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The Social Hierarchy of Fishing: Myth or Reality?

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This study compared the activity involvement of hand fishers (lower status) with trout anglers (higher status) in Missouri. Hand fishing is deeply ingrained in the culture of many mid-western and southern states. The object is to catch fish without modern equipment. A small number of rural citizens practice hand fishing despite the stigma often associated with it. Other than anecdotal evidence, little is known about this sport or its participants. Surveys were administered to hand fishers (n = 103) and trout anglers (n = 523) in Missouri to measure their respective levels of activity involvement. No significant differences were found between the groups using a 12-item activity involvement index. Centrality to lifestyle (one dimension of activity involvement), however, was more important for hand fishers than trout anglers. Implications for resource policy are discussed.

Keywords hand fishing, noodling, catfish, folklore, recreation specialization, resource policy

Introduction

Hand fishing is a primitive method of catching freshwater turtles or catfish without using traditional gear. This activity is known by names such as hogging, tickling, grabbing, grappling, or stumping, but one of the more colorful terms is noodling, "a silly or stupid action or idea" (Salazar, 2002). Although some snapping turtles (*Chelydra serpentina* and *Macroclemys temmincki*) as well as blue catfish and channel catfish (*Ictalurus furcatus* and *Ictalurus punctatus*, respectively) are caught by hand, the flathead catfish (*Pylodictus olivaris*) is preferred by most hand fishers because of its size, aggressiveness, and flavor (Jackson, 1999). First practiced by Native Americans, this activity is deeply ingrained in the culture of many mid-western and southern states (Bilger, 2000).

Hand fishing is legal in some states, but not in others. In 1919, hand fishing was banned by the Missouri state legislature. The reason is unknown, but this law may have been influenced more by progressive-era thinking than biology. According to the Missouri Department of Conservation (MDC), some present day concerns about hand fishing include: fair chase, reduced opportunities for rod-and-reel anglers, nest/egg disturbance, overharvest, cultural values, and safety (Miller, 2001). These arguments are not persuasive for hand fishers, hence the sport is controversial. Because this activity has a strong heritage value, many hand fishers view their participation merely as a folk crime. Muth (1998) defined folk crimes as minor offenses that do not violate public sentiment. Perpetrators of these violations are called outlaws, bandits, or desperados, not criminals.

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Despite its history and folklore status, little is known about hand fishing or those who participate in this activity (Salazar, 2002). A few studies have examined the biological effects of hand fishing (Bobea, 1989; Francis, 1993; Jackson, Francis, & Ye, 1997; Winkelman, 2003), and some literature has addressed the social aspects (Bourne, 1988; Bilger, 1997; Salazar, 2002), but more information is needed to formulate resource policy. Are hand fishers similar to other anglers? What are their motives for participation? Is activity involvement the same for different types of fishing? If these questions remain unanswered, hand fishers are being treated like the "crazy aunt" kept in the basement, simply because resource managers do not know how to deal with her (Gill, 1996; Mortenson & Krannich, 2001).

Literature Review

Prior to 1970, the fishing literature primarily dealt with biological aspects, not issues on human dimensions. Moeller and Engelken (1972) were among the first authors to examine angler motivations. Since then, numerous studies have measured the relative importance of catch and non-catch factors associated with fishing (Hudgins, 1984; Graefe & Fedler, 1986; Loomis & Ditton, 1987). Some research has shown that fishing success does not necessarily equate with harvest levels because many non-catch motives are important (Fedler & Ditton, 1994). Instead of focusing on motives, Holland and Ditton (1992) studied satisfaction and concluded that fishing success had more to do with leisure than harvest, at least for some anglers. Perhaps the most influential study in the fishing literature dealt with recreation specialization (Bryan, 1977).

Recreation Specialization

Bryan (1977, p. 175) defined recreation specialization as, "a continuum of behavior from the general to the particular reflected by equipment and skills used in the sport and in recreation setting preferences." Bryan identified four types of anglers and positioned them on a continuum ranging from lowest to highest levels of specialization (i.e., occasional, general, technique specialists, technique setting specialists). The premise of specialization is that participants move along the continuum in a linear and progressive manner. Because Bryan studied trout anglers, the implication was that "occasional" anglers eventually would become "technique-setting specialists," given enough time. The primary benefit of Bryan's study was to dispel the notion that anglers are alike and should be managed as one homogeneous user group.

