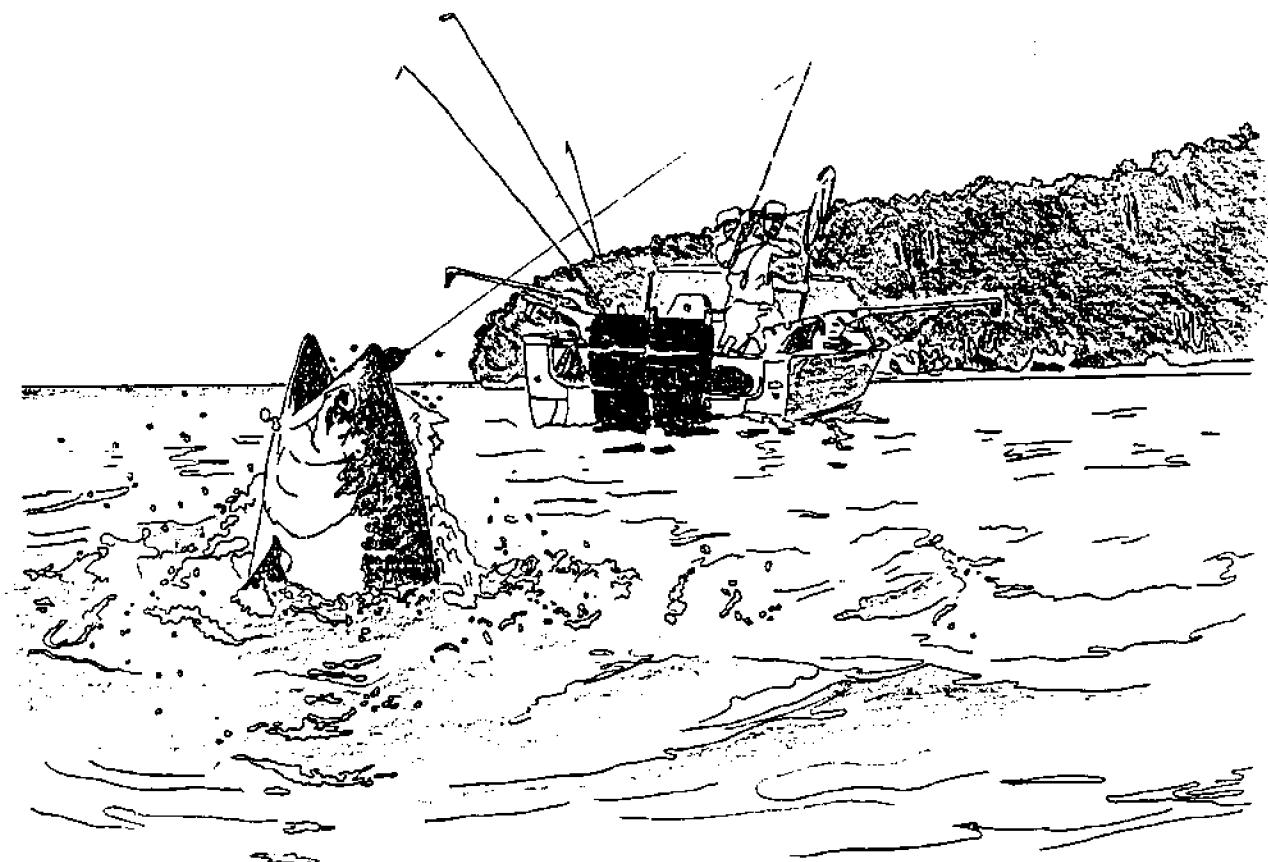


AN EXPLORATORY STUDY OF LAKE ONTARIO'S
BOATING SALMONID ANGLERS:
IMPLICATIONS FOR RESEARCH
ON FISHING INVOLVEMENT

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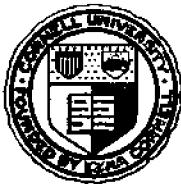
by

William F. Slemer, Tommy L. Brown, and Daniel J. Decker



August 1989

HDRU Series No. 89-4



Human Dimensions Research Unit
Department of Natural Resources
New York State College of Agriculture and Life Sciences
A Statutory College of the State University
Cornell University, Ithaca, N. Y.



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**AN EXPLORATORY STUDY OF LAKE ONTARIO'S
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by

William F. Siemer, Tommy L. Brown, and Daniel J. Decker

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**** STUDY HIGHLIGHTS ****

PURPOSE

- To develop a behavioral model of fishing involvement by boat owners who fish for salmonids on Lake Ontario.

OBJECTIVES

- Describe the factors influencing initiation into fishing and fishing on Lake Ontario specifically.
- Identify the goals that each angler is trying to fulfill by fishing on Lake Ontario.
- Describe how social-psychological factors are affecting angler behavior and compare patterns to those identified for hunters.
- Assess the range of intervening influences that affect the rate of angler participation.
- Assess the level of fishing participation over the course of each angler's life, noting any changes in preferred fish species, fishing location, or fishing equipment.
- Analyze interviews for evidence to support/negate the existence of a process of activity maturation among anglers.

METHODS

- Review of literature related to involvement in fishing and involvement in wildlife-related recreation.
- In-depth personal interviews with Lake Ontario anglers (n=42) structured to explore elements of a model of involvement in wildlife-related recreation (Decker et al. 1987).

FINDINGS AND INTERPRETATIONS

Fishing initiation:

- Most anglers began fishing with their family (usually their father) at age 6-8. Initial trips usually involved panfishing with simple equipment in a local stream or lake. Individuals appeared to start fishing due to parental "force," and/or a desire to satisfy some want, goal, or need (e.g., a need for social affiliation, personal achievement, adventure, new experiences, or self-satisfaction).
- Anglers identified a range of factors that influenced their initiation into fishing. These can be grouped into 5 categories: support, force, behavioral beliefs, proximity, and opportunity. These classifications are like what Brandenburg et al. (1982) described as "regulating conditions" that affect recreation participation.

Antecedents to fishing:

- Most of the satisfactions that interviewees sought from fishing fell within 4 broad sets: affiliation with other people, personal achievement, escape and relaxation, or appreciation of nature.
- The strength of particular sets of motivations to fish varied depending on: the individual angler, the angler's life stage, the type of fishing, and the fishing context.
- For some anglers, motivations to stay involved in fishing changed over time.

Intervening influences:

- The predominant reasons why people stopped fishing or changed their level of involvement in fishing fell into 4 broad categories: change of interests, demands on time, dissatisfaction with aspects of the activity, and uncontrollable forces.

Temporal development of fishing behavior:

- Some of the anglers interviewed went through distinct stages of involvement characterized by different levels of participation and interest in fishing. Common periods with characteristic participation rates included: childhood, high school, college, military service, early years of marriage, early career, and periods of job relocation. In the course of becoming involved in fishing anglers typically experienced events that could be described as: awareness, interest, trial involvement, continuation, maturation, and desertion. Yet, despite some commonalities in their development pattern, some anglers appear to experience more phases or stages of development than others, and traits or behaviors associated with a particular developmental stage may also be expressed during other developmental stages.

