overnight Fishing Trips to the Driftless Area



Dining

Survey respondents were also asked to report their tendencies with respect to where they eat their meals while fishing in the Driftless Area. Picnic areas and campsites were the most commonly reported option, which dovetails with the fact that a high percentage of respondents reported that they choose camping over staying in hotels or other lodging options. Local cafes are a popular option as well, with local taverns and family restaurants also representing a significant number of responses. As with lodging, some respondents reported more than one preference, so the numbers in Figure IV-9 below represent the percentage of all responses, which is a higher number than the number of survey respondents.

Figure IV-9: Dining Preference on Fishing Trips to the Driftless Area



Fishing Habits

The streams in the Driftless Area provide a robust trout habitat, in both cold and warm water conditions. However, as other species inhabit the streams as well, anglers were asked what kinds of fish they like to fish for in the Driftless Area. The vast majority of survey respondents - 90% - reported that they like to fish for trout in the Driftless Area. Several respondents also provided more specificity, noting the specific trout species they target, though they were not specifically asked to do so, so we do not have concrete data with regard to the percentage of each trout species. Brown and brook trout were reported most frequently, along with rainbow trout to a lesser degree. The only other species that was frequently reported was bass (in many - but not all - cases, smallmouth bass was specifically indicated), reported by 15% of respondents. Other varieties of fish mentioned by at least one respondent include catfish, walleye, panfish, and bluegill.

Surveyed anglers were also asked what method of angling they use when fishing for trout. Fly fishing was the most popular choice by a large margin, as nearly 3 out of 4 respondents reported it as one of their methods of angling. Spinning, and use of both live and artificial bait are each used by more than a quarter of respondents, while a few indicated using other bait (cheese was mentioned by more than one respondent). Percentages appear in Figure IV-9 below. Note that the total for all categories exceeds 100%, as several respondents reported employing more than one method.

Figure IV-9: Method of Angling Used by Survey Respondents

	Percentage of Respondents
Fly	74%
Artificial Bait	27%
Spin	29%
Live Bait	24%
Other	1%

CHAPTER V: SPENDING

Survey respondents were asked to report the amount of money they spend on angling. For purposes of this study, we are interested in two broad categories of spending: expenditures made on each fishing trip, and expenditures made on equipment, etc. over the long term. Using the Kickapoo Valley Region study as a template, our survey asked respondents to estimate their spending with respect to several significant subcategories in each of those broad categories.

Spending Habits Per Fishing Trip

Anglers who responded to our survey were asked to identify the amount of money that they spend on a variety of different items on each fishing trip that they make to the Driftless Area. Spending categories include fishing supplies, guiding services, restaurants and bars, amusements and entertainment, auto-related expenses, lodging, groceries, souvenirs, gifts and apparel, and other. Survey responses from Driftless Area residents were separated from responses from anglers outside the Driftless Area, so that their responses could be weighed accordingly. Spending data is summarized in Figure V-1 below. As expected, anglers who travel from outside the Driftless Area incur significantly larger expenses, particularly with respect to lodging, automobile-related expenses, guiding services, and dining out. In total, anglers from outside the Driftless Area spend 87% more than local anglers on each outing to the region.

Figure V-1: Average Angler Spending Per Outing¹⁸

	Driftless Area Anglers	Non-Driftless Area Anglers
Fishing Supplies	\$43.22	\$31.84
Guiding Services	\$13.93	\$37.37
Restaurants / Bars	\$39.73	\$86.76
Amusements / Entertainment	\$5.78	\$9.58
Auto-related Expenses	\$47.08	\$60.77
Lodging	\$20.75	\$112.54
Groceries	\$32.29	\$40.89
Souvenirs / Gifts / Apparel	\$3.65	\$8.57
Other	\$3.07	\$3.55
TOTAL PER OUTING:	\$209.50	\$391.88

Long-Term Spending Habits - Equipment, etc.

Survey respondents were also asked to identify the amount of money that they spend on fishing equipment and other items that they use specifically for angling. While there are no doubt some anglers who add to their inventory of equipment every year, the

¹⁸ In this figure and subsequent figures, totals may not sum due to rounding. Monetary values are reported above to two decimal places. However, more precise averages were used to make the appropriate calculations. For example, the \$31.84 in fishing supplies expenditures listed under Non-Driftless Area anglers is actually \$31.8421052631579.

assumption is that most equipment - rods/reels, hip waders, etc., will last longer than a single fishing season. As many anglers do not need to purchase new equipment every year, we asked them to estimate the amount that they have spent in the past five years, on each of several relevant items - rods and reels, flies and lures, hip waders and boots, other clothing specifically purchased for fishing, and other miscellaneous expenditures. Reported averages were then divided by five to calculate the annual average spending in each category. Responses are summarized in Figure V-2 below.