Recreation specialization attempts to explain intra-activity variation using variables such as: equipment selection, attitudes toward resource management practices, skill development, environmental and social preference settings, amount of experience, lifestyle choices, and activity style. Specialization, however, has been measured in different ways. One explanation is a three-factor model consisting of the behavioral, psychological, and cognitive aspects (Manning, 1999). Although this model of recreation specialization has gained widespread acceptance, several criticisms have been raised. Sometimes the meanings of activities are excluded, thus obscuring the nature of specialization (Bricker & Kerstetter, 2000; McIntyre & Pigram, 1992). Kuentzel and McDonald (1992) suggested that one's progression along the continuum may not be inevitable. In fact, Brown and Siemer (1992) indicated that recreationists may move in either direction, depending on situational factors. According to Gill (1980), recreation specialization was focused on "elite" types of fishing (e.g., trout), while minimizing the importance of "lesser" fish (e.g., catfish).

Many anglers in the United States consider trout to be superior to catfish, presumably because the former are "wily" creatures and the latter are "lowly" bottom-feeders. Gill (1980) said this fishing ideology was imported from Europe. Recreational fishing, especially trout and salmon angling, was practiced exclusively by aristocrats—not members of the working class. Thus, fishing became known as a gentleman's sport (Waterman, 1975). Although remnants of cultural elitism remain in today's society, fishing for catfish is a popular activity. The USDI (2001) reported the number of catfish anglers in the United States was nearly the same as trout anglers (7.5 million vs. 7.8 million, respectively).

Despite many similarities between catfish anglers and other types of anglers, Gill, Schramm, Forbes, and Bray (1999) indicated some fundamental differences. Catfish anglers, as compared with those fishing for largemouth bass, crappie, and sunfish placed more importance on harvest levels and catching large fish, while showing the least amount of support for harvest restrictions (Bray, 1997; Schramm, Forbes, Gill, & Hubbard, 1999). These authors also found that catfish anglers had lower household incomes and education levels, and more diversity in age structures, gender, and ethnic backgrounds than other types of anglers.

Are there differences among catfish anglers? Wilde and Ditton (1999) studied four different types of catfish anglers in Texas (flathead, blue, channel, and "generic" catfish) and found agreement on many fishing motives. Individuals fishing for flathead and blue catfish, however, differed from other catfish anglers on two important dimensions: a higher consumptive orientation and a stronger desire for catching trophy-sized fish. Wilde and Riechers (1994) found the least amount of support for fishing regulations among flathead and blue catfish anglers. Perhaps flathead and blue catfish anglers were responsible for the deviations reported by Schramm et al. (1999).

Gill (1980) reported that flathead anglers in Kansas held low-paying jobs that were physically demanding. When given the opportunity to fish, these anglers adopted a relaxed attitude toward the sport. Despite long periods of inactivity, they were ready (and strong enough) to catch trophy-sized catfish. The ensuing battle was intense, sometimes lasting for hours until the line was broken or the fish was landed. Although flathead catfish anglers tended to be loners, brief conversation with other fishers was expected. Some of the bait shop owners said they were dedicated. Others referred to flathead anglers as "die-hards," because they would go fishing during the winter months. Few in number, flathead anglers were considered to be the most avid fishers.

Does recreation specialization apply to catfish anglers? According to Gill (1980), flathead anglers showed much specialization. This included bait and tackle choices, along with an extensive knowledge of catfish behavior and river conditions. Gill estimated that 54% of catfish anglers were positioned in the upper portion of the continuum (32% as technique specialists and 22% as technique-setting specialists). Wilde and Riechers (1994) found that flathead catfish anglers were the most experienced, had the highest self-rated skill level, and were most likely to own boats—all indicators of recreation specialization. Despite showing the least amount of support for fishing regulations, Wilde and Ditton (1999) reported that flathead anglers were in the "upper extreme" of the recreation specialization continuum.

Not enough information is known about hand fishers to compare them with traditional flathead catfish anglers. Some evidence suggests a few commonalities: a desire to catch trophy-sized fish, a high consumptive orientation, and low support for fishing regulations. Despite these similarities, there would be a high potential for social conflict if these anglers encountered each other. Gill (1980) reported that traditional

catfish anglers held a disdain for those using other approaches to catch flatheads, including hand fishers. In sum, the fishing literature indicates the presence of a social hierarchy, based not only on species (trout vs. catfish), but also on technique (traditional vs. hand). If intra-activity variation occurs, it is likely that hand fishers are the lowest status among all anglers.