Evidence of activity maturation:

- At least some of those interviewed modified the importance they placed on particular goals over time. Other anglers did not express a change in goals (i.e., catch-related goals remained high), but rather a redefinition of whether an event fulfilled their goals. That is, the personal importance of an angler's goals can change, personal definitions of the events that must occur to realize those goals can change, and goal changes or redefinitions may drive a process of activity maturation or development.
- Anglers who remained highly involved in fishing over a long time period often exhibited more specialization in equipment and techniques than other anglers.
- Often, individuals who continued to participate in fishing gradually placed less importance on the numbers of fish caught and placed more emphasis on the quality of and method by which those fish were caught.

CONCLUSIONS

- Based on interpretations of personal interviews with Lake Ontario anglers, with some revisions the conceptual depiction of involvement in wildlife-related recreation developed by Decker et al. (1987) appears to be a reasonable framework to study and describe involvement in salmonid fishing by boating anglers on Lake Ontario.

IMPLICATIONS FOR FUTURE RESEARCH ON FISHING INVOLVEMENT

- It may be useful for fisheries managers to classify types of fishing according to the relative importance its participants place on affiliative, appreciative, achievement, or escape goals. However, to utilize these measures as a tool for fisheries management or marketing of fishing opportunities, assessment and interpretation of angler goals should take place within specific fishing contexts (e.g., trolling for salmonids, snagging salmon, fly-fishing for trout, bait-casting for panfish). Personal investment theory (Maehr and Braskamp 1986) offers a framework whereby anglers could be classified by their goals and motivations to participate in fishing.
- The Ajzen and Fishbein (1980) behavioral model used to describe participation in hunting (Purdy and Decker 1986) may be a reasonable conceptualization of the process anglers undergo as they begin or continue fishing. This model offers a general tool to develop more compelling descriptions (names) for angler-behavioral phenomena, which may facilitate our understanding of how anglers integrate the factors that influence their decisions about participation in fishing.
- Interpretation of the behavioral influences that affect rates of participation in fishing should be interpreted carefully because more than one social-psychological influence may be reflected in statements about why an angler's rate of participation has changed.

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AN EXPLORATORY STUDY OF LAKE ONTARIO'S BOATING SALMONID ANGLERS: IMPLICATIONS FOR RESEARCH ON FISHING INVOLVEMENT

BACKGROUND AND NEED

Since 1968, Lake Ontario has received repeated stockings of several species of salmonids (i.e., lake, brown, and rainbow trout; Atlantic, coho, and chinook salmon). The resultant fishery resources have contributed to increases in recreation and tourism that create positive economic impacts in many local and regional economies (Brown 1976, Brown 1982, Dawson 1986).

Negative economic and social consequences have also been created by this relatively young recreational fishery (Dawson and Voiland 1988).

Meeting the challenge of wise management of both the fishery and its social and economic consequences depends in part on understanding those who fish for Lake Ontario salmonids. How do people become involved in fishing? Why do people fish for Great Lake salmonids? How does their involvement and commitment to the activity develop or change over time? What factors influence their participation? The answers to these questions have important implications for fisheries management, Extension education, and coastal development of Lake Ontario and the St. Lawrence River.

Although behavioral scientists have devoted some effort to understanding fishing behavior in general, little work has focused specifically on Great Lakes anglers. Moreover, most behavioral studies involving fishing have provided data at a rudimentary level. Studies documenting fishing preferences and categorizing reasons for fishing are examples (Carls 1980). Both types of information typically need to be placed in a broader framework of angler motivations, attitudes, and expectations, as well as such important

sociological and marketing concepts as stage or level of sophistication with regard to the activity and individual or family life cycle status. In this way insight is gained not only into what various groups of anglers do, but why and how their activities are likely to change in the future.

PURPOSE

The purpose of this study was to develop a theoretical framework for research on fishing involvement by boating anglers on Lake Ontario.

The study had 6 objectives:

1. Describe the factors influencing initiation into fishing, especially Great Lakes fishing.
2. Identify the goals each angler is trying to fulfill by fishing.
3. Describe how social-psychological factors are affecting angler behavior and compare this pattern to those proposed for hunters.
4. Describe and document the range of influences that affect the rate of angler participation.
5. Assess the level of fishing participation over the course of each angler's life, noting any changes in preferred fish species, fishing location, or fishing equipment.
6. Analyze interviews for evidence to support or negate the existence of a process of activity maturation among anglers.

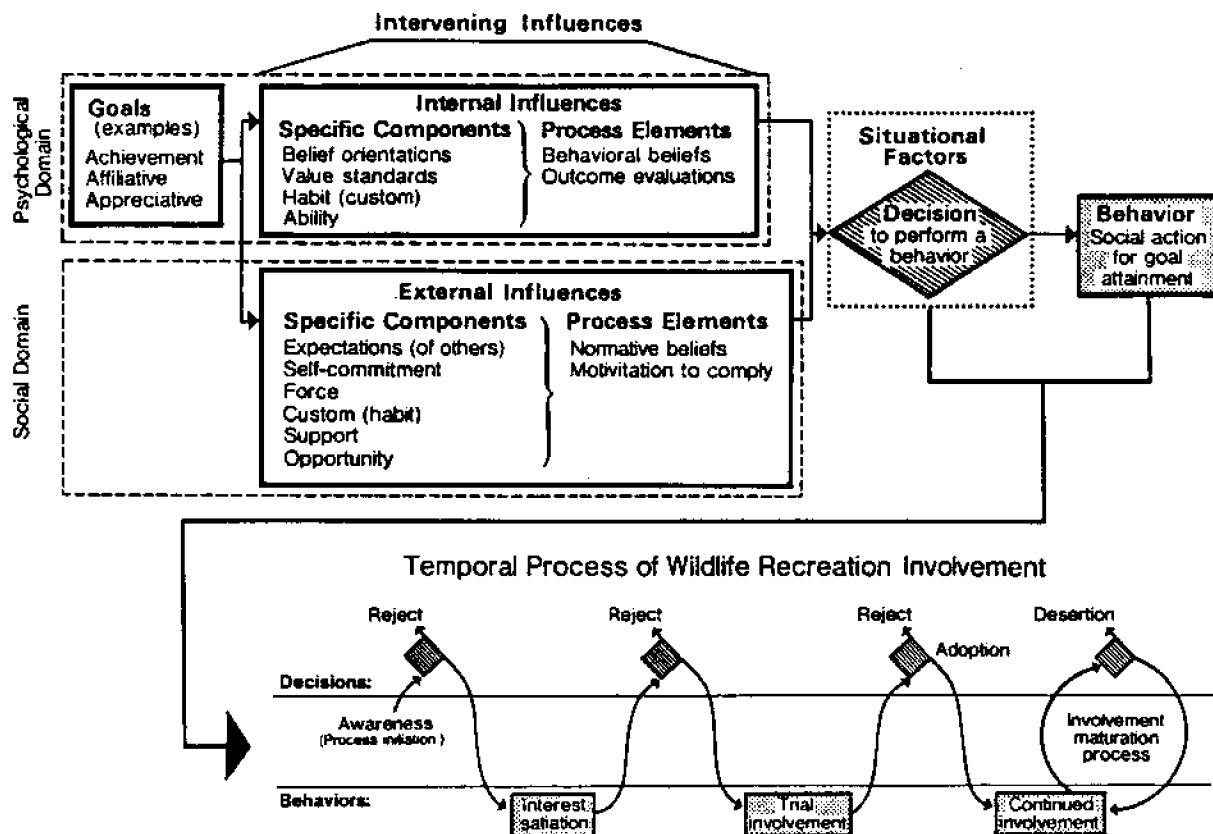
This report represents the findings of a preliminary study on fishing involvement. The next phase of this project will involve a quantitative study of boat owners who fish on Lake Ontario. A representative sample of boat owners who fish on Lake Ontario will be used to test and refine the tentative hypotheses developed in this initial phase of the project. The refined model of fishing involvement will be applied as a tool to study recruitment, retention, and changes in participation rate of Lake Ontario's boating anglers. The purpose of this report is to document a theoretical framework

for research that can be subjected to further use, development, and refinement by the authors and others conducting research in this area.

