

TOWARD A COMPREHENSIVE UNDERSTANDING OF ANGLER INVOLVEMENT

Tommy L. Brown and William F. Siemer

Senior Research Associate and Research Support Specialist,
Human Dimensions Research Unit, Department of Natural
Resources, Cornell University, Ithaca, NY 14853

This paper synthesizes recent Cornell University studies on recreation involvement, with special emphasis on fishing. It examines angler involvement from a broader perspective that includes goals/motives for involvement, and changes in these goals that may occur over time, or even from one experience to the next.

Introduction

The development of a more complete understanding of angler involvement is both a topic of great interest to management agencies and a substantial academic challenge. At the state level, anglers provide substantial revenues for fisheries programs through their purchase of fishing licenses. Because of their interest in their sport, anglers frequently provide meaningful lobbies for water quality enhancement, the protection of fish habitats, and stocking policies that fully utilize potential fishery resources. Angler groups frequently take strong positions on a variety of issues, ranging from the mixture of species stocked in particular waters to allocation decisions between commercial and sport fishing interests. While issue-oriented surveys may adequately portray where a given group of anglers stands on a particular issue at a specific point in time, fisheries agencies need a broader and deeper information base for comprehensive planning efforts. Central to this information base is a better understanding of fishing involvement. By "involvement", we mean motivations for fishing, satisfactions sought from the activity, and the stability of fishing participation in both an individual and an aggregate sense.

Researchers in the Human Dimensions Research Unit at Cornell University have worked over a period of nearly two decades on analogous questions concerning hunting involvement. As this research progressed through the latter half of the 1980s, we became convinced that the approaches we used to examine hunting involvement had direct application to fishing involvement. Research funded by the New York Sea Grant Institute and the New York State Department of Environmental Conservation have allowed us to conduct recent inquiries into fishing involvement. This paper presents a synthesis of some of that research.

Methods

The framework for examining fishing involvement parallels that used for hunting involvement (Decker et al. 1987). In brief, this framework involves a goal-driven model that presumes that a particular form of recreation activity such as fishing, or more specifically, a Lake Ontario salmon boat-fishing trip, is considered by the angler or the angler's friends or family as a means of satisfying certain goals. A variety of intervening influences, both personal or internal and social or external, mediate along with situational factors such as weather and available time to affect whether and when the proposed

activity or outing is actually pursued. This and other models have been formulated by researchers to explain whether or not individuals will initially try or adopt a new activity. However, we have proposed that this goal-driven model operates not just initially in the case of someone who chooses to try salmon fishing for the first time, or when an experienced participant decides to take a boat fishing trip rather than to play golf on a specific Sunday afternoon. It also operates temporally in reference to a particular activity, from the development of initial interest to trying the activity, pursuing it, adopting it as an activity to pursue regularly, continued pursuit of the activity, and eventual desertion from the activity. Discontinuation is possible at any stage, however.

The concept of personal investment theory (Maehr and Braskamp 1986) was also easily integrated into the framework for fishing involvement and made the framework more robust. Maehr and Braskamp portray a "personal investment-product-evaluation triangle" operating over time in which individuals (not necessarily in a leisure setting) make a personal investment of time, energy, and resources in some type of product or activity (e.g., a place of employment, further education, a particular type of vehicle) and periodically evaluate that investment in deciding whether or not to continue it. This portrayal is entirely consistent with our previous temporal model of pursuing a recreation activity, described above. Personal investment can also be viewed as the decision to invest in and pursue a particular type of recreation activity such as fishing. Maehr and Braskamp note that similar external and internal factors as those noted in the Decker et al. (1987) model affect the motivation that results in particular personal investments. Maehr and Braskamp also note three general types of outcomes from personal investment as achievement, personal growth, and life satisfaction. While somewhat different as itemized from the overall satisfaction concept and its various components that are found in recreation research, we still find personal investment theory to be a concept that enriches our previous framework and have therefore integrated it into our work in fisheries research. Personal investment theory was used previously in a study of Indiana and Illinois Great Lakes anglers (Absher and Collins 1987).

This paper draws upon several recent fisheries studies. These include studies of Lake Ontario salmonid boat anglers (Siemer et al. 1989a, 1989b), a statewide mail survey of licensed New York anglers (Connelly et al. 1990a), and a study of Salmon River salmon anglers (Connelly et al. 1990b). The Lake Ontario salmonid boat angler survey was conducted in two phases consisting of in-depth personal interviews which were tape recorded for further analysis, and a mail survey to a random sample of 1,101 boat owners who registered a boat for primary use in one of five counties bordering western or central Lake Ontario (437 respondents had fished Lake Ontario by boat in the previous two years). The 1988 New York statewide angler survey involved a mail survey with responses from over 10,000 anglers about fishing activity, motivations for fishing, and valuation of fishing, among other topics.

