

## DETERMINING STANDARDS OF QUALITY FOR PAY FISHING ESTABLISHMENTS IN WEST VIRGINIA

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**Abstract:** Pay fishing involves paying a fee for the privilege of fishing a body of water where fish populations are enhanced by stocking farm-raised fish. This study compared angler motives and beliefs about standards of quality among those anglers fishing for channel catfish in a catch-and-release fee structure under a competitive program format and those anglers fishing for rainbow trout in a catch-and-harvest fee structure under a non-competitive program format. The purpose of this study was to determine the standards of quality for the pay fishing experience in West Virginia as they relate to type of fish caught, fee structure, and the motives of the angler in order to provide pay fishing business owners with information on how to most effectively use farm-raised channel catfish and rainbow trout in the recreation market. Results indicated that these two groups of anglers differed significantly in most of twenty-seven itemized desired recreational fishing experiences as well as their beliefs about standards of quality for the size of the fish caught and the unit of effort required to catch the fish. The authors of this

study recommend to business owners that fish stocked in ponds at pay fishing establishments need to be stocked at a size and density appropriate to the beliefs of the anglers who fish for them.

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### Introduction

There are over thirty pay fishing businesses that help make up the growing recreation market in West Virginia aquaculture. Pay fishing involves paying a fee for the privilege of fishing a body of water where fish populations are enhanced by stocking farm-raised fish. A fishing license is not required of the angler to fish in these private waters, most often ponds. Logar, Ponzurick, and Semmens (2001) reported that bluegill, bass, trout, and catfish are the four most preferred species that in-state and out-of-state anglers would like to catch in West Virginia. The overall goal of our research effort is to gain understanding as to how these species can be better utilized in the West Virginia recreational market. In this, our first study on this particular form of recreation, we examined fishing opportunities involving channel catfish and rainbow trout.

Pay fishing establishments attract anglers by utilizing various fish species under different fee structures (catch-and-harvest or catch-and-release) and program formats (competitive or non-competitive) to produce high quality recreation opportunities that are desired by customers. However, the fish are often supplied to these establishments by state and regional farms that are structured to cater to the food industry, rather than the recreational market. Thus, the size of the fish stocked, and potentially the stocking density, reflect the demand of consumers in an entirely different market.

In order to most effectively select fee structures and program formats, the managers of a pay fishing establishment must first understand the motives of their customers and the customers' beliefs about standards of quality set for the fish they are catching. The purpose of this study was to determine the standards of quality for the pay fishing experience in West Virginia as they relate to type of fish caught, fee structure, and the motives of the angler in order to provide pay fishing business owners with information on how to most effectively use farm-raised fish in the recreation

market. Phase One of this study focused specifically on catch-and-release channel catfish tournaments and non-competitive catch-and-harvest rainbow trout fishing opportunities. By comparing these two popular combinations of species selection, fee structure and program format, this study will help pay fishing establishments better utilize farm-raised channel catfish and rainbow trout.

## Methods

Three pay fishing establishments in West Virginia were selected for data collection sites, based upon the diversity of their locations, fish species, fee structures and program formats. One site was Mill Run Farm in Marlinton, WV, which is located adjacent to the Monongahela National Forest. In the 2002 season, Mill Run stocked four ponds with steelhead, rainbow, brown and brook trout. The fee structure at this establishment was catch-and-harvest with a non-competitive program format. Another data collection site was Whispering Pines in Alum Creek, WV, which offered one pond stocked with channel catfish, shovelhead and brown trout. The fee structure at this establishment combined catch-and-harvest and catch-and-release opportunities, dependant upon size and type of fish caught, with a competitive program format. The final data collection site was Family Fishing and Camp in Wendel, WV, located to the relatively large urban center of Fairmont. This establishment offered four ponds in the 2002 season, stocked with various combinations of bass, catfish, carp, bluegill, flathead, sunfish and trout in each pond. The fee structure at this establishment combined catch-and-harvest and catch-and-release opportunities, dependent upon size and type of fish caught. The program format at Family Fishing and Camp was primarily non-competitive, with the exception of two evening fishing competitions per week on Friday and Saturday nights. This establishment also provided its customers with cabin rental and camping opportunities.