Activity Involvement

Although recreation specialization is multidimensional, Bryan thought that the meaning of activity participation was a key component—especially for those at the upper end of the continuum. The meaning of activity participation has been described as serious leisure and enduring involvement. This study used the phrase activity involvement.

According to Stebbins (1982), participants engaging in "serious leisure" can be characterized by: (a) perseverance (loyalty, despite fatigue or injury), (b) a "career" orientation (personal history, levels of accomplishment, and length of involvement), (c) a significant amount of personal effort (based on knowledge, skill, or training), (d) a need for obtaining durable benefits (self-actualization, self-enrichment, personal renewal, feelings of accomplishment, self-image, self-expression, social interaction/belongingness, products derived from the activity, and fun), (e) a unique ethos (development of subcultures or leisure social worlds), and (f) a tendency to identify strongly with their leisure activity (passionate and talkative).

One of the first authors to apply the meaning of activity participation to specialization was McIntyre (1989). The term enduring involvement was used to describe this construct. The three dimensions receiving the strongest empirical support were: attraction, self-expression, and centrality. Attraction refers to the enjoyment and importance of participation. Self-expression is how an individual perceives an activity to be a reflection of their personality. Centrality indicates the presence of a leisure lifestyle, emphasizing the social aspects of participation.

Centrality is frequently used to describe a portion of the recreation specialization continuum (Wellman, Roggenbuck & Smith, 1982; Chipman & Helfrich, 1988; Bricker & Kerstetter, 2000; Hvenegaard, 2002). Not surprisingly, it has produced mixed results. Perhaps this inconsistency was due to the items selected, rather than a theoretical concern. According to McIntyre (1989), centrality was the strongest factor for discriminating among recreationists.

Purpose of the Study

This study examined the activity involvement of hand fishers (lower status) and trout anglers (higher status) in Missouri. The two groups were compared using an overall activity involvement scale and on each of the three dimensions comprising the index (attraction, self-expression, and centrality).

Methods

Angler Selection and Sampling Procedures

Subjects represented two distinct fishing groups in Missouri; hand fishers and trout anglers. The sampling frame of Missouri licensed anglers (~500,000) probably excluded many hand fishers. Hand fishers who are licensed anglers might not want to admit their

participation in this sport for fear of reprisal. Hand fishers were identified through a clandestine organization called Noodlers Anonymous (NA), formed in 2000 to legalize hand fishing in Missouri. With the assistance of NA, participants were enlisted in the study using a "snowball" sampling procedure (n = 184). Every individual on the list was asked to participate.

During the winter of 2004, NA facilitated the survey process. First, hand fishers received a pre-notification message on NA stationary (signed by their president). This initial communication device served two purposes: validating the mailing list and helping to establish credibility. The second mail-out contained a cover letter (university letterhead, signed by the researcher), a questionnaire, a musical Compact Disc (*The Missouri Noodler*), and a business reply–only envelope. The final correspondence was a follow-up letter on university stationery (co-signed by the researcher and NA president), containing a replacement questionnaire, and a business-reply envelope. A modified version of the tailored design method was used throughout the survey process (Dillman, 2000). An identification number was placed on the first wave of questionnaires to assist in locating non-respondents. The second wave of questionnaires was mailed without identifiers to increase the likelihood of response. All questionnaires were returned directly to the university. To preserve anonymity, the mailing list remained unknown to the researcher and the questionnaires were not given to NA.

Trout anglers were surveyed at Montauk State Park (MSP), one of the three "put-and-take" trout parks co-managed by the Departments of Conservation and Natural Resources in Missouri. MSP is a popular destination for trout anglers. Attendance is approximately 420,000 annual visitors, of which 120,000 participate in trout fishing. A diversity of trout anglers visit MSP, partly due to the management zones (catch and release, fly fishing, and artificial lure/natural bait) created to reduce social conflict along the river.

During the summer of 2003 (Memorial Day through Labor Day), 523 trout anglers were selected randomly from 3 sampling locations at MSP: parking lots, riverbanks, and overnight accommodations. This procedure was replicated to include weekend versus week day and morning versus afternoon sessions to ensure that a proportionate number of anglers were represented in the sample. At specified intervals (days/times/locations), researchers approached trout anglers and asked if they would like to participate in the study. Less than 10 anglers refused to comply with this request, even while fishing. After receiving verbal consent, each angler was given a clipboard and pen, and completed the questionnaire on-site.