This synthesis is divided into segments dealing with various aspects of fishing involvement. After presenting overviews of findings from our studies, we examine gaps in knowledge that remain and suggest areas of research that should prove fruitful.

Motivations for Fishing

Preliminary interviews of Lake Ontario boat anglers indicated that achievement, affiliation, and appreciation, motivations shown by previous research to be important to hunting (Decker and Connelly 1989), were each important to fishing. As a result

boat anglers were asked in the mail survey specifically about the importance of deriving these three types of satisfaction from fishing. The majority of respondents indicated that each was at least moderately important, although 39% indicated that achievement had little or no importance. However, factor analysis using principal components extraction showed five motivational groupings of these boat anglers for recreation activities generally (challenge, accomplishment, affiliation, escape/appreciation, and novelty), and four motivations for fishing generally (challenge, accomplishment, affiliation/appreciation/escape, and novelty). Somewhat different individual components were used for hunting than fishing. As a result, some of the domain included by "accomplishment" for boat anglers overlaps with the domain termed "achievement" by Decker and Connelly. However, the novelty factor uncovered for these recreationists both for recreation generally and for salmonid boat angling has received little previous attention in the literature for fishing, and did not appear to be important in exploratory interviews of hunters (Decker et al. 1984).

The presence of a novelty-related factor for fishing was also confirmed in a statewide study of New York anglers (Connelly et al. 1990a). Among a broader group of respondents that included nonresidents as well as residents of New York, five factors were identified by factor analysis: catch, appreciative/affiliative, eating fish, solitude/exploration, and new skills. While the individual scale items did not factor out in a manner that different components related to achievement or accomplishment grouped together, it seems clear that catching fish was very important to this diverse group of anglers. A majority (55%) indicated that catching at least one fish was essential to a satisfying fishing experience. Catching several fish and catching large fish were rated as important by a majority of respondents. The factor "eating" included not only catching fish to eat, but fishing in areas where fish are safe to eat. The latter item was rated essential to a satisfying experience by 66% of respondents, the highest rating received for any item in the scale. The factor "solitude/exploration" included fishing where there are few people and exploring new fishing areas. The factor "new skills" received high factor loadings for trying out new gear and for mastering fishing skills and thus appears to overlap at least partially with the novelty domain found in the Lake Ontario boat-angler survey.

One would expect motivations of anglers who engage in or prefer specified types of fishing to differ from those of other anglers. Siemer et al. (1989b) found that Lake Ontario boat anglers who participated in fishing tournaments had much higher mean factor scores for challenge and accomplishment than those who did not participate in tournaments. Similar results were found for those who had snagged for salmon in tributaries versus those who had not. A subset of highly invested anglers was also defined on the basis of years of fishing experience, days fished in 1988, and whether or not salmon fishing was their most important recreation activity. These highly invested anglers had mean scores for each factor that were significantly higher than those of anglers who were less invested.

Bryan (1977) identified for fishing and Jackson et al. (1979) identified for hunting stages of specialization or maturation that they felt these recreationists pass through over time. To the extent that these groups pass through stages, and regardless of whether some type of hierarchy such as increased specialization or appreciation of the total outdoor experience is involved, Cornell researchers have hypothesized that this represents behavior that is at least in part situationally determined or

influenced and represents a more basic change in goals and motivations for fishing experiences. While we do not have longitudinal studies, we do have limited evidence for this from studies where we have asked recreationists to compare current motivations for participation with those in the past. In the Lake Ontario boat angler study, where anglers had a mean of 16 years experience fishing this lake, respondents reported increased interest or importance since they started fishing in maintaining the fishery (74%), enjoyment of nature (70%), catch-and-release fishing (69%), fishing method (65%), learning the habits of salmonids (64%), catching trophy fish (54%), and the surroundings while fishing (53%). Overall interest and importance had stayed at a similar level for specializing for certain species, using lighter tackle, teaching others to fish, and catching fish. For the vast majority, the importance of catching fish to eat and limiting out had either stayed the same or decreased.