Sampling days were systematically selected between 2 June and 17 August 2002, with weekend and weekdays being equally represented. An eight-hour time block was randomly selected for each sampling day. Using a random number table, researchers randomly selected one adult (18 years of age or older) from each group of customers and

asked these individuals to participate in an on-site interview and complete a mail-back questionnaire. The short on-site interview was developed primarily to determine customer demographics (age, gender and annual household income), as well as other information such as variables in determining travel cost. Customers' motives and beliefs about catch-related standards of quality were among the variables examined in the mail-back questionnaire. Twenty-seven experience opportunities, indicating customer motives for seeking their chosen fishing experience, were rated for desirability using a seven-point Likert scale (-3 very undesirable to +3 very desirable). Customers were also prompted to report the species they most targeted during their visit; for this species, they further indicated the number of fish caught, average size of the catch, approximate size of the largest fish caught and the amount of time they spent fishing. Each of these catch-related variables was rated for acceptability on a seven-point Likert scale (-3 very unacceptable to +3 very acceptable). Of the 340 questionnaires distributed, responding participants totaled 220 at a response rate of 65%.

Data were entered and analyzed using the Statistical Package for the Social Sciences (SPSS version 10.0 for Windows). Only data concerning anglers who targeted channel catfish within a catch-and-release fee structure and competitive program format and anglers who targeted rainbow trout within a catch-and-harvest fee structure and a non-competitive program format were included in the analysis. These two groups of study participants were compared using descriptive statistics and t-tests.

## Results

*Channel Catfish Anglers in a Catch-and-Release Fee Structure and Competitive Program Format*  
Demographically, channel catfish anglers tended to be male (84%), travel in a variety of travel groups and had an average annual household income of less than \$30,000 (Table 1). Among the twenty-seven experience opportunities examined for desirability, the six fishing experiences most desired by this group of anglers were to escape from pressures, recover from everyday stresses, enjoy the natural scenery, be with people who share similar values, catch large fish and to tell others about their visit to the pay fishing establishment (Table 2).

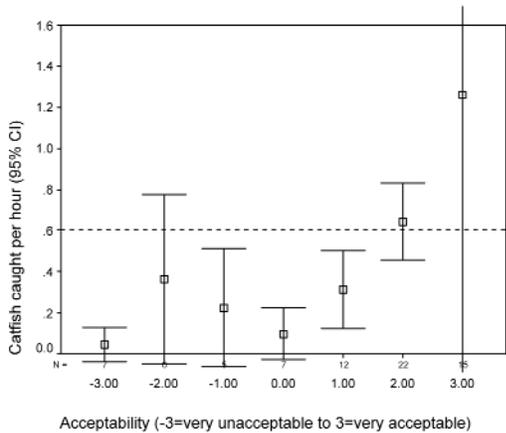


Figure 1. Number of channel catfish caught per hour by acceptability rating.

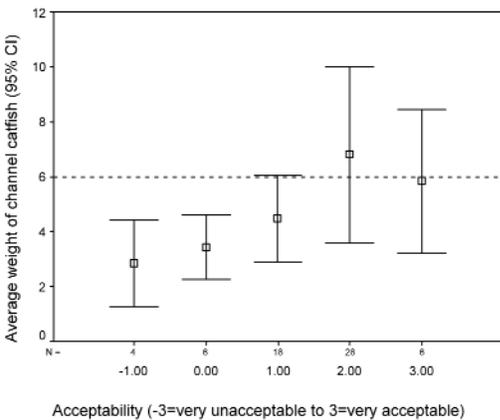


Figure 2. Average pounds per channel catfish by acceptability rating.

Catch-related variables rated for acceptability showed a noticeable increase in acceptability as the unit of effort approached 0.6 fish caught per hour, or approximately one fish caught for every two hours of fishing (Figure 1). Acceptability ratings also noticeably increased when the average weight of each fish caught approached 6 pounds (Figure 2).