Questionnaire

Questions answered by both hand fishers and trout anglers dealt with activity involvement, identical to the scale developed by McIntyre (1989). The three factors were: attraction (5 items); self-expression (4 items); and centrality (3 items). Anglers evaluated the items on 5-point scales, each ranging from "strongly disagree" to "strongly agree."

Results

Response Rates

Of the 184 questionnaires distributed to hand fishers, 103 were completed and returned (56% response rate). A non-response bias check was not made due to the sensitive nature of this topic. The response rate for trout anglers was 99%.

Demographic Characteristics

Although the average hand fisher was 40 years old (M = 40.38 years old; SD = 15.65; range = 67), the large standard deviation and range indicated much variation in their ages. Most of the participants began hand fishing during adolescence (M = 13.62 years old; SD = 5.41; range = 32), and have practiced this sport for nearly two-thirds of their lives. Hand fishing is a male-dominated sport. Females comprised only 6% of the sample. Over 90% of participants lived in rural areas (towns under 5,000 population). Most had completed high school (55%), and few had graduated from college (6%). About one-half of the respondents' income was between $25,000 and $55,000 per year. Mostly, hand-fishermen worked in "blue-collar" professions (e.g., building and construction, farming, skilled trades). The demographic questions were not asked to MSP trout anglers, so comparisons between these two groups were not possible.

Activity Involvement

The 12-item activity involvement scale yielded an overall Cronbach alpha of .90. Separate coefficients calculated for hand fishers (.89) and trout anglers (.90) were of similar magnitude. Reliability scores for the attraction and self-expression dimensions also exceeded .80 for both groups (Table 1). The alpha coefficients for the centrality dimension, however, were .64 for hand fishers and .65 for trout anglers. A series of paired t-tests determined that the factors were mutually exclusive for both sets of anglers ($p \leq .04$ in all cases, Table 2).

Independent sample t-tests were performed to measure differences between the angler groups (Table 3). The overall activity involvement index for hand fishers (M = 3.87) was not statistically different from the trout anglers (M = 3.86). The two groups were also statistically equivalent on the attraction and self-expression subscales. Hand fishers, however, scored significantly higher on central life interest than trout anglers (M = 3.53 vs. 3.30, respectively).

Comparisons on the individual items indicated that 4 of 12 items were significantly different between the two types of fishing. Trout anglers scored higher than hand fishers on "offers me relaxation," and "others see me the way that I want them to see me" (M = 4.36 vs. 4.10 and M = 3.76 vs. 3.55, respectively). In contrast, hand fishers scored higher than trout anglers on "enjoy discussing [it] with my friends," and "most of my friends are connected with [it]" (M = 4.29 vs. 3.86 and M = 3.39 vs. 2.93, respectively).

Discussion

Two unexpected findings were produced in this study. First, the activity involvement scores of hand fishers and trout anglers were nearly identical, despite differences in species and technique. Although the social hierarchy of fishing is firmly established in modern culture, this result implies that "status" among anglers is a myth. Perhaps this outcome will be useful to fishery biologists as they contemplate the "appropriateness" of hand fishing as a method of harvest. Second, centrality was more important for hand fishers than trout anglers. Because centrality is an important component of recreation specialization, it is likely that hand fishers have adopted a set of "special beliefs, values, moral principles, norms, and performance standards" associated with this activity (Stebbins, 1982, p. 257). These factors may indicate a subculture, "webs of meaning that

Table 1
Item reliability coefficients using the activity involvement scale: Hand fishers vs. trout anglers

Factors	Hand fishers (HF)		Trout anglers (TA)	
	Item total correlation	Alpha if item deleted	Item total correlation	Alpha if item deleted
Attraction (α = .82 HF; α = .85 TA)				
"X" offers me relaxation when life's pressures build up	.43	.84	.60	.84
"X" is one of the most satisfying things I do	.76	.73	.78	.79
"X" is one of the most enjoyable things I do	.72	.75	.80	.78
I have little or no interest in "X"*	.51	.81	.51	.86
"X" is very important to me	.68	.76	.65	.82
Self-expression (α = .88 HF; α = .82 TA)				
When I am "X" others see me the way I want them to see me	.76	.85	.64	.78
When I am "X" I can really be myself	.71	.87	.59	.80
You can tell a lot about a person when you see them "X"	.73	.86	.66	.77
"X" says a lot about who I am	.79	.83	.70	.75
Centrality (α = .64 HF; α = .65 TA)				
I enjoy discussing "X" with my friends	.34	.67	.32	.71
I find that a lot of my life is organized around "X"	.49	.47	.44	.58
Most of my friends are in some way connected with "X"	.54	.41	.63	.29

*Item was reversed-coded.