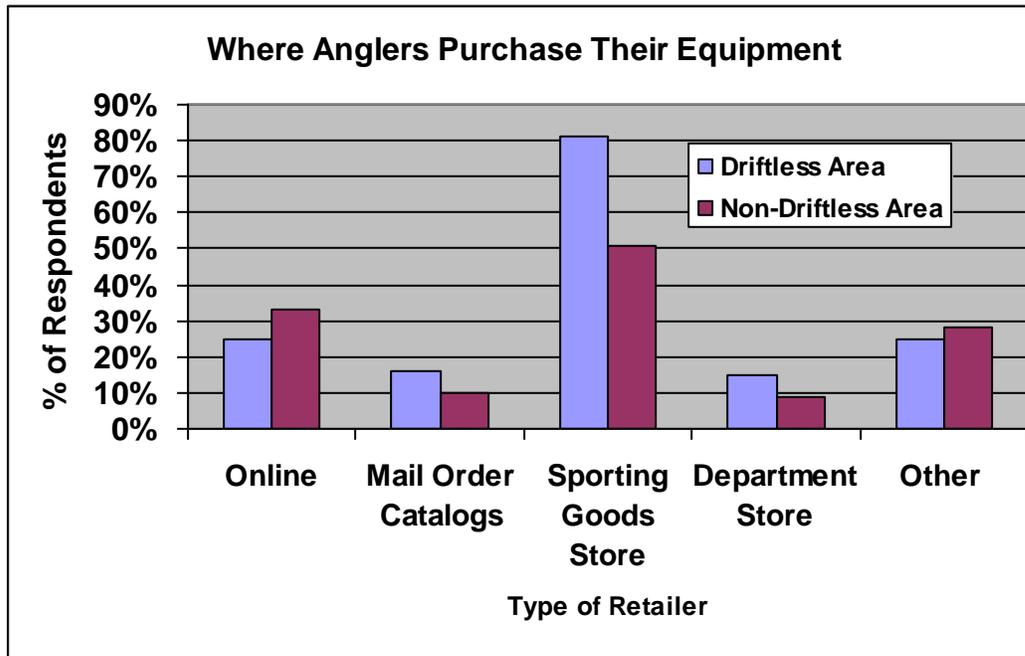
Figure V-2: Average Angler Equipment Spending

	Driftless Area Anglers		Non-Driftless Area Anglers	
	Amount Spent in 5 Years	Annual Average	Amount Spent in 5 Years	Annual Average
Rods and Reels	\$657.99	\$131.60	\$1,948.77	\$389.75
Flies and Lures	\$238.79	\$47.76	\$506.50	\$101.30
Hip Waders / Boots	\$224.96	\$44.99	\$453.13	\$90.63
Bait	\$50.58	\$10.12	\$67.45	\$13.49
Other Clothing	\$162.05	\$32.41	\$352.95	\$70.59
Other	\$69.51	\$13.90	\$102.68	\$20.54
TOTAL:	\$1,403.88	\$280.78	\$3,431.48	\$686.30

For whatever reason, anglers who reside outside the Driftless Area spend considerably more than Driftless Area residents, particularly on rods and reels. In fact, anglers outside the Driftless Area spend more than twice as much as local anglers in nearly every category. However, it should come as no surprise that while the total amount spent is considerably higher, the amount spent in the Driftless Area is considerably less for anglers who do not live in the region. On average, Driftless Area residents reported making 40% of their purchases in the Driftless Area, while outside anglers reported making a mere 17% of their purchases in the region. Their spending is weighed accordingly in the economic impact analysis in Chapter VI.

Of course, with the increasing presence of online retailers and the greater selection of products available in major metropolitan areas, the fact that only a portion of spending occurs in the Driftless Area was anticipated. A breakdown of where anglers report making their purchases appears in Figure V-3 below. Driftless Area anglers are much likelier to make purchases at a sporting goods store or department store, while anglers outside the Driftless Area are more likely to make purchases online. Note that percentages do not sum to 100% as a majority of respondents reported making purchases from more than one type of retailer.

Figure V-3: Respondents' Reported Equipment Spending Habits



CHAPTER VI: ECONOMIC IMPACT

Direct Effect

We received 312 responses to our survey. These responses were initially sorted according to whether or not the respondent resides in the Driftless Area or outside the Driftless Area. 122 respondents (39.1% of the total) reside in a county located in or overlapping the Driftless Area. 190 respondents (60.9% of the total) live outside the area. It is our assumption that this is a representative sampler of trout anglers throughout the Driftless Area states. In other words, for purposes of calculating the economic impact of trout angling in the Driftless Area, we assume that 39.1% of anglers who fish the Driftless Area reside within the region (and share the habits of our Driftless Area survey respondents with respect to their spending habits and angling frequency). By the same token, we assume that 60.9% of anglers who fish the region reside outside the Driftless Area, and share the habits of our non-Driftless Area respondents.