Following background information on the research needs and methods, findings and interpretations are presented in 5 subsections. We begin by discussing the processes by which interviewees became involved in fishing. Next, we discuss the reasons why people started to fish and how those reasons (i.e., motivations) changed over time. Third, factors that caused anglers to fish less or decide to discontinue their fishing participation are discussed. Finally, a framework to study fishing involvement and recommendations for future research on fishing involvement are presented.

METHODS

The Decker et al. (1987) model of wildlife recreation involvement was chosen as a theoretical framework for the design of this study. Decker et al. (1987) propose a theoretical framework for the comprehensive study of involvement in wildlife-related recreation (Figure 1) that combines elements of the Fishbein-Ajzen (1975) and Reeder (1973) behavioral models with innovation-adoption theory (Rogers and Schoemaker 1971). Summarized, the model recognizes outdoor recreational activities to be psychologically motivated and socially mediated. Primary motivations for a recreational activity are aggregated into a small number of categories (i.e., achievement-related, affiliative-related, or appreciative-related). Situational factors such as supply, access, or physical ability (and people's perceptions thereof) are proposed to determine whether a particular activity will be pursued as a means of satisfying personal motivations or goals. Adoption of the activity is conceptualized as a temporal process that begins with activity awareness



Source: Decker, D. J., T. L. Brown, B. L. Driver, and P. J. Brown. 1987. Theoretical developments in assessing social values of wildlife: toward a comprehensive understanding of wildlife recreation involvement. In D. J. Decker and G. R. Goff (eds.), *Valuing Wildlife: Economic and Social Perspectives*. Westview Press, Boulder, CO. 424 pp.

Figure 1. A conceptual schematic drawing of the social-psychological process determining wildlife recreation behavior.

and may be followed by interest, trial involvement, early adoption, and continued involvement (with the option to reject or discontinue the activity at any point in the process). Based on this model, the investigators adopted the following assumptions about involvement in fishing.

Assumptions (prior to interview analysis)

- Fishing is a social action involving a decision-making process for each individual.
- The decision to fish could involve one or a combination of elements: family, economic, social-fraternal, recreational, or health. As a group these elements define fishing for an individual.
- Individuals may not readily recognize all the social-psychological influences impinging upon their decision to become involved in or drop out of fishing.
- Resource-related factors (e.g., access, fish abundance, crowding, toxics) are important to fishing initiation or desertion only to the degree that they affect social-psychological constructs (e.g., individual goals, beliefs, and values relevant to fishing participation).
- Individuals develop interest in Great Lakes fishing through a temporal process having 4 stages: awareness, interest, trial, and continuation/desertion.

Personal on-site interviews were conducted with a purposeful sample of 42 Lake Ontario anglers during the fall (September-November) of 1987. The interviews were exploratory and flexible, but followed a line of questions designed to explore elements which parallel those within the Decker-Brown behavioral model of wildlife-recreation participation. Questions probed: initiation into fishing, initiation into Lake Ontario fishing, antecedents to fishing participation, influences which intervene in fishing participation, fishing participation over time, catch and harvest goals, boat-related satisfactions, and attitudes toward fishing tournaments. Interviews were analyzed qualitatively by comparing and contrasting the patterns of fishing

involvement with those Decker et al. (1987) proposed for involvement in wildlife-related recreation.

The interviews were conducted by a Lake Ontario charter-boat captain. The interviewer used his network of contacts with Lake Ontario anglers to solicit participation. All participants were licensed anglers. Interviews were tape-recorded on-site, then mailed to the Human Dimensions Research Unit, where they were reviewed, transcribed, and analyzed.

FINDINGS AND INTERPRETATION

Fishing Initiation

Most anglers began fishing with their family (usually their father) as youngsters (i.e., 6-8 years old). Their initial trips typically involved travel to a local pond, lake, or stream to fish for panfish with simple equipment. Few anglers had begun fishing as teenagers (or later) or with nonfamily members. Individuals appeared to start fishing due to parental "force" or a desire to satisfy some want, goal, or need (e.g., a need for social affiliation, personal achievement, adventure, new experiences, or self-satisfaction).

Angler initiation was influenced by a range of factors. These can be grouped into 5 categories: support, force, behavioral beliefs, proximity, and opportunity.

Support: Support came from family, friends, and (later) work associates. Many of the anglers interviewed described fishing as a traditional family activity.

Force: For some anglers, first experiences were mandatory and expected (e.g., "My dad made me go, I didn't have a choice"). This type of impingement was quickly replaced by internal motivation (e.g., "Later it grew on me and I went because I wanted to").

Behavioral Beliefs: Anglers recalled that fishing began or grew to be perceived as a rewarding activity. Later, the belief that salmonid fishing would lead to valued rewards influenced initiation into that activity. Beliefs seemed to be developed through experience, stories, books, magazines, movies, or fishing tournaments.

Proximity: Closeness to fishable water was one of the reasons some anglers gave for fishing as young boys. Distance to fishable water was also given as a reason why some anglers did not fish at given points in their life.

Opportunity: Opportunity to go with family or friends, and, in the case of salmonid fishing, the likelihood of catching fish also influenced initiation.

These classifications are similar to those generated by Brandenberg et al. (1982) who described similar factors as "regulating conditions" and proposed that participation often follows "key events" in a person's life that modify regulating conditions. For example, a job relocation that results in residence close to Lake Ontario may be the key event which precipitates an angler's decision to try salmon fishing.

Ethnographers have attempted to increase our understanding of the basic processes by which involvements take place (Prus 1984). In his synthesis of symbolic interactionist research on the concept of "career contingencies," Prus (1984) provides some insight on the processes whereby a person may become involved in given activities or roles. This synthesis of research suggests that three basic processes effectively act as paths to involvement in an activity: seekership, recruitment, and closure (Prus 1984, pages 300-303). That is, people may become involved in an activity because they were actively attracted ("seekership"), actively or passively recruited ("solicited", "sponsored", or "consensual" recruitment), perceived they had no other means by which to attain particular goals or meet particular needs ("closure"), or a combination of these processes.

The Prus (1984) typology is the product of research on involvement in a variety of roles (e.g., what processes led people to assume roles as doctors, drug users, thieves, gamblers, etc.). Prus suggests that the typology may be applied just as readily to describe the processes by which people become and remain involved in sport and leisure activities. Our interview data provide some evidence that these are the primary processes that lead to involvement in fishing. All of the anglers interviewed became involved or reinvolved in fishing due to: personal interest (causing the individual to "seek out" ways to become involved in fishing); recruitment into fishing by family, friends, or others; a perceived responsibility or obligation to participate in fishing; or some combination of all these processes.

Seekership:

"I was pretty young, maybe 2 years old. They said I would sit all day long and fish in my diapers. It's been in my blood ever since. It's just a fascination."