Table 2
Paired *t*-tests using the factors of activity involvement: Hand fishers vs. trout anglers

	Hand fishers				Trout anglers			
Factors	*n*	Diff. means	*t*-value	*p*-value	*n*	Diff. means	*t*-value	*p*-value
Attraction vs. Self-expression	99	0.54	8.24	<0.001	531	0.45	19.92	<0.001
Attraction vs. Centrality	101	0.716	11.21	<0.001	532	0.94	36.57	<0.001
Self-expression vs. Centrality	100	0.14	2.07	0.041	531	0.49	17.67	<0.001

Table 3
Independent samples *t*-tests using the factors of activity involvement: Hand fishers vs. trout anglers

	Hand fishers			Trout anglers			Test statistics		
Factors	*M*	*SD*	*n*	*M*	*SD*	*n*	*t*-value	*p*-value	*Eta*
Attraction	4.23	0.58	101	4.25	0.60	532	0.30	0.761	0.012
Self-expression	3.70	0.82	100	3.79	0.68	531	1.29	0.196	0.051
Centrality	3.53	0.74	102	3.30	0.78	532	2.75	0.006	0.109
Total	3.87	0.60	99	3.86	0.59	531	0.18	0.861	0.007

involve tradition, ethnic heritage, individual and social identities, and other socio-cultural factors" (Muth & Bowe, 1998, p. 10). It appears that hand fishing is an entrenched behavior.

Although volumes have been written about the trout fishing subculture (Sax, 1980), virtually nothing is known about hand fishing, except for some anecdotal evidence (mostly negative stereotypes). More information on the hand fishing community is needed to gain some insights, formulate resource policy, and ensure proper management. Many people are searching for ways to "express their abilities, fulfill their potential, and identify themselves as unique human beings" (Stebbins, 1982, p. 251). Increasingly, these opportunities are being diminished in the post-industrial workplace as many people turn to leisure to fill this void in their lives. Perhaps Leopold (1949) was describing this phenomenon when he said that the value of recreation was related to the intensity of its experience and the degree that it contrasts from daily life. It appears that hand fishing is an example of this principle for some rural residents.

Modern culture thrives on competition and success (Coleman, 1994). Due to the competitive nature of society, people want to be successful at something. Although the forces of competition and the desire to succeed are pervasive throughout society, individuals have a tendency to express these needs in different ways. For example, noodlers define fishing as a thrill-seeking activity whereas trout anglers consider fishing to be relaxing. Another term for success is power (control over one's environment). The primary motivation for snake handling among some individuals living in southern Appalachia was not religion, but control (Covington, 1995, p. 43). The snake handlers reported, "It makes you feel different. It's just knowing that you got power over them snakes." The need for power may be manifested in recreational choices; those having power seek activities that provide contemplation whereas those in need of power seek opportunities that encourage domination (Sax, 1980). Perhaps this is one motivation that underlies the behavior of hand fishers.

Management Implications

Two possible reasons for hand fishing as a central life interest are the age that individuals begin this sport (~14 years old) and their longevity of participation (~ 66 percent of their life). The effort to legalize hand fishing in Missouri is one example of centrality, at least for some members of NA. This campaign has resulted in an unprecedented amount of media coverage on noodling. For noodlers, the fundamental issue was equity; they resented being told by MDC that hand fishing was "inappropriate" when other [primitive] types of fishing, such as gigging and snagging, were legal methods of harvest. Furthermore, the "legal-in-other-states" argument was used by hand fishers as a way to leverage fairness against MDC.

Optimum Sustained Yield (OSY) is a resource management philosophy that considers a broad range of sociological, economic, biological, and production capabilities of fish stock, rather than focusing on harvest goals alone (Ross, 1997). If OSY is the modern framework for fisheries management and conservation, then a broad range of constituency groups should be identified to achieve this goal. It appears that the views of hand fishers have been taken into consideration, despite some objections to this practice. In 2005, MDC approved an experimental hand fishing season so fishery biologists could study its effects on three rivers in the state. Hopefully, this monitoring process will include both the ecological and social aspects of hand fishing so fishery biologists can develop a comprehensive catfish management strategy for Missouri.

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