Respondents who reside in the Driftless Area report fishing in the region an average of 22.5 times per year, whereas respondents outside the Driftless Area report fishing the region an average of 9.27 times per year. Figure VI-1 below summarizes the direct spending made by anglers, taking into account the amount that they spend each year on fishing trips, as well as the annual average amount that they spend on equipment.

Figure V-1: Total Direct Spending by Trout Anglers

	Average Spending per Outing	Number of Outings per Year	Total Amount Spent on Outings	Annual Average Spent on Equipment	Total Annual Spending per Angler
Anglers Within Driftless Area	\$209.50	22.5	\$4713.75	\$113.43	\$4827.18
Anglers Outside Driftless Area	\$391.88	9.27	\$3632.73	\$117.22	\$3749.95
Weighted Average = (.391 x \$4827.18) + (.609 x \$3749.95) = \$4171.15					

Averaging the spending data proportionally, we conclude that the average trout angler spends \$4171.15 in the Driftless Area each year. To arrive at the total amount of direct spending in the region, we need to multiply that average times the total number of trout stamp holders in the region. Figure V-2 summarizes the total number of trout anglers in the region.

Figure V-2: Trout Stamp Holder in Driftless Area States - 2006

STATE	Trout Stamp Holders
Iowa	30,993
Minnesota	92,959
Wisconsin	31,118
TOTAL	155,070

The total above represents the total number of anglers who purchased trout stamps in Iowa, Minnesota, and Wisconsin in 2006. By multiplying the total number of trout stamp holders by the average annual spending per angler, we conclude that direct spending in the multi-state region consisting of those states totals nearly \$647 million.

$$155,070 \text{ trout stamp holders} \times \$4171.15 \text{ spent per angler} = \$646,819,673^{19}$$

It is likely that many of these anglers fish in other geographic areas as well. Our calculations are based solely on the spending that anglers reported spending in the Driftless Area. There is no doubt that trout anglers have a significantly higher economic impact throughout their home states and the United States, as they purchase a majority of their equipment outside the region, they each purchase fishing licenses and generate other revenue outside the Driftless Area. Such considerations are noteworthy, but beyond the scope of this study. The above figure represents only that portion of direct expenditures that occur in the Driftless area specifically.

Note that this is a conservative estimate, as Illinois data was not available. Although the Driftless Area represents only a small portion of northwestern Illinois, and it is likely that many licensed anglers in Illinois do the majority of their angling elsewhere, we know that the Driftless Area is a popular angling destination not only among Driftless Area residents, but of Chicago area residents as well (see Figure II-1). We also know that some anglers travel from outside the Driftless Area states to fish in the region. We received survey responses from Michigan, Ohio, and Indiana. The master lists of trout stamp holders obtained for conducting our survey revealed that anglers nationwide feel it is worth investing in a fishing license in a Driftless Area state. Although the numbers were not large enough to justify incorporating them into our survey sample, it is clear that at least a handful of anglers in dozens of other states make the trip to fish in the Driftless Area (and likely spend considerably more money than the anglers we surveyed each time they do so). Accordingly, it is safe to say that there are thousands of anglers not included in the above results, whose inclusion would result in a significantly larger direct spending figure.

¹⁹ 155,070 multiplied by \$4171.15 does not actually equal \$646,819,673. Nevertheless, the figure is correct. The calculation is based upon the precise mean spending figure, which has been rounded to \$4171.15 in the text above. The actual figure which was multiplied by 155,070 is not \$4171.15 but \$4171.146406.

It is also worth noting that this data appears to be consistent with the results of the recent national study conducted by the Congressional Sportsmens' Foundation. As noted in Chapter I, that study concluded that anglers in the Driftless Area states spend in the neighborhood of \$5 billion per year. According to our calculations, roughly 13% of that amount is spent by trout stamp holders in the Driftless Area, which seems reasonable, if not conservative. Of course, our calculations only cover spending in the Driftless Area itself. Much of the spending by Driftless Anglers is made within their home state, but outside the Driftless Area.

Indirect and Induced Effects

Spending produces not only a direct economic effect, but indirect and induced effects as well as those dollars continue to flow through the economy. These indirect and induced effects are determined by applying economic output multipliers, which vary according to industry category and geographic location. Economic multipliers were purchased from the Minnesota IMPLAN Group, which is able to assemble appropriate multipliers for any geographic area specified at the county level. In this particular instance, a definition was chosen for the Driftless Area which included all counties in Illinois, Iowa, Minnesota and Wisconsin which are contained entirely within, or overlap the Driftless Area. 55 counties meet that definition (see Appendix 3 for complete list). The IMPLAN multiplier report contains separate economic multipliers for a variety of industry categories. In order to determine the proper economic multiplier to use, a variety of multipliers (chosen on the basis of the closest match to the survey category) were aggregated and weighed according to the percentage of anglers' total spending that occurred in each category. For Driftless Area anglers, the correct multiplier was determined to be .71 for both the calculation with respect to spending per outing, as well as the spending on equipment. For non-Driftless Area anglers, the appropriate multiplier in each category was determined to be .72, as they tended to spend more in some areas and less in others. See Appendix 4 for a detailed discussion of the different multipliers applied and the way they were weighted to arrive at the final proportionally weighted multiplier.