"I just wanted to get on the water. The kids had all grown up, and some of them had fished a little bit. I never went with 'em, they just sort of picked it up on their own. And, I don't know, I got interested. I just wanted a boat and I wanted to get out there." [angler who became re-involved in fishing]

"I had an uncle who was a role model for me....I think in the stories he would relate he created so much excitement around fishing and hunting I just wanted to try the sport and get involved in it....My Uncle never took me fishing until I was older, but just listening to these stories created so much enthusiasm in this that I wanted to try it."

Closure:

"At that time I did it [fishing] because my dad wanted me to....I wasn't old enough to make up my mind at the time....At that point I didn't have any feeling. I just went because he wanted me to go with him..."

"It's always been a hunting, fishing, trapping kind of family. And those offspring that deviated from that pattern were the black sheep of the family -- always have been, always will be. And I didn't take that pattern just to get on that line, its just that's the way it shaped up. That's the kind of family we came from."

"If it [hunting and fishing] isn't genetics, it certainly is inbred in most people, and my father was a sportsman. He was a hunter and a fisherman and all his boys pretty much got into the same pattern."

Solicited Recruitment:

"A friend of mine, that I hadn't seen in quite a while, took off and wanted to see the country. He ended up coming back, and he and I were closest friends all of our lives. He said, 'why don't we go fishing?' And I said, 'where are we gonna do that, the lake [Lake Ontario] is basically dead?' He said 'no, the lake is doing great.' I said 'it is?', and he said 'yeah, lets go down and try it.' So I dusted off the old reel and went down to Hedges... it couldn't have been more than a dozen casts or so and I latched into a nice laker. It was like I'm hooked! This is it, I'm done!"

Sponsored Recruitment:

"I had known about it [salmonid fishing on Lake Ontario] for 10 years. I wanted to try it but wasn't sure how to go about it, how to do it, where to start, how to get on the lake. I used to go down and watch people from the piers, but I didn't do anything about it. Finally, about 4 years ago, a guy in the office said come down and take my rowboat. So we went out and in no time at all I caught a 4 lb. coho." [During this trip he also met an experienced salmonid angler, who later taught him how to troll for salmonids.]

Consensual/Sponsored Recruitment:

"...the fellows I was with were fishermen, and they went out, and I went out with them. That's how I learned my fishing -- from people who were brought up on fishing. They enjoyed fishing a lot and I went out with them, and consequently became a fisherman through my association with them. Actually, we started in the early 60's a hunting and fishing club and I got into it....I got in it primarily from a hunting point of view; other people came in from a primarily fishing point of view. So when the two factions met we kinda traded off our experiences, and got together and did things that we had not done before."

Seekership/Recruitment Combination:

"We only had 1 vacation I can ever recall... we went to the Adirondacks. It really made a major impact on me. I saw that it was the type of thing that I wanted to do. From then on I can recall wanting to be involved in conservation, forestry, and that. And so I went away to school and got into zoology. But most of the guys there were into hunting and fishing. I didn't have a strong background in hunting and fishing like my cohorts did at the time....I was sort of an oddball.... I wasn't even interested in fisheries at the time. Then I came up north trying to get a summer job in Watertown in fisheries. So with my indoctrination I said, 'sure, it [fishing] sounds good.' And I guess early on I had always been near the water [Long Island] and loved the

water. I grew up on it, even though fishing wasn't part of it. So that [fishing] sort of fit in....and from that I began fishing....it all started with my job."

Antecedents to Fishing

When asked what attracted them to recreational fishing, anglers gave a variety of responses. Most of the satisfactions that anglers said they receive from fishing fell within a broad framework of 4 sets: affiliation with other people, personal achievement, escape and relaxation, and appreciation of nature (Table 1). Other goal orientations (e.g., economic gain) were expressed infrequently. The typology of primary satisfactions that emerged from these interviews was quite similar to the typology of antecedents to wildlife-recreation participation developed by Decker et al. (1987), and the sets of motivations for 2 sets of anglers in a study by Knopf (1972). It is also compatible with the typology of factors proposed to affect decision-making by Reeder (1973) (Table 2).

The strength of the 4 angler-suggested goal sets varied across individuals who engaged in different types of fishing. For example, anglers who fished for perch typically said that affiliation with family and friends was an important motivation to engage in perch fishing. By comparison, anglers who went fly-fishing typically expressed far less desire to use this activity as a way to fulfill affiliative goals.

The strength of particular goal-sets also appeared to vary for individual anglers, depending on fishing context or life stage. Questions related to participation in fishing tournaments serve to illustrate how goals vary among anglers, and for any given angler, depending on the fishing context. To compare and contrast anglers who entered tournaments to those who

Table 1. Angler-suggested satisfactions associated with fishing for salmonids on Lake Ontario, organized within a 4-part classification scheme.

Subcategory of Satisfaction			
<u>Affiliative Satisfactions</u>	<u>Achievement Satisfactions</u>	<u>Appreciative Satisfactions</u>	<u>Escape Satisfactions</u>
Companionship	Pursuing the quarry Obtaining a trophy Catching big fish	Nature appreciation	Escaping everyday surroundings
Social interaction	Catching many fish "Filling the box" with fish	Enjoying surroundings	
Strengthening familial or fraternal bonds	Showing off catch Operating the boat Maintaining boat	Enjoying experience as a whole	Relaxing
Comradery/fraternity	Making equipment Working hard	Enjoying physical aspects of trolling	Feeling free
Membership in a Social Subculture	Learning new things Understanding the fish Understanding the lake	Enjoying the weather	Having time to think
Sharing Experiences	Demonstrating skills Demonstrating self-reliance Demonstrating accomplishment	Enjoying the water	Experiencing solitude
Reuniting With Old Friends	Demonstrating soc.-eco. status Competing with the quarry Competing with other anglers Competing with myself Stretching my limits Providing food for others Providing experiences for others	Enjoying the equipment/boat	Gaining a sense of personal continuity

Table 2. Appreciative, achievement, and affiliative goals as described by Decker et al. (1987), Reeder (1973) and Lake Ontario anglers.

<u>Fishing as a means of fulfilling appreciative goals</u>	
<u>Source</u>	<u>Description of appreciative needs, motivation, goals</u>
Decker et al. (1987)	Individuals may fish to obtain a sense of peace, belonging, familiarity, and the resulting stress reduction that they have come to associate with the activity.
Reeder (1973)	Individuals' decisions to engage in an activity such as fishing may be initiated by an internally perceived need for: inner peace, a sense of purpose, harmony, escape, familiarity, continuity, relaxation, beauty, aesthetics.
Angler interviews (1987)	Some of the reasons I fish are to: escape, relax, think, find solitude, enjoy the water, enjoy the weather, get outside, observe nature, commune with nature.

<u>Fishing as a means of fulfilling achievement goals</u>	
<u>Source</u>	<u>Description of achievement needs, motivations, goals</u>
Decker et al. (1987)	Individuals may fish to meet some standard of performance (e.g., meat, trophy), and perhaps to share this accomplishment with others.
Reeder (1973)	Individuals' decisions to engage in an activity such as fishing may be initiated by an internally perceived need for: acceptance, recognition, improved social status, esteem, N-achievement, knowledge, self-actualization, independence.
Angler interviews (1987)	Some of the reasons I fish are to: exercise skills; compete with myself, others, the fish, and the elements; provide food and experiences for others, operate my boat, gain a feeling of freedom, accomplishment, and self-confidence.

Table 2. (Cont.)