This general concept was also tested by dividing respondents into 3 groups according to years of experience at salmonid fishing (2 - 5 years, 6 - 10 years, and 11 - 15 years) and examining the degree to which the groups indicated the above factors had increased in importance since they started fishing. No significant differences (via chi square analysis) were found for the categories enjoyment of nature, catching fish, catching fish to eat, and limiting out. A significant difference was found for surroundings while fishing, probably due to too few observations in several cells; responses to this category were similar for all three groups. For some factors, the primary change in importance was between those with 2 - 5 years experience and those with more experience. That is, the importance did not continue to increase for anglers with 11 - 15 years, versus 6 - 10 years experience. This was true for maintaining the fishery, catch-and-release fishing, fishing method, and teaching others to fish (the latter of which may be related to age of anglers and their children). Several categories showed continuing increases in importance for each of the three age groups: learning salmonid's habits, catching trophy fish, specializing for certain species, and using lighter tackle.

Recreation and leisure scientists probably all suffer at times from a myopia of viewing the total personality and make-up of recreationists in the setting in which they were interviewed or in the context in which they responded to a mail survey. To use our own case as an illustration, we send questionnaires to a sample of registered boat owners, many of whom fish Lake Ontario, and we ask them questions about their motivations for fishing and what constitutes a satisfying fishing experience. Usually we don't ask about one specific trip, so anglers are forced to generalize their responses to a typical Lake Ontario fishing trip. We get information about their fishing for salmonids, and we characterize them as Lake Ontario salmonid boat anglers. Indeed, these people do and have fished Lake Ontario by boat for salmonids, most for a number of years.

What we tend to forget in our eagerness to classify these anglers into meaningful motivational or other slots is that their fishing "personality" is probably much more diverse and complex than this data snapshot leads us to believe. In fact, the data themselves indicate this. Some of these salmonid boat anglers (15%) also snag for salmon in tributaries. Some (60%) enter salmonid fishing tournaments. Some (21%) go fly fishing in streams, probably outside of Lake Ontario tributaries. While we don't have further data from this study, we know from the statewide studies of anglers who fish in New York that most anglers over the course of the year fish several bodies of water, use several types of fishing gear to fish for a variety of fish species. Often these fishing sites vary considerably not only in

terms of species available, but also as to how remote they are from population centers and development, how crowded they are, how aesthetic their surroundings appear, whether one would fish from shore, from a boat of varying size, etc. In short, most would agree that some of these sites would provide very different experiences.

We would hypothesize that anglers who choose very different fishing experiences over the span of relatively short time periods have different motivational sets and hence different expectations of those experiences. This probably needs to be extended even further, however. Anglers probably have different motivational sets at different points in time specifically for boat angling on Lake Ontario. As an illustration, on one occasion, an angler may go out with his family and concentrate on improving the fishing skills of the children and trying to catch a lake trout. On another occasion the same angler may be fishing with skilled friends and be pursuing trophy-sized chinook salmon. On the first trip affiliative motivations may prevail, while on the second trip challenge and accomplishment motives may prevail. Appreciation/escape and novelty aspects may be meaningful secondary motives for both experiences. This is consistent with the findings of Allen and Donnelly (1985) that strong relationships exist between social units of participation and reasons for participation. It is also consistent with information provided in focus groups by Salmon River anglers, who indicated that their goals and expectations changed within a given day as they moved back and forth from snagging to nonsnagging sections of the river to fish for salmon by different methods (Connelly et al. 1990b).

While further research is clearly needed, the above arguments would refute the idea that anglers could be classified as being in a single goal or motivational stage. It would also refute the notion that anglers unidimensionally move through stages of fishing in which they never "regress" to a previous stage. Although this view makes motivational analysis more complex, it does not detract from the usefulness of understanding and quantifying the motivational sets or expectations of anglers concerning particular fisheries. A better understanding of these allows fisheries managers to either manage resources consistently with those expectations (to the degree that sound resource management allows this), or to mount educational programs to try to place expectations in line with resource realities. A better understanding of these angler motivations is also helpful to the private sector in providing facilities, equipment, and services that would enhance these fishing experiences.

The finding that many anglers over time develop a greater concern for maintaining the fishery and for learning more about the habits of the species they fish for may be related not only to their experience but to their personal investment. That is, as anglers spend more time fishing a particular resource and purchasing equipment to facilitate fishing, they gradually become more invested not only in the fishing experience, but in the resource itself. Although not well researched, this is closely related to a general premise of fisheries managers over the decades, namely that actively involved anglers will be spokespersons for maintaining quality fishery resources.

Temporal Involvement in Fishing

Temporal involvement in fishing is of strong interest to both resource management agencies and the private sector, and is fertile ground for academic research. As suggested above, fisheries management agencies depend on anglers not only for a portion of program revenues, but also to be lobbyists for a

clean environment in which fishery resources are protected and, where possible, enhanced through stocking or habitat improvement. The development of the Great Lakes salmonid fisheries has provided economic expansion opportunities for the boating and marine trades industries, and in many localities for lodging, restaurant, sporting goods, and other services. Some of these businesses have large capital investments, however, and owners as well as financial institutions want to know whether to expect continued long-term growth, stability after a period of growth, or a fad that declines substantially in a few years, as was the case of snowmobiling in New York a decade or so ago.

