

WEST VIRGINIA FEE FISHING STUDY SUMMARY REPORT

Summary of Selected Findings
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Chad D. Pierskalla, Ph.D., Michael A. Schuett, Ph.D.,
Jamie N. Fields, Aurora Moldovanyi
Recreation, Parks and Tourism Resources
West Virginia University, Division of Forestry

cpierska@wvu.edu; Ph. 304-293-2941 ext. 2410

Introduction

There are over thirty fee 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 or out-state anglers would like to catch in West Virginia. The overall goal of our research effort is to better understand how these species can be better utilized in the West Virginia recreational market.

Among the primary concerns for a successful pay fishing establishment include customer motives, beliefs about catch-related standards of quality, and demand behavior for various fishing opportunities. 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. Phase one of the study focused specifically on catch-and-release channel catfish tournaments and on-competitive catch-and-harvest rainbow trout opportunities. By comparing these two popular opportunities, this study will help pay fishing establishments better utilize farm raised channel catfish and rainbow trout.

Method

Study instruments

A mail-back questionnaire and on-site interview were developed, pre-tested, and implemented during phase one of the fee fishing study.

On-site interview—A short on-site interview was developed to determine customer demographics (age, gender, and household income), type of trip (visit to pay pond is a primary destination or part of a larger travel plan), type and size of vehicle, distance traveled, additional food costs, and trips made to site during the last twelve months.

Mail-back questionnaire—Customers' motives and their beliefs about catch-related standards of quality were among the variables examined in the mail-back questionnaire. Customer desire to attain twenty-seven experience opportunities (motives) were measured using a seven-point Likert scale (-3 very unimportant to +3 very important). Customers also were asked to report the species they most targeted during their visit, and for this species, they were asked to report the number of fish caught, average size of catch, average size of largest fish caught, and the time they spent fishing. Customer acceptability for each catch-related variable was measured using a seven-point Likert scale (-3 very unacceptable to +3 very acceptable).

Study sites

Three data collection sites were chosen and represent different physical, social, and managerial settings. The sites were as follows:

- Mill Run Farm, Marlinton, West Virginia
 - Located near the Monongahela National Forest

- Non-competitive program format
 - Catch-and-harvest fee structure
 - Four stocked ponds in the 2002 season
 - Steelhead, rainbow, brook and brown trout
- Whispering Pines, Alum Creek, West Virginia
 - Competitive program format
 - Combination of catch-and-harvest and catch-and-release fee structure, depending upon size and type of fish caught
 - One stocked pond
 - Channel catfish, shovelhead and brown trout
- Family Fishing and Camp, Wendel, West Virginia
 - Two evening fishing competitions per week, otherwise non-competitive program format
 - Combination of catch-and-harvest and catch-and-release fee structure, depending upon size and type of fish caught
 - Four stocked ponds
 - Bass, catfish, carp, bluegill, flathead, sunfish and trout in various combinations per pond
 - Other services include cabin rental and camping opportunities

Sampling

Sampling days were systematically selected between 2 June and 17 August 2002. Weekend and weekdays were 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 and older) from each group of costumers. Selected individuals were asked to participate in an on-site interview and complete a mail-back questionnaire. Of the 340 questionnaires distributed, responding participants totaled 220, at a response rate of 65%.

Analysis

Data were entered into a statistical software package and analyzed. Only those anglers that targeted channel catfish during a catch-and-release tournament or targeted rainbow trout during a catch-and-harvest structure were included in the analysis. These two groups of study participants were compared using summary statistics and t-tests.

Results

Costumer characteristics

Channel catfish tournaments (catch-and-release)—The average age of costumers was 39 years. Anglers tend to be male (84%), travel in a variety of travel groups, and have an average household income less than \$30,000 (Table 1, Appendix A).

Rainbow trout (catch-and-harvest)—Anglers tend to be older (average age=47 years), male (59%) and female (41%), travel with family with children (62%), and have an average household income greater than \$52,000 (Table 1, Appendix A).

Customer motives

Channel catfish tournaments (catch-and-release)—Among twenty-seven items examined, the six most desired fishing experiences reported by anglers include escape from pressures, recover from everyday stresses, enjoy the natural scenery, be with people who share similar values, catch large fish, and tell others about my visit (Table 2, Appendix B).

Rainbow trout (catch-and-harvest)—Among twenty-seven items examined, the four most desired fishing experiences reported by anglers include take a child fishing, spend time with my family, catch fish to eat, and experience fishing excitement (Table 2, Appendix B).

Catch-related standards of quality

Channel catfish tournaments (catch-and-release)—A noticeable increase in acceptability ratings occurred as the unit of effort approached 0.6 fish caught/hour (Figure 1, Appendix C) and when the average weight of individual fish caught approached 6 pounds (Figure 2, Appendix C).

Rainbow trout (catch-and-harvest)--An increase in acceptability ratings reported by study participants was noticeable as the weight of the largest fish caught approached two pounds (Figure 3, Appendix C) and as the number of fish caught approached five fish per trip (Figure 4, Appendix C).

Price elasticity of demand

A travel cost method was used to determine the sensitivity of demand to changes in travel cost. Those respondents indicating that their visit to a fee fishing site was the primary destination of their trip were included in the analysis. The number of trips made to the fee fishing site by customers in the last twelve months were plotted against the travel cost (gas and additional food cost) to the site (Figure 5, Appendix D).