<u>Fishing as a means of fulfilling affiliative goals</u>	
<u>Source</u>	<u>Description of affiliative needs, motivations, goals</u>
Decker et al. (1987)	Individuals may fish as a way to accompany another person, enjoy their company, strengthen/reaffirm a personal relationship.
Reeder (1973)	Individuals' decisions to engage in an activity such as fishing may be initiated by an internally perceived need for: love, acceptance, belonging, recognition, security.
Angler interviews (1987)	Some of the reasons I fish are the: company, conversation, socialization, experience sharing, "fishing-culture," comradery, quality family time.

did not, interviewees were asked to describe their personal experiences and opinions related to salmon and trout fishing tournaments--events of varying lengths referred to as fishing derbies--on Lake Ontario.

Several anglers' comments indicated that tournaments may attract many anglers who place great importance on competition and catch-related satisfactions, regardless of fishing context. Many tournament participants said they enjoyed the added dimensions of a salmonid-fishing experience that created the chance to compete with other anglers and perhaps win a prize or some recognition. Some participants thought of fishing tournaments as a kind of unskilled lottery, rather than a vehicle for competition against other anglers. Still others reported that they enjoyed tournaments primarily as the focus activity of an annual fraternal reunion.

Other anglers suggested that many tournament participants place very high importance on catch-related satisfactions only when they are in the tournament context. Generally, anglers said they placed less emphasis on catching fish, or didn't work as hard at catching fish, when they were not entered in a fishing tournament. Other participants said they were more interested in family affiliation goals when they fished for bass or panfish with their children.

Generally, anglers who had not fished tournaments indicated less interest in competing or having the chance to win something. Those nonparticipants who expressed interest in the activity cited crowds and undesirable angler behavior as factors that kept them from participating. Tournament participants also cited crowding as a factor which detracted from their overall fishing experiences and many made efforts to avoid crowded fishing areas. At best, tournament participants said they tolerated crowded

conditions when fishing in tournaments, but none said these conditions enhanced their fishing experience.

A number of anglers believed that tournaments brought out behaviors that anglers did not express in other fishing situations. There seemed to be widespread concern across tournament participants and nonparticipants that tournaments may encourage unethical and undesirable behaviors, even among anglers who behave appropriately in other situations.

Some anglers who did not participate in salmonid fishing tournaments said they were more interested in other types of fishing (e.g., fly-fishing on streams, bass fishing, ice fishing, panfishing). Often non-tournament anglers said they were interested in fishing experiences such as panfishing or ice fishing that were oriented toward involvement by the entire family. They defined such experiences as highly active, with more fish "strikes" than might occur in a day of salmonid fishing. These anglers were interested in catching lots of fish, having fish fries, and boating with the family. Others, like bass-fishing or fly-fishing specialists, were interested in catching fish that were better "fighters" than lake trout or salmon, and using techniques that allowed for more direct contact with the fish than would trolling from a rod holder.

Temporal Development of Fishing Behavior

Anglers were asked to describe their past involvement in fishing in terms of the time they devoted to the activity, the species they fished for, the techniques they favored, and how these variables had changed over their life as an angler. They were asked to start with an explanation of their first trips, and then were prompted to describe their participation to the present and their reasons for important changes in participation.

Anglers frequently indicated having gone through distinct stages of involvement characterized by different levels of participation and interest in fishing. Anglers suggested several common periods with characteristic participation rates: childhood, high school, college, military service, early years of marriage, early career, and periods of job relocation. Anglers did not suggest that their involvement in fishing occurred through a process of several stages, but most did describe events that could be labelled: awareness, interest, trial involvement, continuation, and desertion (see illustration in Table 3).

Evidence of Fishing-Activity Maturation

Anglers were asked if their sources of fishing satisfaction, fishing patterns, preferred species, or fishing techniques had changed over time. Some anglers reported that the kinds of satisfactions they sought from a fishing experience had changed, suggesting that at least some anglers may modify the importance they place on particular goals over time. For example, some anglers said escape and relaxation (what the authors refer to as appreciative goals) had become more important as they grew older, while actually catching fish had grown slightly less important. Moreover, other anglers expressed not a change in goals but rather a redefinition of whether an event fulfilled those goals. For example, an angler's catch-related goals may remain high, but after doing so several times she may not ascribe the same importance to catching a bucket-full of bluegill or a 10 lb. salmon. The following excerpts illustrate such developments in two salmonid anglers.

Angler 1

"...I can remember how excited I was to have it all happen. I mean if I caught a 9-10 lb. coho I'd be out of my mind. It was all I could do not to mount it. And these people [acquaintances fishing for the first

Table 3. A generalized characterization of involvement in Lake Ontario salmonid fishing based on angler interviews and the process of innovation-adoption proposed by Rogers and Shoemaker (1971) and Rogers (1983).

<u>Common Components of Fishing Involvement:</u>	<u>Characteristics of common components:</u>
Predisposed Interest/ Goals	Perceived need: to do something new, something different, to find new springtime activities, to spend time in the boat, spend time with friends, etc. (affiliative, achievement, and appreciative goals).
Awareness	Awareness raised by fishing tournaments, media coverage of derbies, T.V., magazines, newspapers, friends from Michigan (the earlier salmonid state), or even incidental catches of trout or salmon.
Interest	Interest created by new fish, big fish, beautiful fish, new techniques, sophisticated equipment, big water, adventure.
Trial Experience	First experiences usually occurred with friends or family who invited newcomers to participate. Some anglers invested in chartered trips as introductory "lessons" on trolling techniques.
Continuation	Personal involvement initially motivated (driven) by successfully catching trout or salmon. Those satisfied by the overall experience may gravitate to more specialized equipment, interests, and quarry, devoting increased percentage of total fishing time on salmon.
Desertion	Triggered by lost interest in technique, dissatisfaction with fish, crowding, expense, travel distance, access problems, health problems, change in social support.

time], they see these things and they're just awestruck. One guy wrote me a letter. He says, 'other than having my children I've never been more excited in my life'... and I forget, because I'm somewhat spoiled. You get used to it."

"... I kinda decided to myself that I want to fish for kings. I want to try to stay with them and see what they do. I want to see if I can catch them all summer, because that's the quarry that everybody thinks is most elusive."

"...I still haven't caught a 30 pounder. When I do it's going up on the wall. But it's got to be over 30 lbs...anything under that I'd just as soon let somebody else catch. It's not that it's boring, it's just that it's not as exciting as it was."

Angler 2

"... it gets in your blood when you catch those kings.... I really don't like to go out and troll for 4 hours and pull in a couple of lakers. That just doesn't thrill me."

"I caught a laker--about a 16 pound laker--through the dorsal fin, and God almighty! I thought I had my 40 pound king. I was so disappointed when I finally got the son of a gun up."

A number of interviews were conducted with highly involved boating salmonid anglers. These anglers described a common involvement pattern--they gradually became salmonid-fishing specialists, devoting most of or all of their fishing time to salmonids, and continually adding better quality and/or more challenging fishing equipment. The following excerpts give some indication of the changes that may occur in those anglers who become most highly involved.

"You kind of emerge from a basic type of fishing, like fishing from shore when I first started fishing, to then buying a boat, buying a motor, and then buying more boats and more motors-- each of them always bigger. And poles that were maybe 2 dollars that are now 50... and reels... and electronics..."