Limited work has been done on temporal involvement in fishing, but several researchers have put forth frameworks for studying involvement in or commitment to recreation activities. Brandenburgh et al. (1982) developed a conceptual model of recreation activity adoption in which initial preoccupations and interests are coupled with each of the conditions of opportunity, knowledge, a favorable social milieu, and receptiveness. These prerequisites in combination with one or more key events were often followed by adoption of a recreation activity. Others including ourselves have looked at such market segments as continuous participants, usually defined as those who participate every year for some period, versus sporadic participants who discontinue participation for at least a year but then participate again, and former participants or "drop-outs" who abandon an activity. High, medium, and low-potential nonparticipants have also been identified based on initial interest in activities.

In conjunction with knowing something about the population dynamics of fishing (i.e., rate of entry into and departure from the activity) and demographics and psychographics about the various market segments, it is important to gain some understanding of the dedication or faithfulness that anglers hold toward the sport because this should be correlated both with the likelihood that they will continue participating and that they will be active in support of fisheries issues. Several overlapping constructs have been suggested for measuring this. We have already mentioned personal investment theory. Although no single measure has been suggested for the concept of personal investment, it may include time, education, expenditure of funds, and quite likely a psychological or emotional investment in which one identifies with the activity. Thus, the idea of personal investment has similarities to commitment, a term used frequently in past research and further defined by Buchanan (1985) as the pledging or binding of an individual to behavioral acts which result in some degree of attachment to the behavior or its associated role and which produces side bets (i.e., investments not necessarily associated directly with participation but which will likely encourage continued participation) as a result of that behavior. Commitment denotes among other things an affective attachment to an activity. McIntyre (1989) uses the construct of enduring involvement to denote personal meaning of participation. Enduring involvement, according to McIntyre, has four facets: importance, enjoyment, self-expression, and centrality.

No single index of involvement was developed for Lake Ontario boat anglers. The average angler had boated on Lake Ontario for 16 years, fished for salmonids for about 8 years (stocking of salmonids was interrupted in the latter 1970s because of the contaminants mirex and PCBs), and fished 27 days in 1988, including 11 days for salmon. About 40% expected their participation to increase in the coming year, 46% expected it to remain the same, 7% expected it to decrease, and 3% expected to

stop completely. We defined highly invested salmonid anglers as those who fished for salmonids for at least the mean number of years of all respondents and who fished at least the mean number of days of all respondents in 1988, but who also said they spent more time on salmonid fishing than any other activity and said salmonid fishing was their most important recreation activity. Slightly over one-third of all respondents met this operational definition of being highly invested.

Many of the constructs for measuring commitment or involvement are now available, although they will likely be expanded or refined by other researchers. Complementary to the idea of some tie between ego and identity to fishing as a measure of involvement is that of a sociocultural identity with fishing. For some, fishing has been an important family activity for many years and thus has become a part of their culture. One would hypothesize that people who fit this description would be more likely to continue fishing, regardless of the number of days they fish currently, than others who enjoy fishing and may even be somewhat heavily invested in fishing, but who do not have this cultural attachment to fishing. Thus, anthropological research into cultural meanings and significance of fishing should also be fruitful to providing a fuller understanding of angler involvement.

Summary

Through recent research we have developed a broader conceptual model of investigating recreation involvement that we have applied to fishing. This model recognizes involvement in fishing as a means of meeting certain basic goals that may be related to the individual and/or to social groups of which the individual is a part. These goals may change over time and consequently cause individuals to seek different types of fishing experiences (or activities other than fishing). These goals may also be different at different times for the same type of fishing on the same body of water. The degree to which the goals set for a particular experience are met should largely determine overall satisfaction with the fishing experience. If one accepts these premises, one must reject the notion that anglers can be placed into single stages of fishing behavior at any point in time and that they move into more specialized stages over time from which they never "regress" into previous stages.

Several constructs are currently being used to evaluate angler involvement and the likelihood that given anglers will continue fishing participation. These include personal investment theory, commitment, and enduring involvement. We suggest that each of these constructs, which we believe overlap to a considerable extent, are useful to examining involvement. In addition, an anthropological construct reflecting the degree to which one has been acculturated to fishing should prove useful to predicting continued involvement in fishing.

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