#### *Rainbow Trout Anglers in a Catch-and-Keep Fee Structure and Non-Competitive Program Format*

The demographic characteristics of rainbow trout anglers included a tendency for these anglers to be older (average age of 47 years), to travel as a family with children (62%) and have an average annual household income of greater than \$52,000. Further, the distribution of males (59%) and females (41%) tended to be much more even than

Table 1. — Angler Characteristics

	Rainbow Trout Anglers	Channel Catfish Anglers
Number of participants	29	84
Average age (years)	47	39
Gender		
Male	59%	84%
Female	41%	16%
Travel group		
Alone	3%	20%
A couple	14%	14%
Family with children	62%	24%
Two or more families or relatives together	10%	14%
Family and friends	3%	14%
Two or more friends together	3%	14%
Other	3%	1%
Average reported annual income (US dollars)	\$52,600	\$29,800

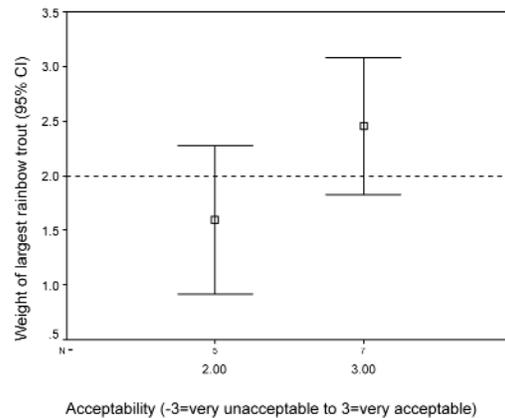


Figure 3. Weight (lbs.) of largest rainbow trout by acceptability rating.

with the channel catfish anglers (Table 1). Among the twenty-seven experience opportunities examined for desirability, the four fishing experiences most desired by this group of anglers were to take a child fishing, spend time with their families, catch fish to eat and to experience fishing excitement (Table 2). Noticeable increases in the acceptability ratings of the analyzed catch-related variables occurred as the weight of the largest rainbow trout caught approached two pounds (Figure 3) and as the number of fish caught per trip approached five (Figure 4).

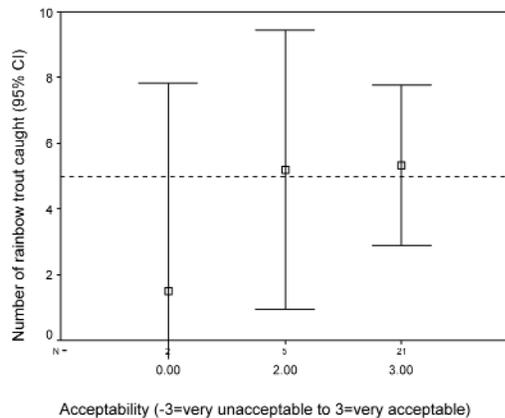


Figure 4. Number of rainbow trout caught per trip by acceptability rating.

## Discussion

The results of this study indicate that the fishing experiences sought by different types of anglers vary greatly. Anglers who prefer fishing for catfish in a tournament come to pay fishing establishments for significantly different reasons than those who attend these establishments to fish for rainbow trout to take home with them. Therefore, those who own and manage West Virginia pay fishing establishments should be aware that there are different segments within the recreational pay fishing market, and that choosing a particular fee structure and program format will attract a particular type of angler whose motives, experiential preferences and beliefs about standards of quality for pay fishing experiences differ from those anglers in other segments of the market. Further, the standards of quality reported by the various types of anglers within the recreational pay fishing market are different from the standards of quality set for the food industry, the driving force behind fish production and distribution at fish hatcheries and farms. Fish stocked in ponds at pay fishing establishments need to be stocked at a size and density appropriate to the beliefs of the anglers who fish for them.

**Channel Catfish Anglers in a Catch-and-Release Fee Structure and Competitive Program Format**  
 These anglers seek opportunities to escape from pressures, recover from everyday stresses, enjoy the natural scenery, be with people who share similar values, catch large fish and to tell others about their visit to the pay fishing establishment.