"I didn't have to have the fancy tackle initially [in the mid 1970's]. We started near shore fishing in the spring, with a spinning rod and pole holders....'78 was the kicker. After that it was just bigger boat, more tackle, depth finder, trolling speed, you know, whatever we could pick up from the locals..."

Generally, the individual who continued to participate in fishing gradually placed less importance on the numbers of fish caught and placed more

emphasis on the quality of fish (e.g., size, fighting ability, wariness), and method by which fish were caught (Table 4). For some individuals, fishing involvement develops into a central activity--something that defines who they are as an individual. These anglers come to acquire all the specialized equipment of their activity and devote a significant portion of their life to recreational fishing. The most highly involved will restructure their professional and family lives to accommodate their commitment to fishing. They may become fishing guides, first mates on charter boats, or charter boat captains.

Factors That Influence Fishing Participation

Anglers were asked what things would change the amount of time they spent fishing, why they stopped fishing during certain periods, and what factors had affected their participation over the years. Anglers associated a wide range of factors with changes in their fishing participation rate (Table 5). These factors seemed to fall into 4 broad categories: change of interests, demands on time, dissatisfaction with aspects of the activity, and uncontrollable forces.

The categories of factors which emerged from angler interviews did not contradict our assumption that angler participation might be affected by the underlying behavioral influences suggested by Reeder (1973). In some cases the reasons given for changes in participation seemed to reflect more than one social-psychological influence (e.g., an angler may have felt he had "no time" to fish because of changes in values, ability, opportunity, expectations, self-commitment, or support) (Table 6).

Table 4. A suggested typology of angler developmental phases based on personal interviews. (Stage descriptions parallel those developed by Jackson et al. [1979] to depict a process of involvement maturation in recreational hunting.)

<u>Development Sequence</u>	<u>Emphasized Goal</u>	<u>Characteristics of the Stage</u>
Phase I	Catching fish	The angler is interested in catching fish: fish size and species are less important than quantity. Preferred fishing methods are those that catch the most fish. Preferred fishing sites are those where the likelihood of catching fish is high. Keeping those fish that are caught is valued highly (eating fish is not necessarily valued highly).
Phase II	"Filling the box"	Fish size and species gain importance but the angler still equates success with catching as many fish as possible. Preferred techniques and settings still reflect a strong motivation to catch the largest number of fish. The motivation to keep fish remains high.
Phase III	Trophy fishing	Emphasis shifts from fish quantity to fish quality. Catching a large number of "average" fish is regarded with less importance. The angler wants to catch fish of exceptional size, weight, "fighting ability" or wariness.
Phase IV	Increased specialization	The <u>way</u> fish are caught takes on as much importance as actually catching fish. The angler has developed a high skill level and acquired (and gravitated to) specialized equipment. Particular types of fishing have become some of the most important dimensions of that person's life.
Phase V	The overall experience	The pursuit of fish, and everything that involves, has become as important as the catch itself. Catching the fish is regarded not so much a prize, or end in itself, but a symbol, one part of a successful and satisfying process. The angler finds satisfaction in the overall experience, including passing knowledge on to others, and helping them to catch, and learn to catch fish. In this phase the angler often has reduced his/her fishing time, compared to the previous 2 phases.

Table 5. Factors which anglers believed affected their rate of participation in salmonid fishing in boats on Lake Ontario.

<u>Suggested Intervening Influence</u>	<u># of Anglers Reporting Influence</u>	<u>Suggested Intervening Influence</u>	<u># of Anglers Reporting Influence</u>
New job: time commitments	16	Poor health	5
Distance to lake Ontario	12	Household time commitments	4
Relocation: less social contacts	10	Extensive equipment needed	4
Availability of access	10	Overcrowding on lake Ontario	4
Bad weather	10	Change in interests after high school	3
Family time commitments	9	Toxics in fish	3
Military service	8	Limited access to a boat	3
Low interest during high school	7	New social contacts	2
College: time demands	7	Unethical anglers	2
Low fish availability (1960s-1970s)	7	Retirement	2
Water pollution	5	Low knowledge/low information	2
		Early years of marriage	1

Table 6. A classification scheme depicting angler-suggested influences on participation as reflections of multiple social-psychological influences (according to Reeder's [1973] typology of social-psychological influences).

Angler-suggested influences of fishing participation (angler interviews 1987)	Influences of Decision-Making (Reeder 1973)
<p>Change in interests:</p> <ul style="list-style-type: none"> • change in interest during high school • decreased interest in fishing at some point beyond high school 	Goals Beliefs, Values Support
<p>Demands on time:</p> <ul style="list-style-type: none"> • new job • college • new home • young children • active teenagers 	Values Ability Opportunity Expectations Self-commitment Support
<p>Sources of dissatisfaction:</p> <ul style="list-style-type: none"> • polluted water • contaminated fish • crowded water • limited access to lake • travel time to access points • expense of equipment • expense of boat ownership • hassles of boat maintenance, storage • moving of boat 	Goals Beliefs Values
<p>Uncontrollable forces:</p> <ul style="list-style-type: none"> • decline in health, income, fishery • lower water level • relocation, lost access to boat, military service 	Force

A FRAMEWORK TO DESCRIBE FISHING INVOLVEMENT

The personal interviews with Lake Ontario anglers indicate that with some revisions the conceptual depiction of involvement in wildlife-related recreation developed by Decker et al. (1987) appears to be a reasonable framework to study and describe involvement in salmonid fishing by boating anglers on Lake Ontario. Interviews suggested that salmonid anglers try to achieve certain goals (e.g., achievement, affiliation, escape, nature appreciation), and whether involvement in fishing is chosen as a means of fulfilling those goals appears to depend partly on internal influences--personal beliefs, values, habits, ability, and expected consequences of fishing involvement. Involvement in fishing also seems to be affected by external social influences (i.e., expectations of others, commitments to others, social norms, social opportunities) and the individual's normative beliefs on salient components of these influences.

We subscribe to the contention that an individual's goals, in combination with salient psychological (internal) and sociological (external) influences, should largely determine that individual's attitudes toward an activity (Ajzen and Fishbein 1980), in this case fishing for salmonids on the Great Lakes. Positive attitudes toward salmonid fishing may lead to an intention to try this recreational activity. However, the anglers interviewed in this study suggested any number of variables (e.g., ability, opportunity, etc.) may arise such that intentions are not expressed as behavior (e.g., not all individuals with favorable attitudes toward salmonid fishing will become participants). Such "intervening" influences must be modified or removed before involvement is likely to occur.

The process of adopting salmonid fishing as a primary means of meeting some basic goal(s) occurs over time. For some individuals awareness and interest will lead to trial involvement and adoption of fishing (or particular types of fishing) as a primary means of satisfying some basic goals. The primary paths leading to involvement or reinvolvement in fishing are assumed to be seekership, recruitment, and closure, as those terms are defined by Prus (1984).

For other individuals trial involvement may occur before interest has developed. Those who fish because they feel obligated to (involvement due to "closure") are illustrations of this phenomenon. Changes that occur over time may result in reduced involvement or disinvolvement. It is assumed that throughout the involvement process intervening variables and actual involvement provide additional inputs to the angler's frame of reference, driving a dynamic cycle of attitude construction and modification. Attitudinal changes (e.g., changes in interest level, perceived obligation to fish, or the perceived ability of fishing to fulfill important primary goals), changes in social support (i.e., sponsorship or consensual support), and other factors (e.g., ability, opportunity) are expected to drive ongoing changes in fishing involvement.