To calculate the indirect and induced effect of the direct expenditures made by anglers, the appropriate multipliers were applied to the spending data for both Driftless Area anglers and non-Driftless Area anglers and, as with the direct spending data, weighted proportionally. As noted above, the average trout stamp holder spends in excess of \$4,000 per year on angling-related expenses in the Driftless Area. As detailed in Figure V-3 below, as that money flows through the economy, it produces indirect and induced (or "ripple") effects of nearly an additional \$3,000 per angler.

Figure V-3: Indirect and Induced Spending by Trout Anglers

	Annual Spending per Angler - Outings	Annual Spending per Angler - Equipment	Total Indirect/Induced Effect per Angler
Anglers Within Driftless Area	\$4713.75 (Weighted economic output multiplier = .71)	\$113.43 (Weighted economic output multiplier = .71)	\$3445.94
Anglers Outside Driftless Area	\$3632.73 (Weighted economic output multiplier = .72)	\$117.22 (Weighted economic output multiplier = .72)	\$2708.20
Weighted Average = (.391 x \$3445.94) + (.609 x \$2708.20) = \$2996.66			

By multiplying the total number of trout stamp holders by the average annual indirect and induced effects per angler, we conclude that the indirect economic contribution to the region totals nearly \$465 million.

155,070 trout stamp holders x \$2996.66 per angler = \$464,691,659 "Ripple Effect"²⁰

Adding the direct spending total to the indirect and induced spending total reveals that trout anglers produce an economic benefit to the Driftless Area in excess of \$1.1 billion every year.

**TOTAL ECONOMIC CONTRIBUTION:
\$46,819,673 Direct Effect + \$464,691,659 Indirect/Induced Effects =
\$1,111,511,332**

Return on Investment

As noted in Chapter I, 453.6 miles of trout streams in the Driftless Area have been restored in the last 25 years. The cost of streambank restoration varies from project to project. We do not have precise figures for the expenditures associated with the myriad restoration projects in the Driftless Area in the last 25 years. However, Trout Unlimited reports that the typical stream restoration projects cost between \$80,000 and \$120,000 per mile of stream restored. For ease of analysis, we will use the midpoint of that range - \$100,000. At a cost of approximately \$100,000 per mile of stream restored or enhanced, stream restoration in the Driftless Area represents a significant investment - over \$45 million. While that investment is indeed significant, there is little doubt as to the value of that investment. As result of spending that \$45 million, the Driftless Area has seen significant improvements in trout habitat, drawing recreational anglers who contribute more than a billion dollars to the regional economy every year. Put another way, every dollar spent on stream restoration returns approximately \$24.50 to the regional economy, and that's just in a single year. Once restored, trout streams remain viable for many

²⁰ As with the direct spending calculation, this figure was derived by multiplying the 155,070 trout stamp holders by the actual average spending figure, which is not the rounded figure of \$2996.66 stated above, but \$2996.657375.

years, generating that same tremendous effect year after year. Accordingly, the true return on investment for each dollar spent on trout stream restoration is in fact hundreds of dollars.

Conclusions

Trout angling is a substantial economic driver in the Driftless Area. The roughly \$45 million that has been spent on stream restoration has contributed significantly to the development of a thriving trout fishery which draws tens of thousands of anglers to the region each year. Anglers spend in excess of \$600 million in the Driftless Area each year, producing a total economic benefit of approximately \$1.1 billion in the region each year. This is a conservative estimate, and only the tip of the iceberg. That \$1.1 billion includes only spending by anglers in Iowa, Minnesota, and Wisconsin. Inasmuch as we know that the Driftless Area is a popular trout fishing destination for anglers around the country, it is likely that this calculation significantly understates the true economic impact of trout angling and the stream restoration efforts which have occurred in the Driftless Area. It is also worth noting that, although beyond the scope of this study, there are significant additional economic impacts of trout angling in the Driftless Area states. It is more than simply the Driftless Area region that benefits economically from angling activity and stream restoration. The states in which the Driftless Area is located enjoy significant economic benefits in the form of additional spending done in the state but outside the Driftless Area, sales tax generated from that hundreds of millions of dollars in direct spending, millions of dollars in revenue from issuing fishing licenses and trout stamps, and property taxes generated by the recreational real estate purchased by anglers in the region.