Recommendations to pay fishing establishments for appealing to anglers in catfish tournaments include stocking average channel catfish at a weight of six pounds, maintaining a population of channel catfish at a density conducive to catching 0.6 fish per hour (about one fish per two hours fishing) and maintaining a natural looking environment. These fishing opportunities tend to attract males that travel in a wide range of travel groups.

### *Rainbow Trout Anglers in a Catch-and-Keep Fee Structure and Non-Competitive Program Format*

These anglers seek opportunities to take a child fishing, spend time with their families, catch fish to eat and to experience fishing excitement. Recommendations to pay fishing establishments for appealing to anglers fishing for rainbow trout non-competitively include stocking the largest rainbow trout at a weight of two pounds and maintaining a population of these fish at a density conducive to catching five fish per visit. Pay fishing business owners should consider marketing this experience primarily to families with young children.

## Suggestions for Further Research

This study examined two popular types of pay fishing modes of business operation, catch-and-harvest rainbow trout angling and tournament catfish angling, in order to help pay fishing business owners and fish producers better utilize farm-raised rainbow trout and channel catfish in the recreation market. It seems likely that the position of a fee fishing business in the agricultural tourism industry can be determined to a large extent by the combination of fish species, fee structure and program format. Future research is still necessary to understand how bluegill and bass, two other popular species at pay fishing establishments in West Virginia, can contribute to this recreation market. Particularly, what fee structures and program formats for these and other fish species deserve special attention from researchers?

## References

- Logar, C., Ponzurick, T.G., & Semmens, K. (2001). A strategic approach for marketing recreational fee fishing in Appalachia. Preliminary report. Morgantown, WV: West Virginia University, College of Business and Economics.

**Table 2. — Desired Recreational Experiences**

Recreational Experience	Anglers Targeting Rainbow Trout			Anglers Targeting Channel Catfish		
	Rank	n	Mean*	Rank	n	Mean*
Feel more free	11	29	1.38	19	81	1.78
Experience fishing excitement	4	29	2.17	13	81	1.88
Spend time with my family	2	29	2.28	8	78	2.10
Catch fish to eat	3	28	2.25**	26	79	-0.61**
Escape from pressures	6	28	1.79**	1	80	2.44**
Enjoy the natural scenery	5	29	1.97	3	82	2.28
Improve my fishing skills and abilities	27	29	0.17**	18	80	1.78**
Catch a trophy-size fish	22	29	0.55**	10	80	1.98**
Do something challenging	26	29	0.24**	9	81	2.00**
Meet new people	24	29	0.45**	12	81	1.93**
Keep physically fit	25	29	0.31**	23	79	1.25**
Learn more about nature	23	29	0.52**	21	80	1.45**
Catch the limit	21	29	0.69**	22	81	1.44**
Experience adventure	18	29	0.83**	15	79	1.84**
Experience solitude	19	29	0.76**	17	80	1.79**
Recover from everyday stresses	15	29	1.14**	2	81	2.32**
Be with people who share similar values	13	29	1.17**	4	81	2.23**
Rest physically	14	29	1.14**	11	80	1.95**
Catch large fish	12	29	1.28**	5	81	2.19**
Get away from crowds of people	8	28	1.46	24	79	1.15
Be alone	16	28	0.93	25	78	0.55
Rest mentally	10	29	1.34**	7	81	2.11**
Strengthen ties to my friends	17	29	0.86**	19	79	1.67**
Meet/observe people	20	29	0.69**	20	81	1.58**
Take a child fishing	1	29	2.48**	16	80	1.81**
Be in a wild area	7	29	1.48	14	81	1.88
Tell others about my visit	9	29	1.34**	6	80	2.16**

\*Means reflect responses based on a seven-point Likert scale from -3 (very undesirable) to +3 (very desirable).

\*\*These non-competitive rainbow trout (catch-and-harvest) angler scores are significantly different from competitive channel catfish (catch-and-release) angler scores. (t-test, 2-tail,  $p < .05$ ).

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