RECOMMENDATIONS FOR FUTURE RESEARCH ON FISHING INVOLVEMENT

Motivational Antecedents to Fishing Involvement

Based on the findings from the interviews we hypothesize that people become involved in fishing as a vehicle to fulfill internal affiliative, achievement, escape, and appreciative goals. Moreover, the findings suggest that it may be possible to classify types of fishing (e.g., trolling for

salmonids, snagging salmon, fly-fishing for trout) according to the relative importance (i.e., personal meanings) its participants place on a small number of goal sets. To utilize measures of personal angler goals as a tool for marketing or fishery management decisions, assessment and interpretation of angler goals should take place within specific fishing contexts (e.g., specific goals for fishing in Lake Ontario fishing tournaments) and stages of angler participation (e.g., goals when angler first started fishing).

Maehr and Braskamp (1986) have developed a theoretical framework that facilitates the study of motivations and their relationship to involvement in an activity. They suggest that personal meanings (i.e., a person's perceptions of self and the particular situation they are in) are the immediate antecedents to motivations (i.e., psychological drives that propel people to attempt to achieve certain goals). Moreover, because they determine what motivates a person, personal meanings are assumed to determine how involved (i.e., how personally invested) a person becomes in any given activity. Maehr and Braskamp (1986) suggest that a careful assessment of personal meanings, especially the subset of meanings they call personal incentives to behave, may allow for further hypothesis development regarding the motivations which underlie a given pattern of behavior (e.g., involvement in fishing).

It is assumed that behavior is often activated by more than one motive, and that behavior may represent a compromise between competing motives, or a substitute behavior that is not obviously related to the motives. No matter what behaviors are undertaken, however, we assume that they are the consequence of motives, even if the angler is not aware of the motives underlying the specific action.

The behavioral expression of motivation is assumed to be mediated by the social context (i.e., the physical and interpersonal environment) in which it occurs. That is, behavior is believed to be determined by a unique combination of situational and personal factors. Habits, abilities, behavioral beliefs, self-perceptions, opportunities, and self-commitment are just some of the factors suggested to mediate behavioral expression of motivations (Reeder 1973, Crano and Messe 1982). Any number of these and other factors can affect the way people perceive a situation and ultimately how they should and do act. Maehr and Braskamp (1986) suggest that the cognitions, or personal meanings an individual holds about the situation are the immediate antecedents to motivation and personal investment. The approach developed by Maehr and Braskamp (1986) assumes that people have latent knowledge of what they expect from a specific situations, and, if properly questioned, can state what these expectations are. That is, people can explain what they hope to accomplish in a given situation.

Maehr and Braskamp's (1986) emphasis on cognitive processes as the immediate antecedent of motivation necessarily involves taking account of both personality and situational determinants to understand the meanings that antecede a given behavior. Recognizing that a wide array of personal incentives exist, there is practical value in organizing these diverse personal incentive possibilities into a limited set of categories. Our interviews with Lake Ontario anglers provided excellent baseline information to develop such categories. Interviews suggested that at least 9 personal incentives could have an important effect on an individual's personal investment in fishing. This investigation and others on involvement in wildlife-related recreation (Decker et al. 1984, Decker et al. 1987, Purdy and

Decker 1986) led the investigators to conclude that the majority of specific reasons or motivations for fishing can be combined into 4 broad categories: achievement, affiliation, nature appreciation, and escape (Table 7). These motivations had different degrees of saliency for different people and were regarded as more or less important depending upon the situation. We recognize that other goals for fishing participation exist in addition to these 4. We also recognize that the 4 goal orientations could be broken down into more specific categories, as has been done by other researchers (Knopf et al. 1973).

Similar kinds of attributes of personal meanings could be assessed for recreation generally and salmonid fishing specifically. In other words, an angler might be asked if he personally thinks of things like competition, recognition, or affiliation as incentives to become involved in a recreation activity. Next, the angler could be asked if he defines salmonid fishing as an activity that provides an opportunity to gain the things that he values personally (e.g., recognition, affiliation). Absher and Collins (1987) have utilized personal investment theory (Maehr and Braskamp 1986) to study recreational specialization by salmonid anglers on southern Lake Michigan. Their work exemplifies the utility of this theory for research on the motivations and involvement patterns of any given subgroup of recreational anglers.

Social and Psychological Factors That Influence Fishing Participation

Anglers were not asked any specific questions that were framed in terms of the Ajzen-Fishbein (1980) behavioral model. However, self-reports of fishing participation were consistent with the Ajzen-Fishbein (1980) model

Table 7. A typology of goals which may provide personal incentives for participation in recreation generally and salmonid fishing specifically.

Incentives Related to Achievement Motivations

Task

Involvement: Being involved in interesting, novel, and challenging tasks; placing high personal value on accomplishing something others could not do; understanding something for the first time; being responsible for an accomplishment.

Attaining Excellence: Improving oneself, competing against oneself.

Competition: Winning in competition against others.

Recognition: Being recognized for effort and accomplishment.

Incentives Related to Affiliative Motivations

Affiliation: Being in the company of friends or family and sharing experiences with them, even if it means sacrificing personal gains.

Acceptance: Feeling accepted, wanted, and loved by other people.

Incentives Related to Appreciative/Escape Motivations

Escape or

Tension

Release:

Releasing tension, anxiety, stress, and/or finding refuge from the things perceived to arouse these states. Gaining a sense of peace, belonging, connectedness, and familiarity that is associated with performing a particular behavior or set of behaviors.

Introspection: Reflecting on personal beliefs, values, and experiences.

Nature

Appreciation: Enjoying nature and the outdoors.

used to describe hunters' participation in hunting, and suggest that this may be a reasonable conceptualization of the process anglers undergo as they choose to begin fishing, or continue fishing. Interviews suggested that anglers are influenced by the types of internal (i.e., behavioral beliefs, outcome evaluations) and external (i.e., normative beliefs, motivation to comply) factors described in the model.

The Azjen-Fishbein model offers a general tool to develop more compelling descriptions (names) for angler-behavioral phenomena, which may facilitate our understanding of how anglers integrate the factors that influence their decisions about participation in fishing. Using this conceptual framework offers a means by which to explore many of the variables which inhibit or facilitate fishing participation. However, because self-reports of intervening influences may represent the influence of multiple underlying factors, it may be very difficult to assess the relative contribution of any one factor on participation. These angler interviews illustrate the difficulties inherent in assessing social and psychological determinants of behavior through survey research, and suggest that future attempts to do so should be designed and interpreted cautiously.

Fishing-Activity Maturation

Our interpretation of these interviews generated several hypotheses on the psychological changes that occur as one remains involved in fishing over time. At a general level, the investigators assume that the personal importance of the angler's goals can change, personal definitions of the events that must occur to realize those goals can change, and goal changes or redefinitions may drive a process of activity maturation or development.

These interviews provide some evidence of commonalities in the pattern of fishing involvement across those individuals who remain involved over a long period of time. However, until better evidence is generated, researchers should continue to assume that the individual rate of angler development may vary, some anglers may experience more phases or stages of development than others, and that traits or behaviors associated with a particular developmental stage may also be expressed during other developmental stages (i.e., developmental stages are not completely distinct or mutually exclusive entities).