Channel catfish tournaments (catch-and-release)—The horizontal demand curve indicates that demand is price elastic (Figure 5, Appendix D). The average travel cost for these anglers is \$6.03 per trip. These results suggest that most costumers travel short distances. A slight increase in travel cost will dramatically decrease the number of trips these costumers will make to the site each year. Other products that are price elastic include pleasure boats, radio and TV sets, and airline travel.

Rainbow trout (catch-and-harvest)—The vertical demand curve indicates that demand is price inelastic. The average number of trips made by customers per year is 2.41. These results suggest that visitors are more likely to travel greater distances, but they make fewer trips per year. A slight increase in travel cost will have little affect on the number of trips these costumers make to the site each year. Other products that are price inelastic include food, clothing, shoes, tires, and camping in the Rocky Mountains.

Discussion

Channel catfish tournaments (catch-and-release)—These anglers seek opportunities to catch large fish, tell others about their visit, be with people who share similar values, and escape from pressures and everyday stresses. A high quality fishing trip might consist of catching one fish, weighing six pounds or more, every two hours. Demand for these opportunities is price elastic. Using additional program formats (e.g., clubs, fishing derbies, or other special events) and utilizing alternative fish species (e.g., bass) might help attract customers from a larger geographical region.

Rainbow trout (catch-and-harvest)—These anglers seek opportunities to take children fishing, spend time with family, catch fish for eating, and experience excitement. A high quality recreation opportunity includes catching five fish per trip with the largest fish weighing at least two pounds. Demand for these opportunities is price inelastic. Managers might consider increasing prices for these high quality experiences, and attract more repeat customers by offering discounts for return visits.

References

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

Appendix A

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

Appendix B

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).

Appendix C

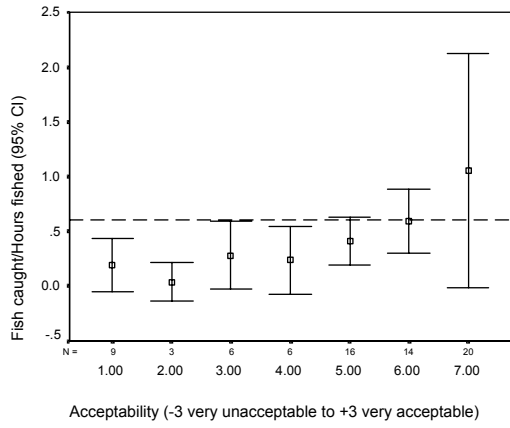


Figure 1. Number of channel catfish caught per hour by acceptability rating.

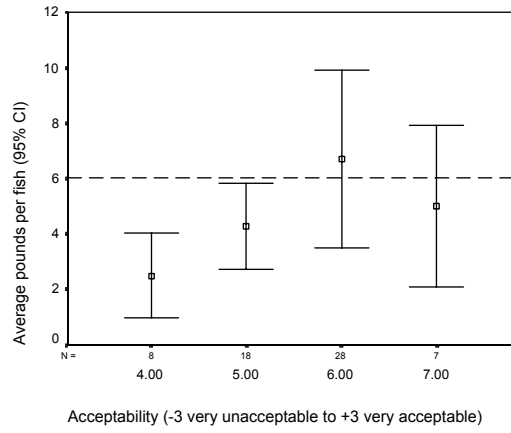


Figure 2. Average pounds per channel catfish by acceptability rating.

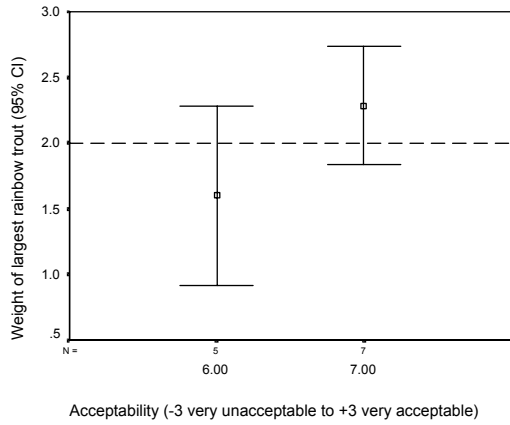


Figure 3. Weight (lbs.) of largest rainbow trout by acceptability rating.

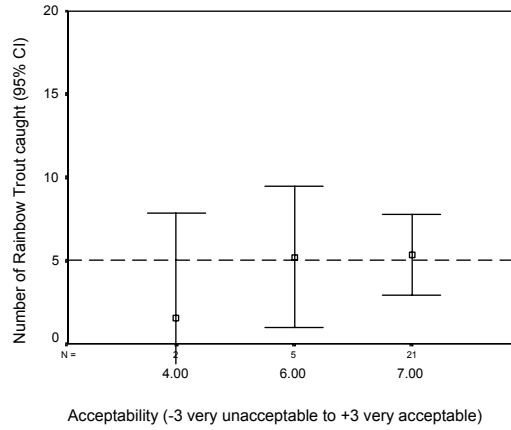


Figure 4. Number of rainbow trout per trip by acceptability rating.