SUMMARY

Personal interviews with Lake Ontario anglers were conducted in the winter of 1987 to develop a preliminary model of involvement in Great Lakes salmonid fishing. Questions probed: initiation into fishing, initiation into Lake Ontario fishing, antecedents to fishing participation, influences which affect angler participation, fishing participation over time, catch and harvest goals, boat-related satisfactions, and attitudes toward fishing tournaments. Based on these interviews, the authors developed a slightly modified version of the Decker et al. (1987) schematic of involvement in wildlife-related recreation for use as a conceptual guide for studies of fishing involvement on the Great Lakes. Inherent in the model are a number of assumptions that will be tested and refined in future studies. A subset of these assumptions will be tested in a mail survey the authors will conduct with a sample of boating salmonid anglers on Lake Ontario.

Working Assumptions (based on interpretation of interviews)

- Most people become recreational anglers in order to fulfill 1 or more of the following types of goals: affiliation, achievement, relaxation/escape, or nature appreciation.

- For most boating salmonid anglers on Lake Ontario these 4 goals are the most important antecedents to fishing participation.
- Antecedents to fishing involvement can vary by fishing context.
- The decision to participate in Lake Ontario salmonid fishing is influenced by internal factors (i.e., beliefs, values, habits, and ability).
- Changes in fishing may be indicative of changes in the strength of an individual's affiliative, achievement, relax/escape, or appreciative goals (i.e., enduring, or traitlike personal meanings may change for any individual over time).
- Changes in fishing may also be indicative of personal redefinition of the activities or outcomes that can fulfill affiliative, achievement, relax/escape, or appreciative goals (i.e., context-specific personal meanings may change for an individual over time).
- These internal factors are the main elements which affect behavioral beliefs and outcome evaluations (Azjen and Fishbein 1980).
- A decision to fish is also influenced by external factors (i.e., expectations of others, self-commitments, force, custom, and opportunity).
- These external influences are the main elements which affect normative beliefs and motivation to comply with the wishes of significant others (Azjen and Fishbein 1980).
- Individuals make decisions about fishing participation based on a subset of salient internal and external influences.
- Involvement in fishing develops over time.
- The primary paths leading to involvement or reinvolvement in fishing are assumed to be seekership, recruitment, and closure, as those terms are defined by Prus (1984).
- Many dimensions of fishing involvement may change over time, including: participation rate, species pursued, fishing techniques, degree of specialization, catch-and-release behavior, etc..
- Anglers go through stages of fishing involvement that are characterized by different levels of participation and interest.

PARTING COMMENTS

The number of interviews conducted, as well as the manner in which interviewees were selected does not and was not intended to allow more than tentative generalizations about Lake Ontario anglers or other anglers. The information presented here must be regarded as merely the basis for more focused and quantitative study of Lake Ontario anglers. As it is tested and refined through ongoing research we believe the baseline information collected in this study will facilitate development of a framework for research on fishing involvement, as well as a better understanding of the recreational experiences anglers seek from particular types of fishing, and the ways those preferences can be addressed by fisheries managers.

LITERATURE CITED

Absher, J. D., and J. R. Collins. 1987. Southern Lake Michigan sportfishery: angler profiles and specialization index for Illinois and Indiana. Illinois-Indiana Sea Grant Program Publication # IL-IN-SG-R-87-2. 129pp.

Ajzen, I., and M. Fishbein. 1980. Understanding attitudes and predicting social behavior. Prentice-Hall, Inc., Englewood Cliffs, N.J. 278 pp.

Brandenburg, J., W. Greiner, E. Hamilton-Smith, H. Scholten, R. Senior, and J. Webb. 1982. A conceptual model of how people adopt recreation activities. *Leisure Studies* 1:263-276.

Brown, T. L. 1982. A market segmentation of New York's Great Lakes anglers. Research report, New York Sea Grant Institute, Albany, New York. 46 pp.

_____. 1976. The 1973-75 salmon runs: New York's Salmon River sportfishery, angler activity, and economic impact. New York Sea Grant Institute, Publ. # NYSSGP-RS-76-025. 25 pp.

Carls, E. G. 1980. Comparative characteristics of surf fishermen and boat fishermen on Long Island, New York. *New York Fish and Game Journal*. 27: 51-62.

Crano, W. D., and L. A. Messe. 1982. Social Psychology: principles and themes of interpersonal behavior. Dorsey Press. Homewood, Ill. 559 pp.

Dawson, C. 1986. Expenditures of anglers fishing in New York's Great Lakes waters. Fact Sheet, New York Sea Grant Extension Program. Oswego, NY. 8pp.

_____, and M. Voiland. 1988. The development of the Lake Ontario sportfishery: socio-economic impacts in New York State. Pages 259-268 in Hickcox, D. (ed.) Proc. of the Symp. on the Great Lakes: living with America's inland waters. Amer. Water. Resour. Asso. Tech. Publ. Series TPS-83-3.

Decker, D. J., T. L. Brown, B. L. Driver, and P. J. Brown. 1987. Theoretical developments in assessing social values of wildlife: toward a comprehensive understanding of wildlife recreation involvement. Pages 76-95 in D. J. Decker and G. R. Goff (eds.), Valuing wildlife: economic and social perspectives. Westview Press, Boulder, CO.

_____, R. W. Provencher, and T. L. Brown. 1984. Antecedents to hunting participation: an exploratory study of the social-psychological determinants of initiation, continuation, and desertion in hunting. Outdoor Recreation Research Unit Publ., Dept. of Nat. Resour., N.Y.S. Coll. of Ag. and Life Sci., Cornell Univ., Ithaca, NY. 175 pp.

Jackson, R., R. Norton, and R. Anderson. 1979. Improving ethical behavior in hunters. Trans. North Am. Wildl. and Nat. Resour. Conf. 44:306-318.

Fishbein, M., and I. Ajzen. 1975. Belief, attitude, intention, and behavior: an introduction to theory and research. Addison-Wesley Publishing Co., Reading, MA. 578 pp.

Knopf, R. C. 1972. Motivational determinants of recreation behavior. Master's thesis, School of Natural Resources, Univ. of Michigan. 268 pp.

_____, B. L. Driver, and J. R. Basset. 1973. Motivations for fishing. Trans. North Am. Wildl. and Nat. Resour. Conf. 38: 191-204.

Maehr, M. L., and L. A. Braskamp. 1986. The motivation factor: a theory of personal investment. D. C. Heath and Company, Lexington, MA. 281 pp.

Prus, R. 1984. Career contingencies: examining patterns of involvement. Pages 297-317 in Therberge, N. and P. Donnelly (eds.) Sport and the sociological imagination. Texas Christian University Press, Fort Worth, Texas.

Purdy, K. G., and D. J. Decker. 1986. A longitudinal investigation of social-psychological influences on hunting participation in New York (Study I: 1983-1985). Human Dimensions Res. Unit Publ. 86-7. Dept. of Nat. Resour., N.Y.S. Coll. of Agric. and Life Sci., Cornell Univ., Ithaca, NY. 127 pp.

Reeder, W. W. 1973. Beliefs, disbeliefs and social actions. Cornell Univ. Agr. Exp. Sta. Bull. No. 74. 33 pp.

Rogers, E. M. 1983. *Diffusion of innovations*. Third ed. The Free Press, New York, NY. 453 pp.

_____, and F. F. Schoemaker. 1971. *Communication of innovations: a cross-cultural approach*. Second ed. The Free Press, New York, NY. 476 pp.